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**Managing and Leading Change in
Higher Education Institutions: The
Example of Doctoral Education**

DOCTORAL THESIS

Supervisor: Full prof. Neven Vrčec, PhD

Zagreb, 2019



Sveučilište u Zagrebu

Fakultet organizacije i informatike

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I thank my supervisor Neven Vrčec who helped me to finish this dissertation when it seemed it was no longer possible.

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Summary

Due to the peculiarities of higher education, change management in them is significantly differentiates change management in the business environment and companies. As universities invest large resources in reform with often uncertain or unsuccessful results, there is a need to find an effective and purposeful way of managing change in higher education. The research problem studying this doctoral thesis is, therefore, organizational change and change management in higher education. In the paper, this problem will be missed through the prism of doctoral education reform at the university in Europe and in the developing world over the last 10 years. The aim of the research is to investigate the process of introducing changes in doctoral education at selected European universities and to identify the main factors influencing the outcome. The achievement of this research output will be achieved within the conceptual framework for understanding change management in higher education, combining noninstitutional and political theory of organizational change and adapting them to the sensitivity of doctoral education. To achieve a specific research objective and research problem, we have demonstrated a qualitative analysis of the process of introducing change in doctoral education at four European universities, using a research approach to case studies. The author argues that the distinctive characteristics of higher education institutions require an approach to managing change that is different from the approach used in hierarchical organizations. Multiple case studies have been conducted at four public universities that have undergone a process of modernization of doctoral education in four countries (Slovenia, Austria, Portugal and Montenegro). 16 respondents responsible for change were interviewed, using a custom Burke - Litwin causal model of organizational performance and change as conceptual frameworks. The author has outlined a general framework for conceptualizing change management in doctoral education that delineates the distribution organization of higher education institutions and their effects on inappropriate change management. The study found that the external environment, organizational culture and structure had a profound impact on the scope, goals, duration and effectiveness of the change management methods used during the process of modernizing doctoral education.

Prošireni sažetak

Zbog osobitosti institucija visokog obrazovanja, upravljanje promjenama u njima bitno se razlikuje od upravljanja promjenama u poslovnom okruženju i tvrtkama. Budući da sveučilišta ulažu velike resurse u reforme s često neizvjesnim ili neuspješnim rezultatima, postoji jaka potreba pronalazačenja efikasnog i svrsishodnog načina upravljanja promjenama u visokom obrazovanju.

Istraživački problem kojeg proučava ovaj doktorski rad stoga jest organizacijska promjena i upravljanje promjenama u visokom obrazovanju. U radu će taj problem biti promatran kroz prizmu reforme doktorskoga obrazovanja koja se na sveučilištima u Europi i svijetu odvija u posljednjih 10-tak godina. Cilj istraživanja jest istražiti proces uvođenja promjena u doktorskome obrazovanju na odabranim europskim sveučilištima te identificirati glavne faktore koji utječu na ishod. Ostvarivanju ovog cilja istraživanja pristupiti će se razvojem i primjenom konceptualnog okvira za razumijevanje upravljanja promjenama u visokom obrazovanju, kombinirajući neo-institucionalnu i političku teoriju organizacijskih promjena i prilagođavajući ih osebjnostima doktorskoga obrazovanja.

Da bi se ostvario navedeni cilj istraživanja i ispitao istraživački problem, proveli smo kvalitativna analiza procesa uvođenja promjena u doktorskome obrazovanju na četiri europska sveučilišta, koristeći pri tome istraživački pristup studije slučaja. Autor tvrdi da je za razlikovna obilježja visokoškolskih ustanova zahtijevaju pristup upravljanja promjenama koji se razlikuje od pristupa koji se koristi u hijerarhijskim organizacija. Provedena je višestruka studija slučaja na četiri javna sveučilišta koja su prošla proces modernizacije doktorskog obrazovanja u četiri zemlje (Slovenija, Austrija, Portugal i Crna Gora). Intervjuirano je 16 ispitanika odgovornih za promjenu, korištenjem prilagođenog Burke – Litwinovog kauzalnog modela organizacijske uspješnosti i promjene kao konceptualnog okvira. Autor je iznio opći okvir za konceptualizaciju upravljanja promjenama u doktorskome obrazovanju koji razmatra distribuiranu organizaciju visokih učilišta i njihove učinke na pristupe upravljanju promjenama. Istraživanje je pokazalo da su vanjsko okruženje, organizacijska kultura i struktura imale dubok utjecaj na opseg, ciljeve, trajanje i ključne značajke metoda upravljanja promjenama koje se koriste tijekom procesa modernizacije doktorskog obrazovanja.

KEYWORDS: Doctoral education; change; change agents; Burke–Litwin model; change management

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Introduction

1.1. Changing landscape of higher education

The way in which universities in Europe are managed, and the position of universities in the society, has changed radically in the last 20 or so years. This is the conclusion of a number of authors who have studied the changes in universities in Europe and in those around the world (see [1]–[8]).

At the general level, changes in higher education can be interpreted as a tendency to replace the traditional, Humboldtian principles of higher education, according to which the purpose of universities and education is the personal development of an individual through education, with new principles of a neo-liberal market-oriented management model of a university based on competition and selection [7]. This shift includes more emphasis on the quality control, went with decentralisation of decision making and rise of accountability of universities. On further analysis of the trends, it can be stated that “the adoption of neo-liberal policies within Europe is driven by competitiveness and the EU aspiration to improve its economic position vis-à-vis the United States and Asia and achieve a dominant position in the “knowledge economy” [9]. The old notion of science as a public good is being replaced by a vision of science as mainly a financial good [10]. This can be observed in several high-level European-wide initiatives, programmes and communications on higher education from the European Commission, and has given rise to a series of ambitious goals and objectives [11].

There are several causes for these changes. One is the significant increase in the number of students, which makes the higher education no longer a privilege of the minority, as was the case in the middle of the last century. Higher education became available to everyone. Another reason is the new and increasingly complex demands placed at universities by the labour market, which - in order to develop a knowledge-based economy - increasingly requires highly specialized workers capable of carrying out complex tasks (this is the frequently used phrase “knowledge society”, but it should be emphasized that the relationship between supply and demand of highly qualified labour force, or the causal nature of the need for specialists and their “production” at universities, should be taken with caution (see for example [12])). In addition, there are demands for added skills of employees, skills that will make them more able to quickly adapt to changes in the labour market or make them more flexible and more autonomous for the job position (the development of so-called generic and transferable skills). The universities

are expected to train future workers in such skills that will prepare them for self-employment and starting the private ventures. Because of the pressures from the labour market, effort is made to strike a balance between the supply from universities and the demands of the economy, which influences the structure of students as well as the emphasis of certain scientific disciplines.

Closely related to the requirements from the knowledge-based economy, role of academic research carried out at universities is changing, as well as change in its purpose. Scientific research at universities is increasingly determined by its applicability to specific societal problems, which means leaving the traditional model of “research for research”. Results of scientific research at universities are transferred to the economy and applied specifically, which is often accompanied by the demand for profit in the realization of research. This change in the task of scientific research is closely related to the changes in university’s financing models, given the limited resources invested by the state. Universities have been forced to focus on alternative sources of income, whereby their own revenues from commercialization of research becomes a large part of these revenues.

Behind these change lies the logic of neo-liberalism and the New Public Management, which affects the modes of steering and the control of universities by changing the ideals of the “republic of scientists” to the idea of “university of stakeholders” [13]. These changes “did not originate in research and higher educational policies, but were part of a more general restructuring of public sector organization and, indeed, of society as a whole”, [14, p. 203]. Although the government still holds a central position in regulating higher education policies in most European countries, we can observe a gradual shift toward an increasingly more external approach, where different stakeholders have increased influence over the decisions being made in higher education. This is described as a “shift away from the traditional mode of academic self-government and toward new models of managerial self-governance” [15]. Until the mid-1980s, the typical governance model of most European universities was a mix of self-regulation by academic professionals and direct control by the state through various regulative framework measures, which is being replaced with less state regulations and more market elements [16]. Since the 1980s, governance reforms in higher education have resulted in attempts to make universities more efficient and market-oriented by allowing more institutional autonomy, following the logic that more autonomy will lead to more accountability and efficiency. The university is no longer managed only by the university; rather, its functioning is affected by the growing influence of external factors, and the social and economic

responsibility of universities is increasing. This phenomenon is not entirely new because the universities never had absolute autonomy, but never have universities had such a responsibility nor were they expected so much as in the past twenty years. Although this phenomenon can be seen in number of universities, it is worth mentioning that this development is not universal. Some countries, for example in eastern Europe and the former Yugoslavia, have experienced a different development, which diverges from those in central and western Europe [17].

The performance of universities is increasingly measured through indicator-based models and outputs rather than inputs, together with the different ranking systems, and has become the main tool for budget and incentive management and for funds allocation. Change in basic operational principle leads to the emergence of idea that universities should be organised and managed as private companies [6]. Changes toward this idea include not only the production of new knowledge and new types of knowledge which universities offer to their customers (students), but also include a deep organisational and cultural changes in universities, which will make them ready to take a main place in the initiative for social progress and economic recovery. As a result, the university's organisation seeks to put an increasingly strong emphasis on the role that the leadership of the university - which must balance between the requirements for autonomy coming from the academic community and the social responsibility of the university - has in determining the objectives of universities, and on regulatory mechanisms such as evaluation and ranking of universities, which seeks to control the functioning of the university. In most universities, the management is becoming increasingly professionalised, because for managing the new-type university needs managerial skills. Among the existing structure of university's democratic decision-making processes (i.e. the university senate), parallel structures for making strategic decisions are introduced, such as various committees and bodies which consist of representatives from politics, business and other stakeholders who take part in this new paradigm of higher education.

Such a new, business, or corporate organizational structure of the university replaces the traditional structure in which the autonomy of academia and the representational model of decision-making was prevalent. At the same time, in leading universities, state is increasingly involved, by assigning financial resources on their own conditions, as well as by evaluating the realization of these conditions, ensuring that the business model of the university's management is increasingly applied.

These effects on changes in the organizational forms of universities in Europe have been supported and synthesized by the adoption of the Bologna Declaration in 1999. It was an effort to harmonize the higher education system in Europe through the establishment of an area of higher education space, based on the prominent massification of higher education as well as a reaction to the strengthening competition for Europe coming from countries such as China and India. The Bologna declaration for some stood for a step forward, and for some setback in higher education quality. Regardless of how they interpreted and evaluated the Bologna process, the fact is that its application has prompted many changes in universities across the Europe. These changes persist today and have affected all the cycles of higher education, from undergraduate to doctoral level.

The relationship between the higher education, the university, and the maintenance and progress of Europe and its competitiveness in the world has hardened through the adoption and introduction of the Bologna Process. All short-term and long-term plans for the development of Europe rely on strengthening the interactions between universities and the economy. This particularly refers to the research segment of the university activity which constitutes the basis for the organization of the so-called “third cycle” of higher education, doctoral education.

1.2. Reform of doctoral education and its effects on the university

Doctoral education in Europe and around the world over the past decade or so has also been experiencing significant changes in its organisation and the purpose it has within universities. As we have seen from above mentioned, this reform of doctoral education in Europe (and wider) may be viewed as part of broader changes in the European higher educational systems started with the Bologna process, with the aim of answering the needs of changing labour market. Furthermore, there is a need to set up a stronger link between higher education and research. Doctoral education receives the role of the link between the two spaces [18].

Doctoral education is the core activity of research universities. Today it has a significant role in the university strategy and significantly contributes to the overall research output of universities. Doctoral education contributes to the institutional internationalization process as well. Contemporary doctoral education has become only the first step in the professional career of young researchers, as it “contains initiatives to enhance the employability of researchers by including in the training both core skills and wider employment related skills in order to respond

to the changing demands put upon them in an uncertain and open employment market” [19, p. 15].

Doctoral education in Europe is connected to the goal of becoming “the most competitive and dynamic economy in the world based on knowledge, capable of sustainable economic growth with more and better jobs and greater social cohesion” [20, p. 2]. “Smart growth”, the development of the European economy based on knowledge and innovation, is one of the three main and inter-linked priorities of the European development strategy up to 2020, and doctoral education is seen as the foundation on which to build the necessary knowledge and innovation [21].

But it was not always so. The traditional system of doctoral education as it was known in in most continental Europe until the end of 1990s, was the process of creating an original scientific work—a doctoral dissertation—under the supervision of one person. This model, based on the medieval apprenticeship model for the formation of handicraft persons and on the Wilhelm von Humboldt’s understanding of the role of university, is best summarized in the term “doctor-father”, which reflects the individual relationship between the supervisor and the candidate. It was organised as master-scholar model, centred on the relationship between the apprentice (hence the “apprenticeship model” term) and the master, or supervisor. The main aim of this type of approach was to develop skills focused on academic and scientific work.

In the 1990s, it became clear that the existing model of doctoral education is not satisfactory any more. New and increasingly complex demands were being placed before the university by the labour market, and the intention of developing a knowledge-based economy was increasingly looking for highly specialised workers who can perform complex tasks within any application of modern economy. Doctoral programmes were falling short of these demands. Traditional forms of doctoral training were producing doctoral students who were too narrowly educated and trained, lacking key professional, organisational and managerial skills, ill-prepared to teach, taking too long to complete or not completing at all, and were hardly informed about the employment opportunities outside the academia [22]. First warning signs were noticed in the UK in the mid-1990s, with the Dearing Report in 1997, recommending enhancing skills training provision and research support for doctoral candidates. After that, the famous Roberts Report (2002) showed that the traditional type of doctoral education has failed to recognise the need to acquire a wide range of skills, and that doctorate holders were

unprepared for careers outside of academia. Therefore, initiatives were taken in many countries to remedy this situation by applying the new governance regimes to doctoral education [23].

Combined with the principles of the new public management already applied to the university governance in the first two levels of Bologna cycle, new forms and trends in doctoral education started to enter doctoral education systems in the mid-1990s. The result was a replacement of the traditional principles of doctoral education, the one-to-one master–apprentice relationship between supervisor and supervisee (doctoral candidate), with a more integrated research environment for doctoral candidates with increased institutional engagement and responsibility in the management of doctoral education.

1.2.1. Policy context of changes in doctoral education in Europe

Although doctoral studies in Europe came into the focus of the Bologna process with some delay, changes in the organisation of doctoral education were happening quickly. Bachelor and master’s level of education were in most cases detached from the doctoral level until the Berlin Communique in 2003, where for the first time the importance of reforming doctoral education in Europe was recognised at a policy level. This was done to better establish the links between the European Higher Education Area and European Research Area, a trend that would be continued in the following years and in the other policy papers on various levels. Doctoral education was recognised as a link between these two areas since it consists of education and research and hence presents a special type of activity in higher education sector [24]. This officially launched the reform and linked all three cycles, stating that it is “...necessary to go beyond the present focus on two main cycles of higher education to include the doctoral level as the third cycle in the Bologna Process” [20, p. 7].

The Berlin Communiqué was followed by the Bergen Communiqué in 2005, which continued to encourage the reforms emphasising the “need for structured doctoral programmes and the need for transparent supervision and assessment“ (“Bergen Communiqué of Ministers”, 2005). This communiqué introduced some basic characteristic of this new type of doctoral education by setting the duration of the third cycle to 3–4 years, which has become the standard duration in many national regulations since then. It also introduced the basic definition of doctoral education by stating that the “core component of doctoral training is the advancement of knowledge through original research”. Doctoral education was more visibly connected with the labour market by urging universities to promote development of the transferable skills of doctoral candidates. This new trend was caused by the realization that doctoral education at the

time was burdened by a mismatch between the skills of doctoral graduates and those needed by employers. The initiative quickly spread to other countries and universities, enhancing employability of researchers and introducing new means for relationships between academia and labour market (see for example OECD 2012).

In 2007, the London Communiqué invited “HEIs to reinforce their efforts to embed doctoral programmes in institutional strategies and policies and to develop appropriate career paths and opportunities for doctoral candidates and early stage researchers” [27, p. 5]. In 2009, the Leuven Communiqué confirmed that “doctoral programmes should provide high quality disciplinary research and increasingly be complemented by inter-disciplinary and inter-sectorial programmes” [28, p. 4]. In the following years, the effect of the economic crisis was also reflected on the relationship between university’s research and public responsibility, and on doctoral education. Increasingly more emphasis was being put on “higher education as a major driver for social and economic development and for innovation in an increasingly knowledge-driven world” [29, p. 2]. In 2012, in the Bucharest Communiqué, the recommendations made by the European University Association and the European Commission toward a higher quality of doctoral education and more transparency, employability and mobility in the third cycle were supported as bridging the European Higher Education Area (EHEA) and the European Research Area (ERA) [30].

Apart from the ministerial level, doctoral education is the focus of many professional associations in higher education which are one of the main motors and initiators of change processes in doctoral education. According to the Mintzberg model, professional associations have a direct role in the development of organizational strategies as outside factors [31]. The best known examples in the area of doctoral education, and the most influential, are the European University Association (EUA) with its sub-section named the Committee for Doctoral Education (EUA-CDE), the League of European Research Universities (LERU) and the Coimbra group, with their position papers, analysis and recommendations which have set the direction of the change process of doctoral education in many European universities and those around the world (e.g. [32]–[36]).

All the ministerial communiqués stress the importance of doctoral education as a main driver of research at universities, and thus its importance in driving the economy and competitiveness of states. They also cleared the way for recognising the doctoral candidates as early stage researchers, which was further developed and enhanced in the European Charter for

Researchers/Code of Conduct for Recruitment [37]. As the economic issues became more important, more and more emphasis was being put on the changing the objective of doctoral education from personal pursuit of knowledge for itself, to a more goal-oriented, often collective research endeavour which is placed into more regulated and directed state research policy. This shift doctoral education and its purpose in the society has been observed by many authors and will be discussed later in the paper.

At the level of the European Commission, doctoral education has also received much attention over the last decade. The strategic documents and position papers published in Brussels often lag behind those of the ministerial level or professional organisations level, and in many cases are heavily influenced by them. For example, Roberts’ Review mentioned earlier was published in 2001, but transferable skills development for doctoral candidates was recognized in 2005 with EC report [38]. Nevertheless, the most important documents, for example, the Principles for Innovative Doctoral Training or Report of Mapping Exercise on Doctoral Training in Europe [39], form the backbone of the change process and are considered to be the guiding documents for the university management. These documents are a step toward greater standardisation of doctoral education at the European level with the common goal of providing “adequately trained responsible citizens that can adapt to changing environment and can contribute to common good” [40, p. 1].

If we try to summarise the processes in doctoral education at the policy level, it can be noticed that the communiqués at the ministerial level and EC level deal more with the general aspects of changes and adjustments of policy in higher education, with the goal of incorporating doctoral education into broader initiatives for changes in higher education in Europe, particularly in the Bologna process and the harmonisation of the EHEA (see Table 1). This is of course to be expected, since their position is much different from those of professional association who advocate interest of universities and are strongly influenced by the desire to assure the autonomy of universities and independence of developing doctoral education. In general, it can be said that professional organisations are dealing more with the specificity of doctoral education and its organisation and quality, while the EC level policies are dealing with the general directives and principles of doctoral education.

Table 1. Summary of ministerial conferences communiqués related to doctoral education

	Area of recommendations		
Ministerial conference	Policy	Economic	Social

Berlin 2003	Dedicated support, including financial, and appropriate decisions from national Governments and European Bodies	Enhancing the competitiveness of European higher education more generally	Increase the role and relevance of research to technological, social, and cultural evolution to the needs of society.
Bergen 2005		Doctoral level participants need to be fully aligned with the EHEA overarching framework for participants using the outcomes-based approach	Importance of research in underpinning higher education for the economic and cultural development of our societies and for social cohesion
London 2007	Embed doctoral programmes in institutional strategies and policies	Strengthening research capacity and improving the quality and competitiveness of European higher education	Personal development and their contribution to a sustainable and democratic knowledge-based society
Leuven and Louvain-la-Neuve 2009		To bring about sustainable economic recovery and development, a dynamic and flexible European higher education will strive for innovation through the integration of education and research at all levels.	Higher education has a key role to play if we are to successfully meet the challenges we face
Budapest-Vienna 2010		Higher education is a major driver for social and economic development and for innovation in an increasingly knowledge-driven world	
Bucharest 2012	Developing more efficient governance and managerial structures at higher education institutions.	Higher education is an important part of the solution to our current difficulties	Education of creative, innovative, critically thinking, and responsible graduates needed for economic growth and the sustainable development of our democracies
Yerevan 2015	Shared ownership and commitment by policy makers and academic communities and stronger involvement of stakeholders	Graduates possess competencies suitable for entry into the labour market which also enable them to develop the new competencies they may need for their employability later and throughout their working lives.	

1.2.2. Drivers of change

Examining the effects of the globalisation of doctoral education, Nerad and Heggelund [41] identify the forces and forms of change in doctoral education. They analyse the characteristics of the new emerging type of doctoral education, or the new so-called “Mode 2” doctoral education. The authors conclude that trends can be seen toward the establishment of a common model of doctoral education, which is composed of standardised elements.

In this section, we will try to name the most important drivers of changes in doctoral education responsible for this new common model of doctoral education. We have grouped these changes into four interconnected categories – societal, scientific, political, and economic (see Table 2

below). It is our belief that these interconnected drivers form what Nerad and Heggelund call “forces of change” in doctoral education and are behind the recent developments in doctoral education on European universities. Some of these drivers were already mentioned when we discussed the changes in higher education, but in this chapter, we will be focusing on their effect specifically on doctoral education.

Table 2. Classification of the most important drivers of change in doctoral education

	Societal	Scientific	Political	Economic
Driver of Change	<ul style="list-style-type: none"> • Massification of universities—rise of the number of students • Globalisation and Internationalisation of higher education • Changing role of doctorate holders in society 	<ul style="list-style-type: none"> • Mode 1→ Mode 2 change in the generation of knowledge • Requirement for applied and interdisciplinary research • Global competition of strong research groups • Horizon 2020 and the new requirements by universities 	<ul style="list-style-type: none"> • Political position of Europe in global society • Bologna Declaration and Bologna follow-up group • Lisbon Strategy • New Public Management of universities 	<ul style="list-style-type: none"> • Position of Europe in global market and competitiveness of European economy • Demands of the labour market — “knowledge society” • Economic crisis in the first decade of 2000

“Societal drivers of change” are the factors associated with the phenomenon of massification of universities and the increase of doctoral candidates who are taking part (and finishing) in doctoral education. The number of doctoral candidates has increased considerably, also due to deliberate governmental or EU policies to support scientific research to increase the number of researchers. We may call this a democratization of the doctoral studies - students who never thought of starting a PhD project in earlier days, are now considering a doctoral trajectory (on average, in OECD countries in 2009, 1.6% of young people were enrolled in doctoral studies, compared to 1% in 2000– see [42]). The percentage of women has also increased, and increasingly foreign PhD students are arriving and studying in European doctoral programs. Furthermore, the profile of the worker with doctoral degree required by the labour market is now much different than it was at the beginning of the 21st century. These factors are more and more reflected in the curriculums of doctoral programmes, and in the modalities in which the doctorate can be obtained. For example, the industrial doctorates and the professional doctorates are combining academic research with the work in companies.

“Scientific drivers” include deep changes to the scientific research being performed at universities, and the increased requirement for applied and interdisciplinary research. The doctoral education and research “are no longer regarded as driven by basic curiosity and as the disinterested pursuit of knowledge. Instead the generation of new knowledge has become an

important strategic resource and an economic factor. It thus becomes a commodity and its shape acquires a more utilitarian approach” [43, p. 314]. The fact that “knowledge generation and the active search for economic applicability are now seen as parallel and substantially overlapping processes” [44, p. 316] has been supported by above mentioned opening of universities and doctoral education toward the labour market and toward supporting and maintaining the economic growth. The idea behind this driver of change is that the economic growth is coming from the innovation, and that universities are an integral part of this chain. This idea has been mirrored in the commodification of the science and research, or the changing of the role science and research have in the society. The old notion of science as a public good is being replaced by vision of science as mainly a financial good [10]. Goal is to intensify the European economy by including more and more researchers in all employment sectors, and doctoral education should provide training for this effort [40].

Accompanying this change is the shift in the learning process and outcomes of doctoral education for the doctoral candidates. Research is becoming more “contextualized” and integrated into the society [45], and the doctoral programmes often reflect this fact by including learning outcomes directly connected to the applicability of the research being done.

Closely related to the new requirements of the knowledge economy there is a change in the role and purpose of scientific research at universities. Scientific research is increasingly determined by their applicability to specific social problem, which means that the “research for research” model (mode 1) is being abandoned in favour of more specific and applicable research (mode 2) and that generation of new knowledge has become an important strategic resource and an economic factor [46].

“Political drivers” of change in doctoral education have their source in a complex interplay of neo-liberal understanding of the role of higher education in the society, the new public management models of governance of HEIs with “less state, more market, more hierarchy” approach [23, p. 522] and the effects of globalization and massification mentioned above. Some authors suggest that, at the broad level, in order to adapt to the changes in the environment, universities are adopting a working culture and ethos traditionally found in private sector, the so-called “managerial turn” in the governance of universities [47]. Changes are putting pressure at universities to behave like businesses, arguing that it “will make them more efficient in providing education and research services in large quantities, more competitive on international market place and better able to secure outside funding, and so to reduce their dependence on public support.”[2].

The fourth driver of change – “the economic driver” is, we believe, the major drivers of change in European doctoral education and the recent developments in doctoral education are a part of a much broader agenda to make Europe competitive in the global society, especially against emerging economic powers and the US. Although universities are some of the oldest and most traditional forms of organizations, their environment is constantly changing. In other words, changes in the environment of universities have led to the abandonment of the old model of doctoral education, which is outdated, inefficient and uncompetitive for Europe and its position in a globalized world.

1.2.3. Content and features of changes in doctoral education

Content of the recent changes in doctoral education present a shift from the traditional way of doing a doctorate and needs universities to adopt or invent new organisational structures and practices that can host this added content.

We can observe a trend in the process of restructuring the system of doctoral education and a change from the “old” model of apprenticeship and the introduction of new elements in the process of acquiring doctorate degrees. The introduction of these changes does not occur without the difficulty of creating new forms of doctoral education, and the summary of arguments supporting and questioning the change are provided in Table 3 below.

Table 3. Selection of arguments in favor and against changes in doctoral education

Arguments supporting the change	Arguments questioning the change
Rise in the number of doctoral students based on the need for highly qualified workforce	Questions concerning the need for high number of doctorate holders, and absorption capacity of the society and economy; fears for lowering the quality of doctoral dissertations [48]
Rising the quality of doctoral supervision, establishing supervisory teams	Scepticism about the added value of team supervision and professionalization of doctoral supervision [49]
Development of transferable skills of doctoral candidates	Unnecessary workload for the doctoral candidates; may undermine the critical purpose of academic work [50], [51]
Career development during doctoral education	Position of Ph.D. holders outside of academia seen as second-rate; lack of interest from employers outside academia (especially in Central and Eastern Europe) [52]
Creating links between academia and private sector	Limiting academic freedom of research and commodification of knowledge [10]
Addition of doctoral education as the third cycle of education in Bologna system	Fear that the pure research part of the doctorate will be in jeopardy, fear of “credit collection” practices [53]
Introduction of quality assurance mechanism in doctoral education (monitoring, metrics - Key Performance Indicators, etc.)	Scepticism about the bureaucratization of doctoral education and overgrowth of administration [47]
International collaborations, study periods on different institution	Financial concerns about the availability of such mechanism; concerns for “brain drain” [22]
Creation of critical mass of researchers in interdisciplinary disciplines	Concentrating best talents in elite universities, leaving whole countries without competitive doctoral education [22]

Although there are many differences in national systems and even on HEIs, in Table 4 we can see an overview of some of the most notable features of change in doctoral education which are emphasised in the fundamental documents on doctoral education in Europe.

Table 4. Overview of the features of change in doctoral education in selected sources

Source	Features of Change	
Salzburg Conclusions (2005) and Salzburg Recommendations (2010)	<ul style="list-style-type: none"> • Critical mass • Supportive environment • Mobility • Supervision • Doctoral candidates as early stage researchers 	<ul style="list-style-type: none"> • Institutional responsibility • Career development • Quality and accountability of doctoral education • Internationalisation • Transferable skills training
Trends Report (2010)	<ul style="list-style-type: none"> • Dynamic research environment by creating structures • Broaden the perspectives and competence profile of doctoral candidates • Ensure critical mass 	<ul style="list-style-type: none"> • Links with industry, business, or public services • Transparent admission processes • Transferable skills training • International collaboration
Report of Mapping Exercise on Doctoral Training in Europe (2011)	<ul style="list-style-type: none"> • Research excellence • Quality assurance • Inter-disciplinary research options • International networking 	<ul style="list-style-type: none"> • Exposure to industry • Transferable skills training • Attractive institutional environment
Good Practice Elements in Doctoral Training (2014)	<ul style="list-style-type: none"> • Inter-disciplinary training structures • Supportive environment • Multidisciplinary and integrated programmes 	<ul style="list-style-type: none"> • Partnership with the professional world • Autonomous researchers • Strong research environment

We do not want to suggest that this list is exhaustive in any way or that the sources here are the only relevant sources, but rather believe that these areas present distinctive characteristics of this new type of doctoral education when compared to more traditional approach to awarding a doctoral title, and, as can be seen from the Table 2, there are several overlapping between the sources, which was expected. To successfully implement these changes, universities are inventing new organisational structures and principles for doctoral education, namely the graduate and the doctoral schools. The doctoral school, now dominant organisational structure for doctoral studies, can be described as the “university research centre which provides, in a flexible and continuously improving way, academic as well as research training for doctoral candidates over a longer period of time” [54, p. 3]. Graduate and doctoral schools are more oriented toward inter-disciplinarity and inter-institutional cooperation, thus emphasising the collective dimension of completing a doctorate [55] and a strong shift in academic culture, university management and quality assessment [54]. Both characteristics distinguish this type of organizational structure from the traditional apprenticeship model of doctoral education and supervision and require universities to invest into the reorganization of their third cycle of higher education.

These new organizational forms in doctoral education have their root and are influenced by the Anglo-American countries and their tradition of organisation of doctoral education (graduate schools), which is based on the “more network-like model that stresses the support by an interdisciplinary or international project team or research institution rather than by a single person” [56, p. 241]. In general, this more modern format includes structured programmes, organised within research groups or research/graduate/doctoral schools with two phases: a taught phase (mandatory and voluntary courses or modules, including personal professional development) and a research phase. These two ‘phases’ run concurrently and not consecutively with the research present from the very beginning.

Both forms of doctoral education as well as the overall reform of doctoral education, have the same basic goal: to increase the effectiveness of doctoral studies, i.e. to increase the completion rates, to reduce the duration and to increase employability of the doctorate holders by acquiring the so-called generic skills required for employment outside the academy. In addition, the establishment of such organizational forms looks to achieve the creation of a critical mass of doctoral candidates, creating a stimulating research environment. Such environment will stimulate scientific activity, ensuring the quality of doctoral studies through a greater control and centralisation of the system, and the creation of administrative structure for doctoral programs, doctoral candidates and supervisors [57]. Apart from doctoral and graduate schools, universities are also developing other innovative structures for managing and promoting innovation in doctoral programmes and to incorporate added content, particularly for providing international and interdisciplinary exposure.

Above mentioned content of changes had their consequence in the way doctoral education was being organized on most European universities.

2. Problem statement and the aims of the research

2.1. Introduction

The recent changes in doctoral education lead to confrontation on the one hand the interests of the state, aimed at more efficient production of doctorate holders and gathering the scattered resources in an effort to streamline costs and stimulate the economy through innovations created by research, and on the other hand the traditional understanding of the role that individual has in doctoral education and academic environment in general [58]. The higher education system

is now in a state when the old Humboldtian ideas are no longer able to fulfil their goals while the potential of a new business model of the university has not been fully utilised or adopted. The new requirements that are put before the university and doctoral education have brought the university administration into position in which they are forced to rethink the purpose of the existing system of doctoral education at their universities and make decisions on whether their university is able to provide such new quality of doctoral education as students and other stakeholders require.

The introduction of new models of doctoral education at universities needs major organisational changes and the creation of the new organizational forms that support the reform of doctoral education. Abandoning the traditional training of young researchers, which included the isolated supervisor–supervisee relation, and replacing it with structured doctoral programmes with all the other novelties that follow (such as team supervision, taught courses, transversal skills training, internationalisation of the research and mobility), must bring fundamental changes to the relations of power in the organisations. It will also inevitably create resistance to change. Although the need for this change is still under consideration (see Table 3), there is huge risk of the failure of the reforms as it is not clear what is the most proper way for implementing these changes, and how to adapt existing universities organizational forms to fit the new needs.

Unfortunately, contemporary research shows a certain gap when it comes to giving the answers to these issues. The recent literature, although very helpful in pinpointing the drivers, content of the change and the issues in contemporary doctoral education and the latest trends and developments in innovative practices (see for example [59]), does not provide us with an explanation of how this change is being introduced into universities, nor does it go in depth in showing all the problems and obstacles in the implementation of the change. Although, some interesting research is being done on the level of doctoral programmes [60], it does not take into account the actors involved in these changes and their specific problems and strategies for dealing with the management of change. It focuses on the structural and formal problems of change, leaving out the most intriguing questions (for example, who holds the power for change in doctoral education within universities? How is this power obtained and secured? How do universities and their members respond to the introduction of change and what are the possible approaches to the implementation of change? How to deal with the risks of failure?).

We acknowledge the usefulness of basing the research approach on an analysis of the organisation's objectives, functions, and introduction of formal changes and organisational structures. But we believe that studying the reforms of doctoral education from the change management's point of view and the relations between the stakeholders in change will give better insight into the processes of change. We suggest that it would be more fruitful to answer what preconditions must be met at universities to implement organisational change in doctoral education successfully and most efficiently.

The goal of such an approach is to discover the processes and strategies behind the implementation of change, focusing on the level of the actors (the individuals) who were actively involved in the reforms and trying to explain why reform has been a success at some universities and why it has run into difficulties in others. We need to determine whether the implemented change in the university did in fact manage to create new types of doctoral education or was it merely a cosmetic change. In that way, it will become possible to see how the actors within the university respond to the request for change, how they adapt to it, accept, or reject it. This type of approach will show us what processes lie behind the implementation of change in doctoral education and how these processes affect the success of change, making it more likely to succeed in one university rather than on another. We will then be in position to explain what preconditions the leadership of universities must meet to successfully implement change in their organisation and how to deal with the resistance to change.

2.2. Research questions and the expectations of the study

The aim of this study is to explore the reforms process in doctoral education on selected universities in Austria, Montenegro, Slovenia, and Portugal. To achieve this aim, we will apply conceptual framework for understanding the change management in higher education institutions. This newly developed conceptual framework will be used to find the main factors influencing both the process and the results of changes in doctoral education.

Focus of this work will be on the key individuals in the change process in doctoral education and their role in the reforms, determining the change management strategies and factors influencing the outcomes. In this way, we will be able to understand how the university changes its system of doctoral education, and to discover the processes and strategies behind the implementation of change focusing on the level of the change agents involved in the reforms.

By analysing the process in this way, we will add to the body of knowledge of organizational change theory and the change management in higher education.

The central problem statement of the thesis is:

What are the main factors influencing the process and the results of changes in doctoral education on selected universities in Austria, Montenegro, Slovenia, and Portugal?

We address this problem statement through the following three research questions:

1. What change management approaches and strategies did the key actors use to achieve reforms (RQ1)?
2. How did universities respond to the demands for change and what were the outcomes of change process on selected universities (RQ2)?
3. What were the institutional constraints and obstacles in the change process, and how were they resolved (RQ3)?

We propose the following three expectations of the study. These expectations will be reconsidered once the empirical part of the study is completed:

1. We expect that the change process in doctoral education will be less successful if it was not backed by the changes in the mission, strategy, and strategic goals of the university (Exp1).
2. We expect that the change process will be less likely to succeed if it was not aligned with the decentralized institutional structure and culture of HEIs (Exp2).
3. We expect that the change process will be more likely to succeed if the change agents created prominent level of change readiness among members of the university (Exp3).

2.3. Structure of the study

The study consists of three major parts: conceptual, empirical, and reflective. Following this structure, research plan is made up of three phases:

1. The development of the conceptual framework for understanding the change process in doctoral education.

2. Data collection - designing, carrying out interviews, collection of data from other sources (reports, minutes, laws, decisions, statistical indicators, web-pages etc.).

3. Analysis of data collected from the interviews and its synthesis, drawing conclusions based on the research questions and developed conceptual framework

In the conceptual part of the study, the theoretical considerations and methodological underpinnings of the study will be included. The overall research problem will be addressed by applying a conceptual framework for understanding organizational changes and change management in higher education, aiding us in understanding why changes start in the first place and how universities adapt to the new conditions in their environment. Moreover, it will help us to understand how the change agents implement the reforms and which tactics they use. The emphasis of the conceptual framework is on understanding and interpreting the complex interaction between causes, processes and obstacles that occur when introducing organizational changes, but also on the participants of change and their change management strategies in the process.

The conceptual framework was based on the three theoretical sources. They are Mintzberg's understanding of university as a professional bureaucracy [31], Weick's understanding of universities as loosely coupled systems [61], and the neo-institutional understanding of the university as an organization that can adapt to changes in the institutional environment through the mechanism of isomorphism [62]. These perspectives will help us in understanding the functioning of the university and of the dynamics of change at a structural level, giving us insight into why the changes start and why universities want to adapt to new conditions.

All these three theories deal with the causes, the participants of change and their relationships, processes and obstacles that occur when introducing organizational changes, and can therefore be applied to analysis of higher education institutions, making them helpful in giving answers to the research questions asked in this research.

Given that the subject of the research is relatively unexplored and that very limited number of studies observing changes in doctoral education exist, empirical part of the research will be developed using Yin's approach to research methodology of multiple case studies [63]. The reason for this is following - the analysis of change process is based on the investigation of the experiences of the participants, and this experience can be best observed and understood using the case study approach. In the empirical part of the study, we will conduct a multiple case

studies which will examine similarities and differences on selected universities in the responses to requests for changes in doctoral education. Case studies will be directed by three research questions and two expectations of the study stated earlier. Research will be using semi-structured interviews, documents, and literature analysis as main sources of data. Empirical part will give a comprehensive understanding of the process of changes in doctoral education on selected universities and achieve triangulation of data sources to raise the reliability and accuracy of the research.

The final phase of the research will give interpretation and reflection on the outcomes of the study. This phase will have a comparison of the conducted case studies and synthesis -in graphic and narrative form - of obtained data organized around the main themes (research questions), which will follow the theoretical assumptions of the research. Expectations of the study will also be revisited here. This part will present drawing of conclusions on change management approaches used in reforms of doctoral education and identify the main factors influencing the process of change and their connections and the success of the same. We will compare the results with some of the existing models of organizational change, such is the Burke-Litwin model [64]. Conclusions in this part will be able to serve as a basis for further development of mechanisms for change management in higher education, as one of the possible extensions of research.

3. Theoretical considerations: organizational change and change management

3.1. Introduction

According to Weick and Quin's observation, organizational change would not be necessary if people had done their jobs right in the first place [65]. As we have seen from the introductory chapter, this is often not the case - field of higher education is in state of constant change. The generally accepted assumption is that organizations do not exist in a vacuum, but depend on their environment in order to survive, achieve their objectives and ensure resources for their actions [66, p. 24]. Although the source and initiative for change can come from the inside the organization, in most cases the process of change begins with the stimulus from the external environment [67]. The changes in this environment described in the earlier chapters led to the setting up of new requirements for universities and thereby led to changes in the way universities are organised and how they operate. The environment in which universities are

located is a complex entity composed of intertwining relationships and influences of various stakeholders, from users of services of universities, to the state, international professional associations, national and international economies who all affect universities in direct or indirect way.

Universities are trying to keep up with the changes in their environment in order to retain their legitimacy and, although this often takes place much slower than it does in the private sector, strive to implement reforms that will harmonise them with the new situation in their environment [68].

As any other organization, university is susceptible to challenges and problems which arise every time a change is introduced into the organization. Because of this, changes happening at higher education institutions, and in doctoral education, can be analysed using the approaches of organisation theory and organizational change management. To achieve the main goal of this work, and that is to develop conceptual framework for understanding the change of doctoral education, we need first to understand what organizational change is, and to see how and why organizations change in the first place.

For clarification purposes, we will define terms used in our work. *Organizational theory* refers to a systematic analysis of how organizations operate and how they interact with their environment [69]. *Organizational change* can be defined as a “difference in form, quality, or state over time in an organizational entity. Entity can be different things, job position, group, subunit, whole organization or organizational field”, [70]. *Change management* refers to approaches used to transition organizations using different methods available, focusing on how people and groups in organizations are affected by the organizational transitions [71]. These three concepts are crucial in understanding how organizations change, and thorough understanding of their genesis will help us construct the conceptual model of change in doctoral education.

3.2. Approaches to understanding organizational change: brief overview

First step in our efforts will be to try to define what “organizational change” is, and how process of organizational change happens. This is not as easy as it sounds - as Burke notices, organization change theory barely exists [67]. Dominant understanding of what organizational change is shifts over time due to the changes in the prevailing research and philosophical paradigms used to define the term. Consequently, various schools of thought have various

understandings of the nature of change and its implementation and management in organizations, offering different views on the issue of organizational change. Another fact is that organization change theory often has its roots and is positioned within some broader social theory or organizational theory and sometimes it even borrows from fields such as child development or evolutionary biology [70]. It is also often part of But this should be considered a benefit to the researcher, since, as Morgan concludes in his book *Images of Organizations*, “there is no right or wrong theories in management in absolute sense, for every theory illuminates and hides” [72, p. 8] .

To complicate things even further, organizational change theory is always part of some broader organizational theory, while organization theories are at the same time also theories of change [73]. Thus, to understand change in organizations we must also understand the underlying theory of organization from which the change theory draws main concepts and ideas. Analysing all theories of organization is well beyond the scope of this work. To see how the idea of organizational change developed during the last 100 or so years we will take a brief look at the development of only the major theoretical understandings, applying two methods for understanding organization theory and organizational change. First method is a chronological criteria for classification of organizational theory, which is the most common way for representing the development of theories of organizational change [74]. Second method is understanding organizations as metaphors, best represented in the work of Gareth Morgan in his book *Images of organization* [72].

3.2.1. Classical organization theory

Although the origins of organization theory can be found in ancient times, most authors agree that classical organization theory (or scientific-rational approach, as it is also known) has its beginnings in the industrial revolution and the development of complex organizations like factory systems in Great Britain in the eighteenth century [69]. Adam Smith is considered as one of the founding fathers of organization theory, with the understanding of the importance of division of labour in his work *An Inquiry into the Nature and Causes of the Wealth of Nations* (1776). This first crude version of organization theory was in line with the dominant ideas of that time. Organizations were understood as machines, and people working in them as mere parts of those machines, susceptible to correct stimulus which could be determined and directed by applying scientific principles [73].

Another starting point of classical organizational theory can be considered the work of Frederic Taylor, who is considered the father of scientific management (forerunner of initiatives and change management methods like business process engineering, total quality management, ISO 9000, to name a few) [67]. As the first systematic approach to understanding how organizations function, scientific management is characterised by three underlying assumptions: a) organizations are rational entities, b) design of organizations is a science, and c) people are economic beings motivated by money and profit [73]. At that time - the beginning of 20th century – scientific management was a response to the unsatisfied reactions of organizations to the new challenges and opportunities that were coming from the environment, and to the resistance to change which was following the processes of reforms in the industry. Scientific management was focused on the design and analysis of individual tasks, which led to changes in overall structure of organizations [73]. One of main ideas of scientific management was that in business, public administration or in any form of organization, the same principles always apply, and that management of the organization has the responsibility to implement those principles. In scientific management, organization change is understood as scientific approach which looks for one best way in which organization should be conceived. Once these principles were established and in operation, organisations were seen as closed and changeless entities unaffected by the outside world [73].

3.2.2. Neoclassical organization theory

The classical school was dominant way of thinking about organizations until the 1930s but continues to be refined and applied today. Scientific management and the whole classical school of thought soon came under criticism, for the way it treated people in organizations, or better, for the way it *did not* treat people, as human factor was mostly absent from scientific management. Another point for criticism was that it treated organisations as independent from their environment. As a response to classical views and its limitations, neoclassical organization theory appeared since mid-1940s to 1950s. Main assumption of this approach was that organizations cannot exist in isolation from their environment. Another crucial difference from the classical theory was that organizations do not operate based only on rationality, as they consist of individuals who often have different views, motivations and goals than those of organization, so rational behaviour of organization is not always guaranteed [69].

One of the most representative schools of thought in neoclassical organization approach is the Human Relations approach (or organization behaviour perspective, as it is also known), born

in the US and Great Britain in the 1950s. It stands for a radical break with the ideas of classical scientific management school. Main thinkers from this perspective were Elton Mayo, Abraham Maslow, and Douglas M. McGregor, trying to apply behavioural psychology on the analysis of organizations. Underlying element is that organizations are complex social systems, and that human beings have both economic and emotional needs [73]. Their goal was to determine how organizations could allow people to develop themselves through work. The idea was that organizations prosper when their employees prosper, or that they are co-dependent [69]. This is in stark contrast with the de-humanized understanding of people which was a trademark of the classical organization theory. Series of experiments - so called "Hawthorn studies", as they were conducted at Hawthorne Works, a large electrical factory complex in Chicago - were conducted, showing the importance of psychological or human factors on productivity and morale, and contributed to understanding of organization change [67]. What became obvious from these studies was that if managers wanted to initiate change on organization, they had to consider factors like organizational structures, job design, employee attitudes and social relations in the organizations for the change to be successful. More emphasis had to be put on the leadership of the organizations and communication between them and the employers. Human relations approach rejected Classical movement's mechanistic-rational approach towards people and organisation structures.

3.2.3. Contingency theory

One of the critics pointed at Human Relations movement (but also at Classical view, with which it shares some similarities) was aimed at its claim that there is only one best way on how to structure and manage organizations. Both Human Relations theory and scientific management approach considered organizations as closed entities, independent from external or even internal developments. In 1960s, innovative ideas started to emerge in organization theory, questioning assumptions of both scientific management and human relations movement. This new theoretical approach was called Contingency theory as it stressed the idea that structures and practices of organizations are dependent (contingent) on the circumstances they face in their work and in their environment [73]. In an essence, contingency theory used main assumptions of both classical organization theory and human relations approach, saying that in some cases it makes more sense to use scientific management approach, and in other human relations approach, depending on the circumstances. These circumstances were found as organization size, technology and environment, and were seen as the most important for the functioning of the organizations. Herbert Simon, one of the main writers advocating contingency theory,

criticised then existing organization theories, arguing that they only provide “good practices” or recipes, but not the real solutions to the managers in organizations. Simon wanted to study the conditions under which certain principles could be applied to organizations. What was missing in those two approaches was precise guidance on how good practices and goals should be applied to organizations for them to increase their performance.

Main difference between contingency theory and two previous approaches was in core understanding of the nature of organizations – for contingency theory, organizations were open systems “whose internal operation and effectiveness are dependent upon the particular situational variables they face at any one time, and that these vary from organisation to organisation” [73, p. 75]. Hence, organisations are not completely in control of their own fate and development. Organization change meant adopting a structure which is most proper for the contingency organizations face, or in other words to align organization with its environment, technology, and size, which will then result in better performance of the organization. According to contingency theory, change management approach was like scientific management approach. Goal of the managers was to collect as many information on the situational factors and variables which affect organizations, and then use appropriate structural options to face these factors [69]. It was expected that members of organization, once faced with rational explanations why they should change, will accept the reasons and organization change would be successful.

One of the criticisms toward the contingency theory is that it is too mechanistic and deterministic in its understanding of how organisations function and how change happens. According to contingency theory, if organizations manage to align their structure with their size, technology, and environment, they will achieve the most proper level of functioning. But this understanding ignores the complexity of organizational life, with cultural and political factors which are often intertwined within decision making processes.

3.2.4. Open systems theory

During the 1960s and 1970s, a very different understanding of organizations came into being – one that is almost dominant today [67], but was at that time in stark contrast with classical understanding of organization as closed system. Organization theory moved toward a more complex understanding of the nature of organizations, one that was based on the theory of ecology, social science, cognitive science, and artificial intelligence. Open systems theory, as

this understating of organization is called, views organizations as rational institutions characterized by openness and dependence to its environment. This idea comes from the general systems theory of biology and was further developed by scholars like Katz and Kahn (1966), who propose that the organizations must adapt to survive and that managers must recognize that all organizational actions affect their environments and vice versa.

Following systems theory, open systems function based on the principle of transformation of inputs into services or products. Organization is open system because it is dependant and in continual interaction with the environment in which it resides, while closed systems – understanding of organizations underlying classical but also neoclassical theory - exist only in the world of non-living matter [67]. Understanding of organizations as open systems presents a much broader shift in paradigm from physics to one of life sciences, and the view that the world is integrated whole rather than collection of isolated parts [Ibid.]. Organizations are viewed as complex systems of individuals and coalitions, each having its own interests and beliefs and needs. These coalitions are in continuous competition for resources and conflict is part of organizational life. The amount of resources available to individuals and coalitions decides the need for change – when resources are plentiful, few people worry about changes, but are ready to mobilize once resources are constrained [76]. Organizations operate through power relationships, which is the means for influence another members in the organization, but also to influence the whole organization [77].

3.2.5. Contemporary developments

From the 1990s onward, fuelled by the move from modern to postmodern world, organizational theory has also experienced a major change in the way it explained how organizations work and how organizational change happens. This paradigm shift originated from growing belief among scholars that existing, modernist organizational theories - such as contingency approach -could no longer account for the changes taking place in the world of work and society in general [73]. Postmodern perspective differs from modern perspective focused on causal explanation, rational, objective science and believe in objective reality, by its emphasis on anti-foundationalism and hyper-reality. Postmodernism presented a shift from understanding of organizational forms based on hierarchy, legitimacy and authority, to one of networks, partnerships and organisational structures of a shifting, fluid and social nature [73]. Postmodern view of world has had a major influence on how organizational theory looks at organization, and concepts that were until then dominant began to change. Postmodernism also had impact

on the rise of neo-liberal politics, with its emphasis on deregulation and privatisation [73], which, as we will see, impacted higher education in the last 30 years.

According to Burnes, three major concepts from modernism were influenced by postmodernism – culture, reality, and choice. Up until then, culture had almost no importance in organizational theory, or was treated overly simplistic. Some postmodern approaches, for example Culture-Excellence school, emphasize the importance of organizational culture by stating that, in order to create successful organization, managers in organizations must create strong, unified and appropriate culture for organization [73]. In contemporary organizational theory, culture is central to effectiveness – this view is represented in approaches like total quality movement, learning organization concept and business process reengineering [69].

While in modernism organizations were understood as rationally designed systems, postmodernism accepted that organizations are historically constituted collectives, embedded in their environment [78]. In postmodern perspective, organizations are sites for enacting power relations, and for competing views on reality. Dominant view in organization is achieved “when a coalition of groups and forces is able to wield power and use political processes to achieve a dominant position over others in the organisation” [73]. What this means is that there is no one objective and rational process of how reality is set up, as is the case in modernism, but rather that there are many competing views on reality in organization and the decision on which one will be dominant is decided through power and politics struggle. The implication for organizations is far reaching – if the reality is decided by the dominant group who holds most of the power, then it is not decided by the objective data or by that which is happening outside of organization. Furthermore, it has implications on the change itself. The reasons for starting the change could also be a result of political struggle, and not the objectively determined cause.

3.3. Metaphors of organizations

Alongside chronological representation of the developments in theories of organizational change, organizational metaphors are alternative and useful way for understanding different beliefs and assumptions about organizations in the literature. Organizational metaphors are based on the assumption that “*all theories of organization and management are based on implicit images or metaphors that lead us to see, understand and manage organizations in distinctive yet partial ways*”[72, p. 4]. Metaphors can be used to describe how organizations work and how organizational change happens in them and are a valuable tool when assessing

the possibilities for starting and implementing change. Based on Morgan's seminal work on metaphors of organizations in his book *Images of Organizations*, Cameron and Green [79] reduced the initial list of eight metaphors to four metaphors, most often used by managers, writers and consultants, to describe how organizations and organizational change works. These four metaphors of organizations are:

- organizations as machines;
- organizations as political systems;
- organizations as organisms;
- organizations as flux and transformation.

Depending on the metaphor of organization, different approach to change can be taken by the change agents, affecting the way of thinking and preferred approach to change. The *machine metaphor* is best suited for those theories of organization which view organizations as machines, for example the classical organizational theory mentioned above. Organizations which fall under this metaphor are expected to be routinized, efficient, dependable, and predictable, and are usually called bureaucracies. Procedures and standards in such organizations are well defined and employees are expected to be disciplined and behave according to those rules. Organizational change in organizations described as machines is a top-down process which is rational, and can be managed to a state that is agreed by those who are in control (who have the authority in organization), and which can be executed well if it is well planned and controlled [79].

In second metaphor, organizations are seen as *political systems* which can take form of democracy, autocracy, technocracy or anarchy, depending on the dominant political principle employed and the style of governing [72]. Interest, conflict, and power-plays have profound influence in the organizations and they shape the organizational activities. This is contrary to common belief that politics and business should be kept apart, but, politics is essential part of organizational life and is ever-present. Politics in organization happens when people think differently and want to act differently, which creates tension that can only be resolved through political means. How this tension will be resolved depends on the employed political system and is decided by power relations between the actors involved. Organizational change needs a wide support and a powerful person, and is achieved through new coalitions and renegotiation, bargaining and competing for positions [79].

Third metaphor sees *organizations as organisms*, as a living system existing in a wider environment and dependent on this environment. In different environments, different organizations exist, just like different species exist in different environments [72]. Bureaucracies for example prefer stable and protected environments, while high-tech companies work in more competitive and turbulent space. Individuals and groups in organizations work most efficiently only when their needs are satisfied, which can be achieved only in interaction with the environment. Behind this metaphor of organization lies already mentioned move from the mechanistic understanding of organization toward one based on biology and a view that organizations are open systems, adapting to the environment and changing under the laws of lifecycle. Human resource movement, open systems theory, contingency theory, and population-ecology view all fall under the organism metaphor of organization.

This metaphor emphasizes survival as key goal of organizations. Change in organizations falling under this metaphor is only due to the response to changes in external environment and the need of organization to survive, and not due to the internal focus. Although this in a sense limits the freedom of organizations, it still leaves room for manoeuvring and managing change once it happens [79]. Managers and those who are involved in change have the choice to choose between a range of options on how to adapt to the environment. Limitation of this metaphor is that the concept of “environment” is a difficult one, and the causal relationship between organization and this environment is misleading. It undermines the power of organization and their members to shape their own future [72].

Fourth metaphor of organization is one of *organizations as flux and transformation*, and it encompasses postmodern theories of organization who are emphasising complexity, chaos, and paradox in functioning of organizations. Contrary to the metaphor of organism, change in flux and transformation does not arise because of external influences, but is produced by variations within the system modifying basic mode of organization [72]. Organizations are not distinctive from the environment but present a part of environment and are not governed by the rules of cause and effect. Organizational change cannot be managed, because it emerges, and the role of managers is to act as “enablers”, enabling people to exchange views and focus on their differences [79]. Role of the managers in organizations is to “nudge systems into desired trajectories by initiating small changes that can produce large effects” [72, p. 288]. No action plan or substantial change strategy is helpful, as change “just happens” and is in most cases outside of control of managers.

In most cases, organizations do not belong to only one metaphor, and very often use combinations of more than one metaphor to deal with organizational change. But the issue with metaphors is that they are always biased and provide limited view on the organizations, emphasizing one aspect at the expense of another. So the power of metaphors is that they give us a different point to observe and understand the organizations, and are helpful in understanding that no single theory of organization can give us a perfect point of view [72].

3.4. Typology of change

As can be seen from this brief (and by no means exhaustive) overviews of historical development and in display of different metaphors used to describe organization theory, the field is very dense. Many different approaches coexist, each emphasizing various aspects of change process. What we can conclude is that there is not one approach to the theoretical understanding of organizational change, but that change can be described and understood using many metaphors and descriptions. Which one will be used depends on different interpretations of organizational, contextual and environmental pressures organization is facing. Often, different terminology is used to describe the same types of change. For example, Anderson uses term "developmental change" to describe small-scale improvements of already existing practise in organization [80]. At the same time, Burnes uses the term "incremental change" to describe the same type of change. Other most common terms used to describe change are episodic, first order, transformational and total systems change for revolutionary change, and continuous, first-order or local systems change for evolutionary type of change.

But despite this pluralism of views and terminology, one of the most common classification of theoretical approaches used by scholars to study of organizational change phenomenon is by the *type* or *nature* of change. Different authors have different views on the subject, but we can conclude that there are four main types of change happening in organizations, depending on the two criteria used to distinguish them: *source* (why change happens in the first place), and *scope* (how much in organization is changed).

3.4.1. Planned and emergent change

First criteria for describing change produces two types of change: planned and emergent. For Burnes, "though there are many different approaches to organizational change and many ways of categorizing these, there is general agreement that the two dominant ones are the Planned and Emergent approaches" [81, p. 74]. Porras and Silvers [82] also suggest that an important

contrast in change research is the distinction between change that is episodic, discontinuous, and intermittent and the change that is continuous, evolving, and incremental. For them, this dichotomy is one of major characteristic of theoretical approaches to theory of organizational change. Weick and Quinn conclude that this dichotomy is the result of the perspective of the observer – macro level of analysis results in view of change as revolutionary, while micro level analysis produces continuous understanding of the change [65].

Before the 1980s, external environment in which organizations operated was much less turbulent, so the need to change organizations in response to changes in environment was much lower. If organizations wanted to change, what they usually did was change their business strategy and redesign their organization. For the period between 1940-1980, the prevalent understanding of organizational change was one of planned change, based on the understanding that change is always deliberate, conscious decision to improve the organization in some way. As we have seen above, this approach was the underpinning understanding for classical approach of scientific management, but also for human relations and contingency theory approach. Major distinction of this type of organizational change management is the fact that change is manageable, or that it can be implemented like any other project in organization. Organizational change management of this type is typically triggered by a relevant environmental shift that, once sensed by the organization, leads to an intentionally generated response. This intentional response is called "planned organizational change" [82], or "teleological process theory" by some authors [83].

Planned change is considered "classical" approach to organizational change management, and it consist of four elements: (a) a change intervention that alters (b) key organizational target variables that then impact (c) individual organizational members and their on-the-job behaviours resulting in changes in (d) organizational outcomes [82]. One of the most influential perspectives within what are known as 'planned approaches' to organizational change management is that of Lewin (1952), who is considered one of the founders of change management as scientific discipline and was further developed by the Organization Development (OD) movement. It consists of famous Lewin's three steps change process of unfreeze, change, and refreeze. According to Lewin, for a change to be successful it is necessary to carry out the three phases of its realization - defrosting the current situation (Unfreezing), the shift to a new state (Moving), and the freezing of new states (Freezing) [84]. In line with this concept of phased changes, one of the key issues for the successful implementation of the changes is to unfreeze the current state, or to overcome resistance to change and increase the

willingness of organizations and its members to change (Change readiness). Planned change is a progression from some unfavourable state toward more favourable one, from the state of equilibrium to state of new equilibrium. Lewin postulated his force-field theory and two ways to change quasi-stationary equilibria in which organization exists when forces to keep status quo are in balance with forces seeking to promote change: adding forces in the desired direction or diminishing the opposing forces. Lewin recommends starting with ending the negative forces and suggested that the positive forces would follow suit automatically. Lewin's work had major influence on theory of organizational change, and it continues to be one of favoured approaches to organizational development [65].

Despite its popularity – planned change model was for many years a dominant model of organizational change management, and it still has influence today – it was criticised on many levels. For Burke, planned or episodic organizational change on a large scale is unusual – change that occurs in organizations is mostly unplanned and gradual [67]. Even more, it is argued that in comparison with the changes caused by factors such as globalization and technology, the traditional phases of change, characterized by Lewin as unfreeze, change, and freeze, are too slow and costly. In the 1980s and 1990s, and under influence of postmodernism, chaos theory and open systems theory (but also in the light of declining Western industry and the rise of Japan), it became clear that planned understanding of the organizational change is not satisfactory, and that many examples exist where change happened although it was not planned or consciously decided. It became obvious that changes that were happening in organizations were of such type and degree that innovative approach to change management was needed. Main objection was coming from the perspective of emergent change - that conditions which affect change cannot be always taken into consideration and planned for [85].

The concept of emergent change came into play, rejecting the idea that change can come following a series of laid down steps and stages. Emergent change approach favours that long-term future is unknowable and therefore long-term planning is not possible, while links between cause and effect are not so clear. An underlying assumption of emerging change is that human systems are so complex that no individual or small group of individuals can understand them fully enough to intend what happened. Change is not a linear process or isolated event, but is continuous, ongoing cumulative and basically unpredictable process of adapting organization to its environment [73]. Organizations are networks of multiple feedback loops and change is the activation of a system's inherent potential for transformation. (Holbeche, 2006). Factors like power and politics, but also symbolic and structural factors play a huge role in change.

3.4.2. Evolutionary and revolutionary change

Using the second criteria for typology of change, the *scope* criteria, we can distinguish two types of change which are also often mentioned in the literature: *evolutionary* and *revolutionary* change. Main criteria distinguishing these two fundamental approaches is whether change is taking place within the given system, or if change is aiming to change the system itself [86].

Revolutionary type of change can be best explained in the model of punctuated equilibrium [87], in which periods of stability in organizations are characterised as states of equilibriums. In equilibrium, rules stay the same and are based on the deep structure of the organization – underlying culture, structure, organizational design, the way in which organization interacts with its environment. Change can come from two sources, either internal through various processes which move the organization in some other direction, for example mergers or acquisitions, or external, through changes in the system's environment [67]. Revolutionary change affects “deep structure” of the organization, changing its core structure, culture, and mission. It happens swiftly, affecting all parts of organization simultaneously [88].

Evolutionary change, which is characteristics of more than 95% of all organizational changes [67], consists of improvements and incremental steps, not affecting the whole of organization. This type of change happens in gentle, decentralized manner [69]. Success of evolutionary change is heavily dependent on the level of interdependencies of different units in organizations. If this level is low, then the change will most likely stay in subunits of organizations, not able to spread through the whole organization [67].

3.4.3. Van de Ven & Pool's framework

Beside these four types of change, some authors use a meta-approach to try to summarize different views on organizational change. In perhaps the most comprehensive review of theoretical approaches to organizational change, Van de Ven and Pool [70] use four process models of change (Figure 1) to explain how changes occurs in organizations. After performing an interdisciplinary literature review and examining hundreds of works, Van de Ven and Pool named four types of change in social and biological entities: life cycle theory, teleological theory, and evolution theory. The four identified theories are based on different events sequence and generative mechanisms or motors that drives the change process [89], and they present base for all specific theories of organizational change which are built on these four archetypes or basic schools of thought. These four archetypes differ whether they apply to single or multiple

organizational entities and whether the change process follows a prescribed sequence or is constructed as the process unfolds [83]. In each theory, process of change is viewed as different cycle of change events (Life cycle, teleological, dialectical or evolution), governed by different generating mechanism that operates on a different unit of analysis (individual, group, organization, population) and represents a different mode of change (first-order and second-order change, or prescribed and constructive mode).

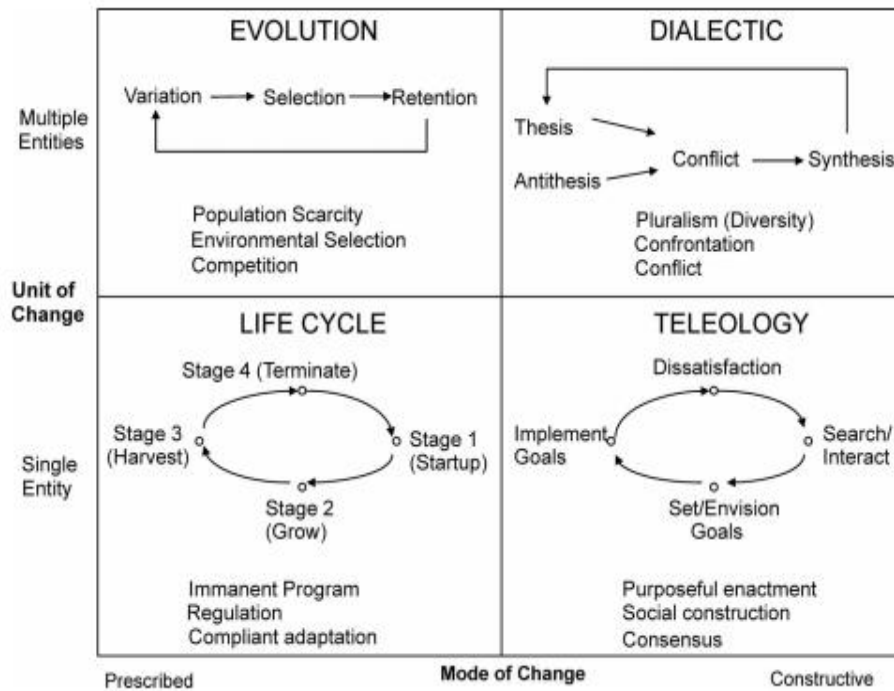


Figure 1. Process Models of Organization Change. Source: Van de Ven & Pool, 1995.

A teleology or planned process model of change “views development as a repetitive sequence of goal formulation, implementation, evaluation, and modification of an envisioned end state based on what was learned or intended by the people involved” [70]. This school of thought explain change as a purpose: organization aims toward a goal or an end state, and is purposeful [70]. This category of approaches to organizational change has several different common names, including planned change, scientific management, strategic planning, organizational development, adaptive learning approaches and rational models. As we have seen from the earlier mentioned scientific management approach, process of change in this model is rational and linear, and internal, rather than external factors, are drivers of change in organizations. Planning, assessment, incentives, stakeholders analysis, restructuring and reengineering are main aspects in this model [76], since advocates of this approach assume that managers can lead organizations from one point to another. But there is a limit to what managers can do, as

organization's environment and resources dictate what can be done. Change agents make use of these constraints to achieve their purpose [70].

Following Darwinian view of evolution and natural selection, evolutionary process theory views change as a result of competitive process among organizations which results in selection through competition. During this selection, progression is made by selecting those entities whose variations – results of the change – have contributed to more successful operation. Those organizations which have not been able to adapt will be forced out of existence. For evolutionary model of organizational change, change is dependent on circumstances and environment faced by each organization. Change happens because the environment demands change for survival, and organizations have limited freedom to react. Models of change which fall under this category include, but are not limited to, contingency and systems theory (discussed earlier), punctuated equilibrium, resource-dependent theory, population ecology and strategic choice approach.

For Kezar, these two main typologies of organizational theory – teleological and evolutionary - present the most prevalent approaches in the literature on organisational change, have the longest history and have been embraced by many as useful for understanding change. These models also represent two confronted philosophies of organizational change, such are materialist/idealist, social/technical, intentional/deterministic, and subjective/objective, with teleological change reflecting the first set of characteristics in these dichotomies and evolutionary change reflecting the second set [76].

In the third Van de Ven and Pool's process model of change, life cycle theory, change does not occur because people see the necessity of or even want change; it occurs because it is a natural progression that cannot be stopped or altered. In other words, it happened because it is imminent to the nature of organizations. Source of change is always internal; organization has an underlying program or "code" that regulates the process of change. The organization starts with an "embryo" which is then increasingly realized through process of change, during the maturation process. This process happens in steps until it reaches its final stage. Each organization follows the life cycle of birth, adolescence, maturity and decline or death, while external environment can have influence on the change process, but these external factors are always dominated by internal logic of organization that govern its development [70].

As fourth process model of change, dialectical theory, is built on the Hegelian-Marxist perspective that organizations exist in a world of colliding events, forces and contradictory values which are in constant competition for domination and resources [70]. One value or ideal in organization always has its opposite (the thesis-antithesis duality of dialectical development). These two forces are always in conflict of various intensity and change in organization happens when that intensity reaches a point when radical change is the only solution. Change is a result of situation when opposing values and ideas (antithesis) gain enough power to confront status quo (thesis). After the “brake”, a new synthesis (value, ideal) becomes dominant, and after a while synthesis can become a new thesis, so the whole process starts a new [65]. But the process is not always this straightforward, as situations can exist when synthesis is not achieved. Political theories of change identify change as being a natural part of human interaction, occurring as different interests and agendas are negotiated [8].

Van de Ven and Pool believed that a comprehensive understanding of organizational life is only possible by combining different perspectives, as using only one offers only a partial view. Using different theoretical perspectives offers a stronger and broader explanatory power [70]. Theories of organizational change rarely include only one type of process model of organizational change, rather they incorporate two or more types and are often more complicated than the ideal types represented in Figure 1. Complex change processes are generated by the interaction of more than one of these process theories, and most involve two or more theories operating together, at different levels, or during different time periods [89]. Usually this happens because the change process develops over time, and more than one motor of change can influence developing of change. Additionally, different influences, both inside and outside the organization, have their effect on the process of change. Therefore, most theories of organizational change and development are really a composite of two or more ideal types [70]. Combining four ideal types of generating mechanisms creates 16 logically types of change and development in organization, presenting a useful way to compare different theories of organizational change.

Typology of change is a useful tool in understanding the change in organizations, and it can be of significant help for change managers in their attempts to implement changes in organizations. Especially for Van de Ven and Pool’s four process models, if change agents match their mental mode of change (how the change should unfold) to the change process unfolding in their organization, then the change agents would be more likely to succeed in their attempts [83].

But unfortunately, this is not so easy. Many scholars agree that “the processes or sequences of events that unfold in these changes—such as transitions in individuals' jobs and careers, group formation and development, and organizational innovation, growth, reorganization, and decline—have been very difficult to explain, let alone manage” [70]. Furthermore, as many as 70% of change programmes do not achieve their intended outcomes [86, p. 211]. Regrettably, there is a break between the organization theory and management theory or practice of changing organization, which is the single biggest impediment to progress in effective change management” [89]. It is within this context, of ever changing environments and discrepancy between theoretical and practical side of understanding and leading change, that organizational change management has been established as a field within organizational studies [71].

3.5. Organizational change management

Organizations, its structures, and its employees are constantly under pressure to change, so change management was introduced as a field within organizational studies, as one way to deal with all the uncertainties which change brings. Change management as a field of inquiry begun in early 1980s in response to the concept of planned approach to change and change management practitioners were expected to solve two key issues with change – how to plan the complex implementation process of change, and secondly, how to deal with resistance to change.

Organizational change management has at least four meanings. In its most common meaning of the term, it means task of managing change. But it can also be an area of professional practice, a body of knowledge or a control mechanism in organizations [8]. Since organizational change management is not a distinct discipline with clearly defined boundaries, it is difficult to define its core concepts and to trace its origin. This is even more difficult as organizational change management is comprised of different social sciences and disciplines [73]. The fact that terminology is not always harmonized, or that authors use different terminology to describe the same thing does not help either.

This pluralistic nature of change management can also be its strength, as it allows for different perspectives and approaches. Among them, there are three schools of thought which are considered central to change management theory: individual perspective school, group dynamics school and open systems school [73]. We will briefly discuss each of these schools

of thought, as they will shed light on the most common approaches to managing change in organizations.

Individual perspective school is based on behavioural and gestalt-field psychological understanding of the individuals' understanding and reaction to change. Behavioural theory, best represented in works of Pavlov and Skinner and associated with classical organization theory, claims that individual is passive recipient of external stimuli and can be conditioned by expected consequences – rewarded behaviour gets supported, while ignored behaviour tends not to be repeated. To change behaviour, it is necessary to reward desired activity. Gestal-field approach presents a more individualistic and internal understanding of the change, as change can be achieved through better self-understanding and better understanding of the situation in question [73]. Both of these perspectives can be combined in to one approach, as was the case with Culture-Excellence school [8], who proposed to use both strong external stimuli to change (in form of incentives to organizational members who accept the change) and internal stimuli (in form of discussions, involvement etc.) to succeed in organizational change.

Contrary to individual perspective school of thought, the group dynamics school emphasizes role of team or work groups in the change process, rather than the individuals. According to Lewin, reason for this is that people work in groups, and individual behaviour is consequence of group dynamics and norms. So it does not make sense to focus on the changing behaviour of the individuals, but rather to influence and change the groups norms, roles and values [73]. Norms, roles, and values are what defines a group – norms are rules defining what people should do, while roles are patterns of behaviour to which the individuals and groups are expected to conform. Values are ideas and beliefs, what is held right or wrong. Group dynamics understanding had a major influence on the change management practices, and its views became almost common understanding for managing change. This is especially true for movements like Organization Development, where team-building activities are standard practice. Team-building has the goal to examine norms, values, and roles common to specific group, and to change them where necessary.

Third school of thought in change management views organizations as a whole, or a unity of interconnected sub-systems – organizational values and goals, technical sub-system, psychosocial sub-system and managerial sub-system. Open systems approach view of change is one of examination of sub-systems and how they need to be changed to help the whole organization. The goal is to achieve overall synergy of sub-systems and not to focus on

individual system. As open systems, organizations are dependent on their environment and susceptible to changes in that environment but are at the same time capable of affecting this environment through their own changes. Change in organization includes changing the norms, work structures, technologies, procedures and reward systems, and must be approached from organizational rather than individual or group perspective [73]

3.5.1. Change management models

Many change management models have their roots in the studies on grief and grief management in the 1960s [8]. This early work focused on how people cope with personal loss, and the findings were used to help employees deal with change in the organizations. In her book *Death and Dying*, Elisabeth Kubler-Ross [8], developed a five-steps process many people go through when they learn that they have a terminal illness – denial, anger, bargaining, depression and acceptance. Many change management models were based on this five-steps model, arguing that effective change managers can respond in a proper way to what those experiencing the change are feeling. Resistance to change was the result of braking with the past, like a little death [8].

The grief models applied to business change worked well when change was an event, or, in other words, when it was easy to identify when change starts and ends. Approaches to organizational change started to change from late 1970s, with the developments of factors like technology, innovation and globalization, which began to affect markets, and consequently, how organizations operate [80]. Organizations were going through radical changes and were needed to change their culture together with changes in people's minds and behaviour. The early change management techniques and understandings of the problems were inadequate, failing to understand the intricacies of human relations in organizations, as well as influence of culture on change efforts [80].

Change used to be considered as an episodic event in the history of organization, something which happened only when the situation was so bad that it needed intervention. Understanding of change has moved to the notion of continuous process of incremental change, a permanent state in which organizations work. Concept of emergent change replaced the concept of planned change as the dominant approach to change, more suitable to contemporary environment in which organizations work. Change is no longer seen as an linear process which happens now and then and can be managed in series of thoughtfully planes steps, but as a continuous process

of aligning an organizations with their environment [73]. In the framework of the emergent change, change is so rapid and unpredictable that it cannot be managed from the top down, so the only solution for change managers is to be focused on raising the change readiness and facilitating the change [85].

Developments in organizational theory also reflected these new developments in organizational change management, as factors such organizational culture and power came into play. In cases when organizational change has limited scope, culture can remain intact in the process. But in cases when change is radical, organizational culture also must change. So, the focus of change management has turned from external factors to those that can be considered as internal – culture, mindset and behaviour [80]. Best way to deal with change is through continuous process of small-to-medium-sized changes which originate from the bottom up, and not top-down [73]. Under the concept of the emergent change, aim of the organizational change management is to raise the capability of organization to react to the insecurities and possibilities originating in the environment. The role of change manager is not any more to be a top-down decision-maker, but to be the moderator of long-term change process [8]. Therefore, change management requires certain competences or managerial skills that are essential for successful change management – for example, decision-making, coalition-building, achieving action and maintaining momentum and effort [73]. Change managers need profound understanding of organization's environment, and the ability to recruit necessary internal resources so that the organization can respond to threats from the environment. Role of change manager is not only to plan and implement change, but to create conditions, including organizational structure, climate, and workforce able to identify the need for change and ready to implement it. They are expected to develop a culture of change, through knowledge of environment, ability to communicate and ability to learn [Ibid.].

Considering this new role of management, but also under the influence of planned change, many change management models were developed supplying help to change managers in achievement of their goals. Models of change are basic frameworks guiding change implementation in organization, and variety of models exist in literature. Some of the most famous models include already mentioned Lewin's three-steps model, Kotter's eight-step model of change management [90], Kruger's "iceberg model" of organizational change management [91], Burke-Litwin causal model ([64]. These models, although different in their theoretical background and fundamental understandings of the nature of change, can be very helpful to managers in organizations. They can give insight into driving and resisting forces in

change situation and be used as planning tools or can be used in any point in change process to analyse how change is developing. They can also be used as sort of a checklist, or as a starting point for those who plan organizational change.

4. Why business change models do not fit - toward the conceptual framework

4.1. Introduction

Given the specificity of institutions of higher education with their complex decision-making structures, often unclear objectives and relative independency from the environment, the dominant concepts of change management used in hierarchical organizations, for example in the private sector or the military, aren't very effective for universities [92]. In those organizations, change process is simpler to conceive and implement, as their structure is more hierarchical. In higher education institutions, a wide array of stakeholders needs to be included and more factors need to be considered in the implementation process if change agents want to minimize resistance and achieve success of change process. According to Kezar, "Few scholars have examined change on college campuses as distinct from that in other organizations. Instead, models of change from other disciplines or used within other organizational types have been applied to higher education, without consideration of whether this transference is appropriate"[8].

On the other hand, most theories on change in higher education agree that reasons for resistance to change are a lack of belief in the efficacy of the idea, lack of trustworthiness on the part of the change agents, and the existence of prior, failed change processes. Another important reason for failure of reforms is the failure to change the organizational culture (Ibid.). Importance and difficulty of changing the organization's culture was recognized by many scholars. Organization's culture can be beneficial factor in change process or can be a deterrent to management's effort to introduce changes in the organization, causing resistance to their plans. Kotter for example lists cultural change as a final step in his eight steps model of change management, stressing that once a new initiative is well under way, change managers "need to incorporate the change into the institution's culture by making it part of the orientation for new employees and, if appropriate, including references to it in the mission statement of the institution or unit" [69]. But the culture is not only the last step in the change process, as it also presents the crucial condition when choosing change approach in the organization. Following

this, organizations should strive for a culture of change as a key element of the organization's overall culture. Establishing a culture of change in the organization is certainly not a short-term process. Nevertheless, to improve change processes, the identity of the organization should be congruent with change and innovation. This should be considered in the communication process – ideally well before the change process commences [93]. What type of change management approach will be chosen by the management largely depends on the existing organizational culture [92]. Consequently, to be successful, change has to be aligned with the organizational culture, or it has to be “culturally, coherent” with the institutional culture during the change process [8]. What type of culture is dominant in any organization depends on a number of factors, with structure of organization being one of the most important [92].

For change at universities to be successful, these reasons must be considered. Successful reform is not a simple replacement of an existing framework with another one that has been previously carefully thought out; the change is the result of a collective process which leads to the establishment of new relationships and the mobilisation of new organisational resources [77]. Different strategies for coping with the resistance to change exist, but the question still is are the initiators of change at universities – most often top management – familiar with them and do they use them in the change process.

As preparation for the development of the conceptual framework in the following chapter, we will examine how the organizational structure of higher education institutions creates a culture which is difficult to change when applying traditional and conventional change management approaches. We will focus on three characteristics of higher education institutions which make them unsuitable to business change management models: professional bureaucracy, distributed character and loosely-coupled systems.

4.2. Universities as professional bureaucracies

The prevailing organizational model of the management of the university in the continental part of Europe until the end of the 1980s is a traditional model based on university oligarchy and self-regulation of the academia. By applying the democratic way of deciding through its bodies, the university makes decisions about where it will develop. Such a model, according to the division of organizational structures developed by Mintzberg, can be regarded as a model of professional bureaucracy [8], [31], [47], [94]. Professional bureaucracy is one of five structural configurations that can form organizations and regulate the way those organizations operate.

Universities have several structural characteristics that qualify them to classify the professional bureaucracy.

1) Standardization of work. According to Mintzberg, bureaucratic organisations are those organizations that are based on formalization and standardizing their activities, thus achieving the effect of coordinating the activities of employees within the organization. In the case of universities, this coordination of activities is achieved by standardizing the skills of the employees, prescribed content of educational curricula and training procedures and indoctrination of professionals who make up the work core of the organization.

2) Professional working core. Universities are based on the knowledge and skills of employees, or on the working core that dominates the entire structure of the organization and is composed of professionals (which in this case produced only by the university). The working core, according to Mintzberg, is one of the five basic structural parts of the organization, which constitutes the main part of the organizational structure of the university. Professionals (operating core), in this case university professors, assistants and teachers, are the most represented element in the structure of professional bureaucracy, which can be seen as well on figure below (Figure 2).

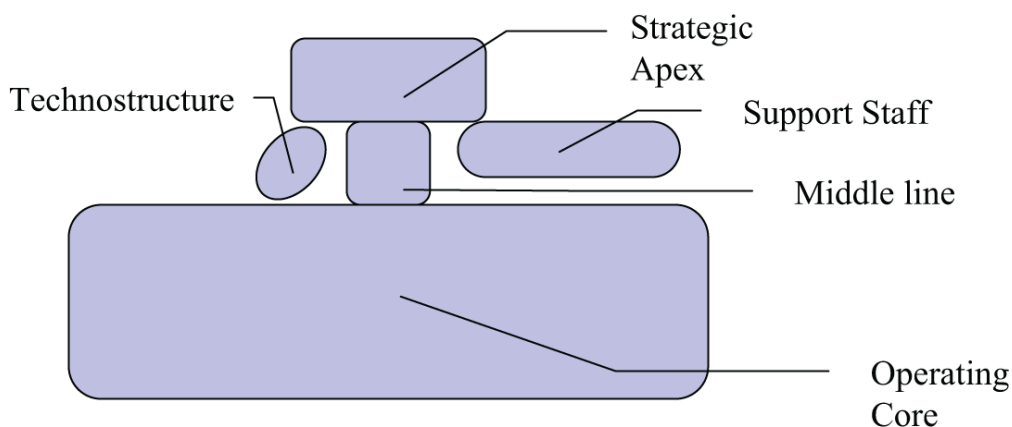


Figure 2. The professional bureaucracy. Source: Mintzberg, 1979

3) The structure of the university. The structure of the university is bureaucratic, and the coordination of the activities within the university is achieved by establishing standards that determine how to do what. In the case of professional bureaucracy, there are also standards that are used to organise the activities of universities. These standards are determined and originate from outside the university itself, usually in professional associations composed of university professors and academic staff from other universities. In other words, the professional associations that determine the activities of the university are composed of members who either

work in universities or are closely related to universities, thereby actually regulating themselves. Such associations strive to set universal standards which are then adopted at universities. In this way, professional organisations have an authority that is based on expertise, because members of such associations are also professionals working in universities which gives them the authority to adopt standards, which they then apply in their work.

Such organization of the university contributes to its decentralisation, which is the result of the autonomy of university professors. This autonomy is based on the complexity of the work they perform, as well as in their mobility capability. A highly qualified professional can always offer his services to another university if he concludes that the workplace conditions are no longer proper. Since supervision and control of such professionals is possible only to a lesser extent and attempts to implement change almost always result in resistance, control is usually carried out in indirect ways through other colleagues or general guidelines of behaviour within universities, like ethical codes. Professionals usually supervise themselves, so in the work of universities, various committees, working groups and commissions, working and advisory bodies are made up of university professors, and their goal is to bring and enforce administrative rules and decisions through their supervisory work at the university.

Because of all this, the university's organization can be graphically described as the inverted pyramid [31, p. 360], since the true power of the university lies not with the rector and other members of the strategic top, but by the professionals who make up the professional working core of such organizations – and these are university professors. In every professional bureaucracy, including universities, the democratic principle prevails in decision-making procedures. The reverse pyramid structure gives two major advantages to other forms of organization. The first advantage is the democracy, because the power is sent directly to the workers in the organization. Another advantage is the autonomy, which frees workers the need to coordinate with other workers, and at the same time frees them from the pressures and policies that follow. The result are professionals who are highly motivated and responsible (Ibid., p. 371).

On the other hand, the university, due to its way of functioning and organisational characteristics, meets several difficulties. Within the university, despite the often publicly disclosed strategies presented by the university's leadership, it is difficult to clearly define a general strategy to govern the work of the university and the direction of its development. The entire strategy of the university is the consequence of individual strategic initiatives of

individuals within the working core of the university, not the consequence of conscious decisions of university management. Rather than one clear strategy, there are many individual strategies of individual professionals or groups within the University (Ibid., p. 364). Or, the strategies of professional associations outside the university which determine which direction the university will move. The latter is especially at work in doctoral education in the last fifteen years, which will be discussed earlier in the text.

The problem of coordination of activities between the university's professionals and management is also one of the problems. Because of the great autonomy of university professionals, who most of all want to be left alone to do their job in peace, the direct control of their work is not possible, and if the leaders want to enforce it, it leads to the creation of resistance. The characteristic that makes a professional bureaucracy - a democratic organization and freedom for the people who work in such an organization - poses the greatest danger to its success.

The aspect of professional bureaucracy which is most interesting for this work, is the occurrence that Mintzberg calls the problem of innovation. According to Mintzberg, the professional bureaucracy is an inflexible structure that is adapted to the production of its standard output but is extremely unprepared to adapt the production to new conditions and to change production modes (Ibid., p. 3375). Whenever a change or reform is tried in such organisations, there is a strong resistance to these efforts by the working core or professionals. Because of the democratic procedures of the decision-making and autonomy of academia, there is a diffusion of power within the university, namely the "dilution" of the reform initiative. In such situations it is shown that the leadership of the university has only a formal power that is limited in its application. At the university it is impossible to introduce a change by the minority decision (management), because all decisions must be approved by the majority (the Senate) – the attempt to change must be accepted by all, or the change will not happen. Therefore, a different policy of introducing changes must be applied to universities, which is why it "comes slowly and painfully, after much political intrigue and cunning manoeuvring of professionals and administrative entrepreneurs" (Ibid., p. 377).

4.3. Universities as loosely coupled systems and distributed organizations

Another useful theoretical approach to understanding change on university is the concept of loose coupling. The implied idea in this theory is that people are rationalizing their behaviour

and putting too much emphasis on the significance, predictability and association of activities they implement, which does not correspond to reality [61]. Understanding of the organization as a loosely-related system has resulted from the dissatisfaction of several researchers with then-dominant ideas in the organizational theory by which an organisation works in the way it does because of its plans, rational procedures, division of work and the evaluation of results. On the other hand, such "rational" organization is a rare phenomenon.

Loosely coupled systems are those organizations where there is a formal connection between their structural parts, but in this connection, structural elements keep their own identity and a certain kind of separation from system containing (Ibid.). In case of the university, it means that the rectorate, as a main place of management of the university, is separated from other organizational units of the university. Interesting fact for our research is a formal link between the rectory and these other organizational unites (faculties, academic units etc.) established by formal rules - the statute of the University and other legal acts. Structural elements of such organization are separated from each other, and their interaction is usually weak, unrelated, and takes place very slowly and sporadically.

A loosely coupled system such as the university has several issues for the introduction of changes. Loose connections allow individual parts of the organization to remain unchanged despite the leaderships' effort to change the entire system. Loose coupling reduces the likelihood that the university will be able to react to a change in its environment. Such a characteristic of the organization can be positive and negative. Loosely connected systems can isolate the problematic parts of the organization and prevent the spread of problems precisely because they are loosely connected, but at the same time such an organization will for the same reason to have difficulties in repairing damage. In case the change starts from the top of the organization, i.e. the leadership of the university, there is a real possibility that due to the loose connection form of the organization the introduction of changes fails in its implementation, precisely because of the unrelated parts of the organization. On the other hand, if a change comes from a segment of an organization or its sub-system (e.g. department at the faculty, some doctoral study which introduces novelties into its programmes), other segments of the organization will not be familiar with the change, as diffusion Information will be hampered and slowed.

Such systems lead to inefficiency, but on the other hand they ensure the longevity of the university. Such an organization can, in fact, separate its formal structure from activities in

order to avoid internal and external conflicts, so it can alter the formal structure until nothing changes at the level of activity – this process is called "separation" (de-coupling) [66]. Even if certain parts of the university are removed, such as the elimination of doctoral programs or even faculties, other parts of the organization will not be affected.

4.4. The neo-institutional perspective

By returning to the problem of changes in doctoral education, the question arises how we can apply a sketched theoretical background of organizational changes, completing the Mintzberg's formal and descriptive model of the university as a professional bureaucracy with the understanding of universities as loosely coupled systems. One of the possible routes is by using the understanding of the cause of the change offered by the neo-institutional theory.

Central place of the neo-institutional theory [95]–[97] is the role of institutions in the society. In every organizational field, there are “best” organizations and the “best” ways to organize and manage an organization. This “best” way does not have to be empirically supported, what is important is that people believe that there is a best way. Instead, these best organizations are viewed as “myths”, and they influence the behaviour and structure of other organizations in the same field. Organizations are influenced by the environment in which they operate, and are open to what other organizations are doing, but are also under the influence of discourse generated by the professionals on how best to function [98].

One of the goals in the neo-institutional theory is to explain the establishment of institutional norms and the emergence of *isomorphism* of organizational fields. DiMaggio and Powell [62] examined the emergence of the homogeneity of organizational forms and practices within an organizational field. They were trying to answer the question why at the beginning of the development of a certain organisational field there is a great diversity of organizations that make up this field that. As the organizational field becomes more structured, mature and well-defined, the organization which constitute the field become increasingly homogeneous [99]. Organizations within a single field can change their objectives over time and introduce new practices, and new organisations can enter the field, but in the long run, there will be a creation of such an environment that will greatly limit the possibility of changing organization. Such understanding of the development of the organization within the institutional theory is called isomorphism, which can be defined as a limiting process that forces the organization to receive the characteristics of another organization that faces the same conditions in the environment as

the first organization. Isomorphic, mimetic processes are especially present in organizations with poor specific performance criteria, such as public and non-profit organizations. Such organizations cannot objectively prove their effectiveness and have no verified methods to improve their functioning. For this reason, such organizations imitate the most successful and legitimate organizations in the field to demonstrate their quality using similarities to these organizations [99], [100].

DiMaggio and Powell distinguish three mechanisms that result in isomorphic changes in the organization: a) coercive isomorphism, resulting from a political influence on an organization and from the problems of the organization's legitimation, b) mimetic isomorphisms, originating from the standard response organization to the uncertainty surrounding it and c) normative isomorphism which is associated with professionalism.

Adherence to the standards in a single organizational field can also be caused by pragmatism – in this way organizations increase their legitimacy, resources, and the possibility of survival. Organizations that conform to the institutional norms of an organizational field become "optimal" in a way that increases their chances of survival by minimizing the risk of failure [97]. If the organizations are in an isomorphic area, or act similarly, then they reduce the possibility of weaker results than another organization in the area. In other words, one organization will not perform either better or worse than another organization in the same organizational field.

Organisational isomorphism can also be associated with the development of higher education institutions, which have similar characteristics in the globalisation processes. Due to the institutional pressures, managing such institutions, their internal organisation as well as the organization of study programmes, will converge according to a common form expanding globally "because of the effects of institutional and competitive pressures" [101]. For our research, the most important are mimetic and normative isomorphism, through which universities, in the moments when changes occur in their environment, model their actions according to the model of another, more successful university. This modelling can be unintentional, for example through circulation of staff between the two universities, or intentionally through professional associations of higher education which transfer the same ideas and myths in one organizational field. In a globalized educational system, world class universities present "best practice", or a model on how to organize and lead the university, which other universities then follow. These models present "rules of the game", and are often

transmitted via different institutional carriers, which are highly legitimate entities like international organizations, ministries, educational consultants and professional associations [98].

Neo-institutionalism sees change in the context of organizational conformity, and as a highly limited organizational activity. As the organizational field gets older and more structured, whatever change does occur will be toward more conformity and organizational inertia [99].

For our research, two aspects of the neo-institutional theory are of interest. First is the already mentioned process of isomorphism, which will be used for construction of the concept in the conceptual framework (especially for describing the concept “Context of change”). Second aspect of the theory that we will be using is a phenomenon termed “decoupling”, an occurrence when organizations formally responds to the changes in the environment, while actual practices remain untouched [66]. Decoupling is a direct consequence of isomorphism, and it enables organization to maintain standardized, legitimized formal structure (which is “best practice” in the field), while their core activities may vary and are not connected to the formal structure. This phenomenon can explain why in same organizational fields organizations show much diversity in actual practice, although they share the same formal structure [97]. In our work, decoupling will be used for constructing the concept of institutional obstacles and limitation, which can hamper the change process.

4.5. Summary

We will now present several assumptions based on three theoretical perspectives described earlier, since they will help us to set up the necessary theoretical framework.

According to Mintzberg, universities are a rigid system whose work core is composed of academic professionals who manage their own work and do not need supervision. The centre of power at universities is not in the hands of the university management but is dispersed to individuals and groups of individuals at the university. Therefore, other elements of organizational structure do not come to the fore in universities, except as mechanisms of support to the working core. Such a system is negatively inclined towards every form of external control and management, which is still often applied as a means of introducing changes to universities. There is no clear strategy to govern the university, there is an interaction between many different strategies that do not have to be mutually compliant.

A change in an organization such as professional bureaucracy can only occur if the professionals that make up the work core of the university change. It cannot be brought only by a new administration (university leadership) who announces major reforms, or by placing professionals under control. Such thinking is in line with Schein's understanding of culture in the organization and the fact that the "old cultural elements can be destroyed by eliminating the people who" carry "those elements, but new cultural elements can only be learned if the new behaviour leads to success and satisfaction" [102]. If such an organization wants to change, although the incentive for starting changes will come from the top of the organization, we can assume that the professionals will have a decisive role in implementing the reforms, but also be a source of resistance to the introduction of these changes.

The neo-institutional perspective looks at university as an organization which is adapting to changes in the environment through the mimetic mechanisms of isomorphism [62]. This view emphasises the role of broader societal fields and larger institutional contexts on the process of change (for example the entire higher education sector), not only organizational conditions. In neo-institutional theory, changes are seen "as mostly a result of powerful, outside forces that collectively shape institutions" [8].

The university can be understood as an organization that looks to harmonise its activities with changes in its environment, but also with other universities that make up the organizational field of higher education. It represents an open system that depends on the different pressures and requirements that come from its environment. Changes at universities, in this case the way in which doctoral education has been reorganised and reformed, have been started by various forces that have its source mostly in institutions and organizations outside of universities themselves. Professional associations or "institutional carriers" [101] in charge of higher education are an example of such agents that determine the direction of changes in universities. The individuals at the university, whether they are administrations or inspired change leaders in departments and faculties, will take over the ideas of these professional associations (or will initiate them themselves as representatives of professional associations) and start the process of change only if they are motivated enough for that. This motivation in the largest number of cases originates from the realization that the current situation is at an unsatisfactory level and that it needs to be changed, i.e. that the process of change is justified [102].

Universities are often formed as loosely-coupled systems, meaning that their structural elements are mutually loosely connected. Rules that exist in such organizations created to allow

the functioning of the organization can easily be violated without consequences. Management's decisions are often not carried out by the members of university, or, in those cases when they are, are not understood clearly. The evaluation of efficiency and the verification of the university's results is unclear and happens without the coordination among its structural elements. The problem arises when such organization seeks to introduce certain changes and relies on the process of planning and assessing certain activities that should lead to changes based on their integration into a broader plan. Since the intentions and activities are loosely-related, the administration of universities and people who introduce these changes often remain surprised when they realize that the changes do not happen as they are conceived (or do not happen at all).

5. Conceptual framework for change management at universities— setting up

5.1. Introduction

According to Miles and Huberman, “conceptual framework explains, either graphically or in narrative form, the main things to be studied—the key factors, constructs or variables and the presumed relationships among them” [103]. Authors note that the conceptual framework can serve several purposes in an research: (a) identifying who will and will not be included in the study; (b) describing what relationships may be present based on logic, theory and/or experience; and (c) providing the researcher with the opportunity to gather general constructs into intellectual “bins” (Ibid.) Conceptual framework can be built using four main sources: experiential knowledge, existing theory and research, exploratory research and thought experiments [104]. In our research, we will rely on existing theory and research on change management and on organizational change in higher education, and pair it with exploratory research and data obtained by conducting case studies on four universities. Additionally, we will be using experiential knowledge (personal experience), which the author of this research gained through practical work in doctoral education. This type of information, despite the fact that it is sometimes considered more as a hindrance than as a benefit for the research, can often provide researcher with major source of insight and validity checks, and therefore should not be dismissed in advance (Ibid.).

Our goal when using conceptual framework is twofold: data collection and data interpretation. Conceptual framework will serve as a sort of an “anchor” for the researcher, as we will be

referencing to the conceptual framework and to the predetermined concepts during data collection. We will be intentionally narrowing our focus of research on those concepts we think are essential for answering our research questions. Conceptual framework will at the same time prevent from information overloading, which can easily happen in a case study. As an assistance in the data analysis process, conceptual framework will help us with the coding process, providing pre-determined codes which will then be further analysed and broaden during the coding of the interview data.

The conceptual framework can be created in two ways: inductive and deductive [103]. In inductive way, the researcher finds concepts and their relationships after he has conducted the fieldwork, and then refines them in next fieldwork. In contrast, the deductive way of constructing the conceptual framework, the researcher has some predetermined codes, themes and relationships which are then are compared to the results from the field (Ibid.).

Although the preliminary version of our conceptual framework is rudimentary, this was done on purpose. We expect that the first version of the conceptual framework will be further developed and broaden as the study progresses and as the additional information is revealed from the field. We expect that the new concepts will emerge and that new relationships between the concepts will show once the data is analysed. As result of the research, we will produce an extended version of the first conceptual framework of change process, stressing the most important aspects of the process. Such approach is recommended, as it combines deductive and inductive analysis of data to capture the complexity of context and cases [105, p. 447]

Conceptual framework has some drawbacks as a research tool, which are at the same time its strengths. One of them is that it limits the inductive approach when exploring the database [106]. Researcher can become too focused on the concepts set up by the conceptual framework, so that he does not see other themes which can also be of interest for the research. To limit the risk, researchers are advised to discuss their thoughts with other researchers and/or supervisor, so that this negative side of the conceptual framework can be reduced to minimum (Ibid.)

5.2. The Burke–Litwin model of organizational change and its applicability to university settings

We chose a deductive approach to creating a conceptual framework as there is a significant volume of prior theoretical work on organizational change and change management from which preliminary concepts can be extracted. In this work, we will be focusing on Burke-Litwin model

of change and performance, and try to apply it in the analysis of change in doctoral education. More specifically, the conceptual framework for data collection and interpretation, discussed in more detailed in Chapter 6, was broadly inspired by the Burke–Litwin model of organisational change and performance.

The Burke–Litwin Causal Model of Organizational Performance and Change was developed by Litwin and later refined by Burke in the late 1980s. The model as conceived today actually emerged from practice, that is, as a consequence of trying to understand more about how to bring about change at British Airways [107]. Burke-Litwin model has proved to be a very robust and has the potential to be used in higher education institutions, “because it is a comprehensive systems model that incorporates multiple levels (organization, work groups, and individuals) and shows how organizations interact with their external environments” [108]. This model is often used in organisational change planning and development [109]–[112]. It consists of 12 mutually influential variables representing the open-system principle, in which a change in one variable (or more) will have an impact on (all) the other variables (see Figure 3).

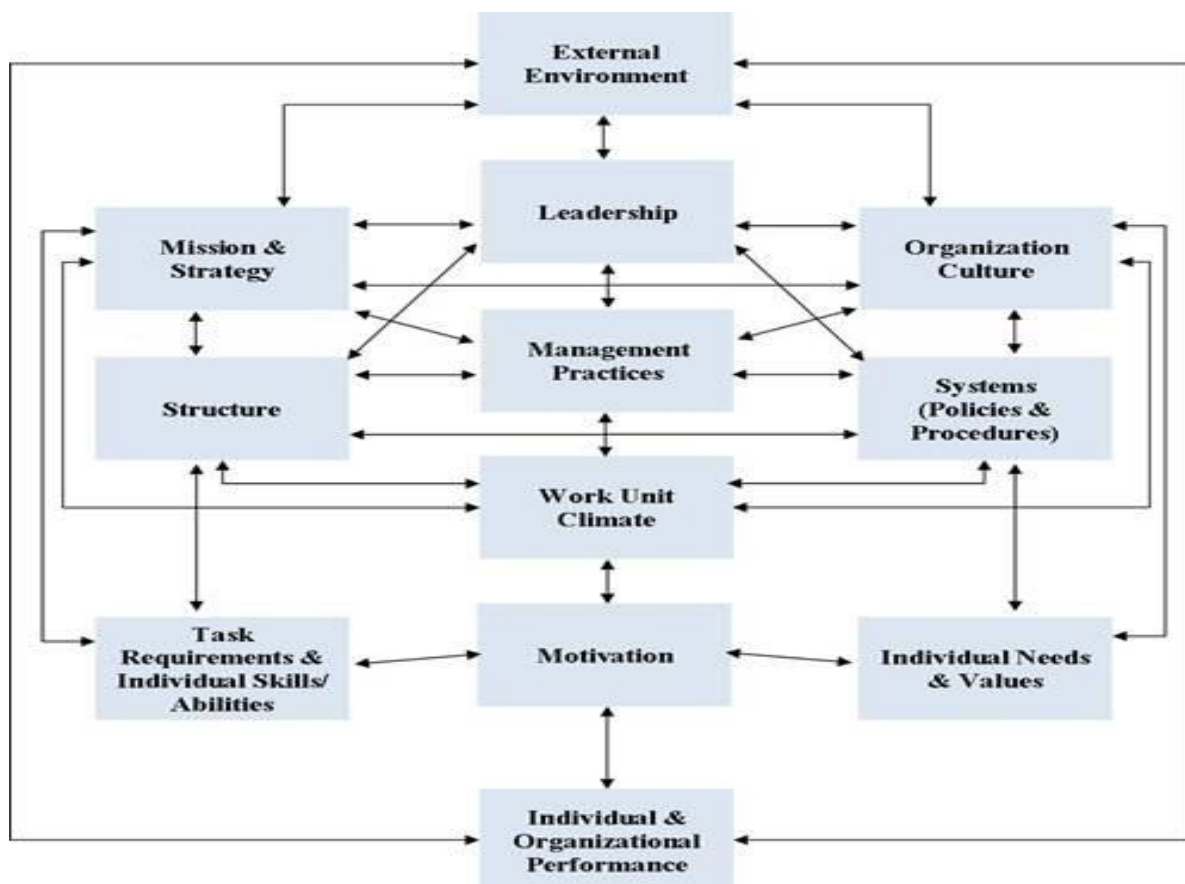


Figure 3. Burke–Litwin causal model of organisational performance and change. Source: Burke, W. W., & Litwin, G. H. (1992). A causal model of organisational performance and change. *Journal of Management*, 18, p. 529.

The top-most variable, *external environment* represents the input, while *individual and organisational performance* at the bottom represents the output. The variables in between are divided into two major categories – transformational and transactional. The transformational variables (*mission and strategy, leadership, and organisational culture*) relate to the areas which change due to the external (environmental) factors, resulting in new behaviour and in changes in the ‘deep structure’ of the organisation. The transactional variables (*structure, work unit climate, tasks and skills, motivation, individual needs and values, management practices, and systems*) are associated with everyday interactions and exchanges in organisation and relate to the change which occurs in response to more incremental improvements in the organisation [113]. The basic premise of the model is ‘that planned change should follow the flow from top, or external environment, to bottom, or performance’ [67, p. 209]. In large-scale or total organisational change, transformational factors have more ‘weight’ than transactional, and changing the dominant factors changes the total system [64]. Thus, the external environment has the greatest impact on organisational change, followed by mission/strategy, leadership, and culture.

We assessed that the integral Burke–Litwin model would be too complex for our goals and for operationalisation using the interviews. Therefore, we adapted the original model and devised a conceptual framework consisting of nine change-management concepts. The new model keeps the logic of the original Burke-Litwin model presenting the assumed flow-of-change process from top to bottom (Figure 4).

The nine concepts listed in Table 5 are deductively derived from the research questions and from the expectations of the research. Each concept was then used in the construction of the interview protocol, and the questions that were asked during the interviews were all based on these nine concepts. Some concepts were discussed in more than one interview question, to achieve better understanding of the researched phenomenon.

Table 5. Main concepts and their relationship to the research design

Concept	Interview item no.	Relation to research design	Source
Context of change	1	EX2	[64], [95], [114]
Institutional culture	1,8,11,12	EX2	[76], [92], [93], [102], [115]–[117]
Institutional structure	1, 10, 11,13	EX1, EX2	[55], [76], [92]
Change agents	1,2,3	RQ1, RQ2	[47], [69], [77], [86], [92], [118], [119]
Change management strategy	3,5,7	RQ1	[69], [92], [115], [120], [121]
Involvement and participation	4,5,8	RQ1, RQ2, EX2	[84], [92], [93], [113]

Readiness for change	2,4	RQ1, EX2, EX3	[84], [122], [123]
Institutional limitations and obstacles	6,13	RQ3	[8], [92], [124][8], [92], [124]
Results of change	4,9,10,12,	RQ2, EX1 EX2	[64], [125], [126]

We acknowledge that these nine concepts may not be the only crucial elements in the change process and that many more different elements could be included in our conceptual framework. Nevertheless, based on the existing literature and on the personal experience of the author, we believe they present essential aspects of the change process in higher education institutions and are unavoidable in any attempt to change higher education.

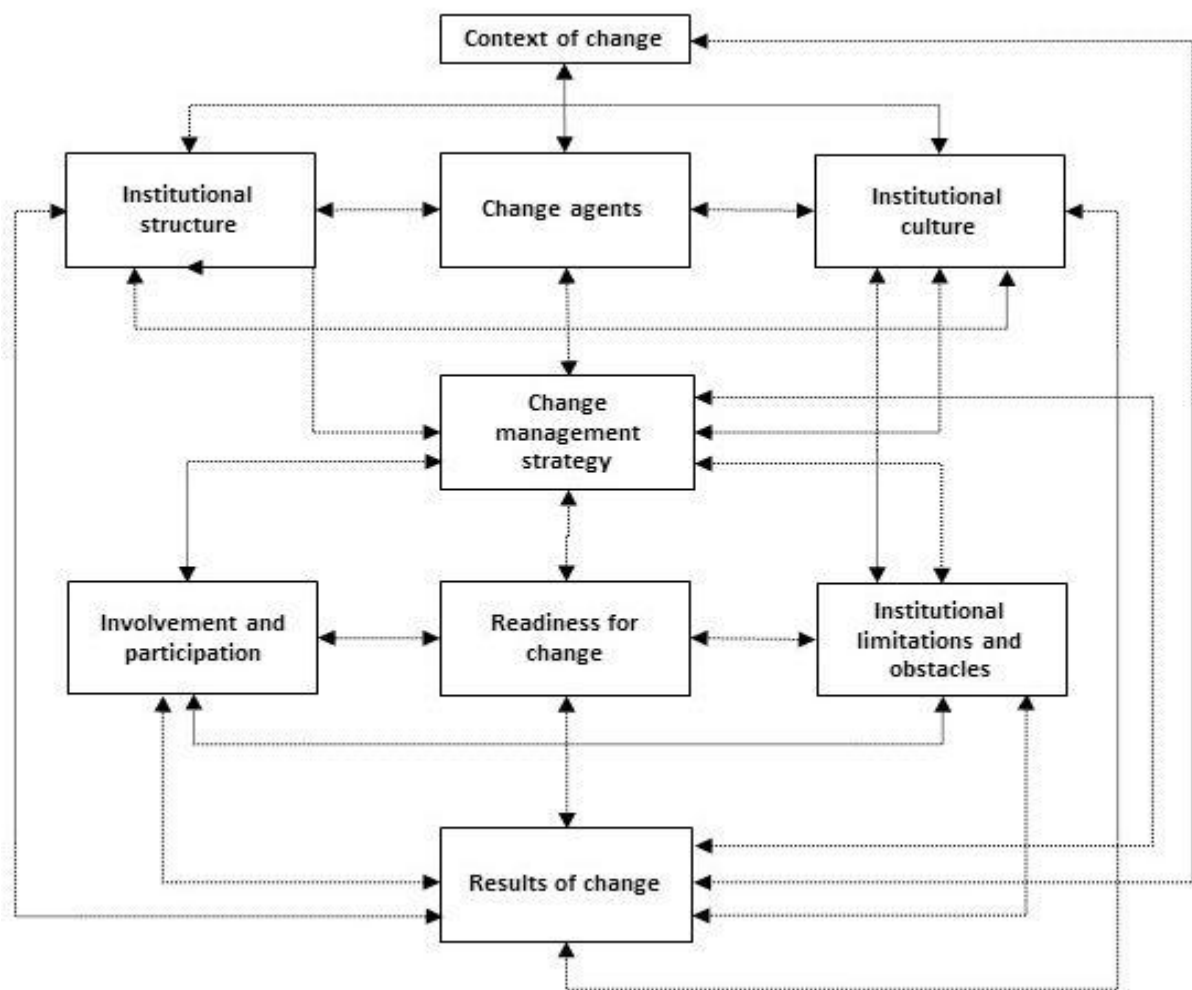


Figure 4. Representation of the provisional conceptual framework

The uppermost concept of *context of change* and the lowest concept, the *results of change*, follow the assumption of open systems models that the environment affects the results, but that the results also influence the environment through the mechanism of institutionalisation, which

“tends to reduce variety, operating across organisations to override diversity in local environments” [114].

The presumed logic behind the presumed framework was as follows: any change management strategy depends on the institutional structure, culture and the type of leadership or the change agents. Context of change or the external environment of universities affects these factors. Any choice of change strategy must work with the context, structure, and culture, and decide on how to use them to achieve the results. Change management strategies can affect the bottom half of the framework. In return, these factors will limit the availability and the effectiveness of change management strategies, or, if the wrong strategy is chosen, will have negative impact on the results of change. In our hypothesized conceptual framework, the readiness for change has the most impact on the results of the change, as it “determines whether employees support the change project or not” [93, p. 97]. It is the most dynamic factor in the framework, since it is under the direct influence of the change agents. But, all other concepts of our framework affect the results of the change, either directly or indirectly (for example, the culture of organization “works” through the institutional limitations and obstacles, creating resistance to change).

5.3. Main concepts

We will now discuss each concept and their presumed connections in more details.

5.3.1. Context of change

First concept used in the construction of the conceptual framework is the “context of change”. This concept is in focus of the Research expectation 2. In our conceptual framework, we will try to determine what sources were responsible for the change process in doctoral education on each observed university.

There can be several sources of change in the reform process. For example, based on the evolutionary and institutional theory’s understanding, change in university comes mostly from the outside sources rather than resulting from intentional changes made internally [8]. Based on the neo-institutional approach, we can assume that change which has transformed doctoral education worldwide was a result of mimetic and normative isomorphism in the field of doctoral education [62], [99]. Once started in the beginning of 21st century and caused by several reasons discussed in earlier chapters, change in doctoral education has spread using different means from professional organisations, and institutional carriers through regulating bodies and ministries. As a result of this change, universities have adopted similar structure in doctoral

education, which can be seen from dramatic increase of the number of doctoral or graduate schools which are now regarded as dominant form of doctoral education [127].

University can be considered as an organization which adapts its behaviour according to the changes in the environment, in other words it is an open system dependent on the different pressures and demands in its environment. Despite these mimetic forces which put pressure on the university demanding that it changes, change will not automatically start at the university unless it is started and accepted by the change agents.

According to cognitive dissonance theory, “behaviour change can lead to a change in values, but only if free will is involved, i.e. only if those affected feel that they have a choice” [73, p. 215]. If the requirements for change are well beyond the current attitudes of the individuals in the organization, then they can resist an attempt to change due to the high level of dissonance. In our case, if the pressures from context are too high, the change can be met with resistance. Thus, we have assumed a relationship between this concept and the concept “Results of the change”.

Other approaches pinpoint source of change in the so-called “academic management fads“ or temporary fashions in the management of universities, because they come and go over the years and are typically not changes with staying power [128]. These types of sources of change are more in favour with managerial interest and do not serve individuals in organizations, while at the same time they often have negative impact (for example, rise of cynicism in the organization).

Within this concept, we will try to determine whether the reasons for start of the reform on each university were justified, i.e. we will analyse whether the change was started as it become clear that existing practices are no longer practical, and change was required. Furthermore, according to the evolutionary and institutional theories of change, “many changes are happening in higher education institutions and that the role of change agents and leaders is more about responding to forces that are coming from outside the campus or one’s unit” [8]. We will thus explore the role of change agents in the process and try to determine how much influence they had on the content and process of change. The sources of change will be determined for each of the case studies and will then be analysed for connections with other concepts of the framework.

5.3.2. Institutional culture

Institutional culture was mostly out of focus for organization theory until the 1980s, when situation started to change (although there is some work on organizational culture even before 1980, especially in Culture-Excellence schools). This interest in culture was motivated by the rise of Japanese companies and their success, which was thought to be based on Institutional culture [73]. Since then, there has been an exponential growth in research on Institutional culture [129]. There are many attempts to define what organization culture is, but most common is that culture is a pattern of beliefs and expectations shared by the organization's members, which shape behaviour of individuals and groups in the organization [130].

Institutional culture has a role in understanding how organization functions, and why change initiatives often fail. As Schein noticed, "If we understand the dynamics of culture, we will be less likely to be puzzled, irritated, and anxious when we encounter the unfamiliar and seemingly irrational behaviour of people in organizations, and we will have a deeper understanding not only of why various groups of people or organizations can be so different but also why it is so hard to change them" [102, p. 9]. Institutional culture is to a group what personality or character is to an individual, and is responsible to behaviour of the group which can be seen, but the underlying forces are much more difficult to understand (Ibid.)

For our research, an important aspect of institutional culture is the fact that it is different for different organizations – what works in one organization might not work in another. Culture is in constant state of change and adaptation, it is not a static phenomenon but rather a complex mix of organizational realities and subcultures which are all competing for dominance [69]. Culture is formed only when there is enough of shared history among group of people, and when the organisation has stable membership [102].

According to Schein, culture can be analysed on three main analysis, also metaphorically known as the "lily pond": Artefact level, Espoused beliefs and values level, and Basic underlying assumptions level (Ibid., p.24). Artefact level are visible and physical characteristics of an organization – architecture, way people dress, language they use, behaviour of the members, visual elements of organization etc. Espoused belief and values are organization's strategies, goals, philosophy, and justifications. It is the way of doing things, and it has its roots in the organization's leadership. If their assumptions work for long time and prove to be successful in dealing with environment and internally, then those beliefs come to be shared assumptions of the whole organization. Basic underlying assumptions are those believes which

have become “facts of life” and are taken for granted. They are not anymore seen as one possible way of dealing with things but become accurate picture of reality. What any given culture means depends on the basic underlying assumptions, and they are the key to understanding the culture of organization.

System is in equilibrium and resists change, and changing basic assumptions is difficult, time-consuming, and burdened with risk. If the organization refuses to change due to demands from the environment, it may be forced to do it because of inferior performance. If change happens in the system, it must affect all three levels of culture to be successful. This is because individuals and groups prefer stability, and once beliefs and values of organization are set and become shared assumptions, psychological defence mechanism will “fire up” anytime a new information reaches the organization, causing resistance to change [102].

Organization change always includes changing the culture of organization, whether it is just incremental modification of the system, or major intervention, and any form of organizational change will cause disturbance in the organization’s culture at some level. For Buller, institutional culture in university is the most crucial factor when planning and executing a change strategy [92]. For him, many reforms fail “because they start in the wrong place: by trying to change the organization without first trying to change the organizational culture” [Ibid., p. 56]. Many other authors place compliance of change strategy with the institutional culture very high on the list of preconditions for successful reforms ([90], [93], [102], [115]). Institutional culture at universities, and on higher education in general, can make or break a reform process if the change agents do not fully understand the best approach which will reflect the cultural specifics of the organization. If, for example, change agents favour quick, decisive and bold actions, and make decisions without proper consultations, time and failing to “hear” advise from highly educated workforce, they can find themselves in a reform process which is ineffective and which will eventually fail to reach its goals [92].

We will examine institutional culture for each observed university and assess to what degree did the proposed reforms need change of the institutional culture. Furthermore, we will explore how much did the culture change, and how the members of the university reacted to the changes. Lastly, we will examine did the change agents understand the importance of institutional culture and did they consider the phenomenon of institutional culture before and during the change process.

The concept is operationalized in the interview questions 1,8,11, and 12, and it is the topic of second expectation of the research.

5.3.3. Institutional structure

Concept “institutional structure” in our work reflects fact that universities are what Buller calls “distributed” organizations [92], type of organizations in which traditional change management approaches do not work. Distributed organizations, similar as loosely coupled organizations [61], are not hierarchically, top-down organized entities, but are characterised by sharing of power among various individuals and groups and loose hierarchical structure. This kind of structure leads to very specific issues in change process, which has to take into account that, for example, members of such an organization don’t view change just as an issue affecting the university; they view it as an issue affecting them [92]. This is because members of the university have often invested their time and effort in the policies and procedures which are the target of the change process. So, members of the university will accept changes only if it is in their own interest and if the goals of the change have been clearly shown to them.

On the other hand, in distributed organization, change agents must consider more different perspectives than what is the case in hierarchical structure. They must consider the fact that their power to carry out reform depends on many stakeholders, and that they must work within a much more open system and examine proposed changes through a larger set of lenses than are needed elsewhere (ibid.).

In our work, concept “Institutional structure” will be used to assess if the examined university fits the category of distributed organization. We will achieve this by looking into formal structure of the university, showing the levels of power and decision-making, together with the relationships between them. By doing this, we will determine who had the power to make decisions during the reforms and how the power was distributed among different stakeholder at university.

Additionally, we will use the concept to see if the change agents were aware of the distributed characteristics of their system and have they planned their reforms accordingly. Successful reform, according to Crozier and Friedberg, is not a simple replacement of existing model with another one that has been previously carefully thought out [77]. Change is result of collective process which leads to the establishment of new relationships and mobilization of new organizational resources. Such type of change must be directed simultaneously at a) change the

structures of the organization (for example by applying the rules of management, introducing modern technologies etc.), and b) change the system of power relationships in the organization.

As we will be looking at four different universities with different traditions, embedded in different environment and with different organization, we expect that each university will have a different level of distributed organization.

The concept is operationalized in the interview questions 1, 10, 11, and 13, and it is the topic of the second expectation of the research.

5.3.4. Change agents

The next level of our framework consists of three concepts, the change agents, the institutional structure, and the institutional culture. In line with the Burke–Litwin model, we consider these concepts to be transformational, since they have the main influence on the results of the change process. Their change changes the entire system.

Crucial point of our methodological approach to the conceptual framework of change on higher education institutions is the individual. Our understanding of human individual is deeply characterised by the freedom of action, which means that individual behaviour is always in some degree expression and consequence of freedom of choice [77]. Individual is always presented with - although sometimes limited - freedom to choose his or her course of actions and retains a margin of liberty even in structured and regulated systems like university. For example, relationship between subordinate in an organization and his or her superior is never one of simple obedience, but always includes some form of negotiation and bargaining. Consequence of this human condition is that human behaviour can never be fully predictable. In other words, this behaviour is always contingent and cannot be reduced to mechanistic understanding, as opposed to some theories (for example, role theory). This is one of the reasons why organization cannot be understood and analysed as transparent entities defined by formal, rational goals of its leaders (which also affects the way change is introduced into organization, as we have seen from the overview of organizational theory).

Since human behaviour cannot be reduced to mechanistic understanding, change itself cannot be introduced to organization in simple terms of changing the organizational structure, introducing “good practices” which are dominant in the organizational field or emphasising the rational goals of change. At the same time, it cannot be expected that the members of university will automatically accept (or reject) offered reforms.

These simplistic views on the change are often inadequate in higher education, where change agents need to be adaptable, creative and work with multiple strategies and tools to achieve their goals [8]. For change to be successful, change agents must align their strategies with the institutional culture, and not try to force or control change process [115]. If they do not acknowledge this fact, reform is likely to run into problems. But this is often not as simple as it sounds. There are many types of change agents, depending on their main approach to change. There are, for example, charismatic leaders, who strongly believe in their own vision of change, and rarely encourage discussion and questioning, or engage in critical re-examination of their actions with others. Instead, they demand the followers accept their decisions without questions, engage in one-way communication and are insensitive to followers needs [8].

On the other side of the leadership spectrum is the so-called *transformational* leader, whose behaviour and characteristics are governed by a more ethical process with the goal of producing more ethical outcomes (ibid.). Transformational leaders can motivate employees when they are affected by cynicism toward any new change, which often happens when earlier efforts have failed. They are building an organizational culture which can accept change through interaction with all stakeholders, and not insisting that their views are the only right way to do things (this does not mean that there are no charismatic leaders which can do this, just that it happens rarely).

Change agents are the primary factor in deciding which strategy will be used, but the institutional culture and structure limit their choices and have an influence on their strategies, although this influence is not often visible.

The concept “Change agents” will be examined – directly or indirectly – through all three research questions and will be the topic of the second expectation of the research. We expect that the charismatic leaders at universities will be partially responsible for less success or even the failure of the reforms, while the transformational leaders will have more success with the reforms.

The successful change leader is one that is aware of the institutional culture and who acts in accordance with it [115]. The concept is therefore intricately connected and, in many ways, determined by the concept of institutional culture. There is also a link between this concept and the concept of “Change management strategy and approach”, which will be used to explain what type of leadership was dominant in the change process on each examined university.

5.3.5. Change management strategy and approach

In the centre of our framework is the concept of *change management strategy*, which concerns everyday practices in the implementation of the reforms. This concept explores the main steps and planned activities that form the change process and considers how change agents deal with the obstacles that they encounter in their work. We presume that the concept will be affected by almost every other element of the framework, since it needs to be defined before the start and adjusted during the process of change. The institutional culture and institutional structure are the two elements that we expect to have the most influence on the change management strategies, followed by the change agents themselves. The two concepts that we expect to be most heavily influenced by the change management strategies are the involvement and participation of members of the university and consequently readiness for change. We also presume that the concept will have a feedback effect on the transformational elements of the framework, the institutional culture and institutional structure.

There are, of course, many different approaches to change management in higher education which are at disposal to change agents. Which one will be chosen depends on the change agent's ability to understand the organisational culture and adjust the approach so that it fits to the circumstances. But it also depends on where the change is coming from, of from which position the change agents act. There are two main approaches to change: grassroots or bottom-up, and top-down. If it is grassroots approach, or is it more top-down dominant? If the change is coming from grassroots or from the bottom-up change leaders, meaning it is not the university management who initiated the reforms but rather that it comes from the periphery of the university, slowly building and spreading toward the top, then the importance of allies, coalition building, agenda setting, and negotiation of interests are the strategies and approaches of choice [8]. On the other hand, if the change is coming from the position of formal power, then establishing core values, vision or mission, using planning mechanisms, using resources and funding, motivating people through incentives or rewards, restructuring or creating support structures, hiring and training of employees may be better options (ibid.).

Whatever the approach, successful change agents need to employ strategies which fully explain reasons for change to all employees in the organization. If this does not happen, there is a risk of rising resistance to change (ibid.). In other words, change strategies and approaches used in change in higher education should be in line with the main characteristics of distributed organizations, and in line with the organizational culture of universities. But this does not mean

that every change process will be the same, as there is no university culture which is the same as some other university culture. On the contrary, every change will be different, which is especially true in the field as diverse as higher education.

Behaviour of change agents in organization should be analysed as an expression of their strategy, or the way they use their control over resources or power with the goal of increasing chances for success of change. Goals of change strategy can be achieved by manipulating either the organization as whole, for example starting structural changes, or other actors in organization, for example through negotiation and bargaining. In doing this, change agents have two main strategic approaches at disposal, one approach which is offensive and will allow to improve his current situation in organization, and the other approach which is defensive, one that will maintain his position and margin of liberty in organization and protect him from the power of others [77].

What type of strategy is used by the change agents in organization can only be analysed by an empirical study of their behaviour. The concept “Change management strategy and approach” will assess how the change agents approached the challenge of changing doctoral education, what were the main steps that were taken, what activities were planned and devised, and how did the change agents deal with the obstacles in their work.

5.3.6. Involvement and participation

The second level of conceptual framework consists of transitional elements, concepts that can be manipulated and influenced by the change management strategy before and during the process. They are involvement and participation in the change process, institutional limitations and obstacles and the readiness for change.

One of the most important and frequently cited requirements for the success of the change process is broad participation among various stakeholders in the change process, which increases both morale and productivity [131]. This way, the inherent interests and values which are promoted in the change initiative are more likely to represent shared interests of the whole academic community, and not only the elites or managers [8]. Buller explains two major benefits of involvement and participation in the change process firstly, change managers can reduce their workload by delegating key responsibilities to others, and secondly, change agents can encourage more acceptance and agreeing with their ideas [92].

The concept “involvement and participation” has its source in the Research expectation 2. The concept is based on the idea that the broad involvement and participation of members of the university in the process of reform leads to better results of the process [73]. Involvement and participation in our research mean that the members of the university from all levels were – to some degree – included in the design and in the implementation of the reforms, and that their voice was heard and had influence on the results of the reforms. We believe that the change agents should provide evidence to the target groups before the change has started, explaining the expected positive results of the change and the reasons why the change is needed in the first place. This can be achieved by careful analysis of the present state before any change actions have been planned and undertaken.

The concept is linked to the goal of creation of high level of readiness for change among the members of the university. If the change process is not aligned with the university member’s interests , institutional culture and their identity, then the highly-identified employees will fiercely resist the change [102]. Two other transitional concepts in our framework, the Readiness for change and the Institutional limitations and obstacles, can be influenced by the broad involvement and participation of various stakeholders in the change process, which increases both morale and productivity [131]. Through involvement and participation, the inherent interests and values promoted during the change initiative are more likely to represent shared interests of the whole academic community, and not only of the elites or the managers [8].

Using the concept “involvement and participation”, we will assess if the change process in each of the observed universities managed to stimulate the employee participation and did it facilitate their involvement in order to create beneficial climate for changes [132]. If the members of the university were not included in the change process, or they were included on superficially, then we can assume that there will be a high chance that they did not fully understand the reasons for change, or that they perceived change as mostly in the service of the university management. This type of implementation of change which excludes the members of the university can easily lead to resistance and cynicism of employees. The cynical stand toward reforms is a consequence of the low participation and arises from the lack of understanding among the employees on the manager’s actions or decisions [132].

5.3.7. Readiness for change

Readiness for change is one of the most important characteristics for assessing response to the change, because it determines whether the members of organization will accept the change or not. Some suggest that failure to establish sufficient readiness accounts for one-half of all unsuccessful, large-scale organizational change efforts [116].

Lewin (1947) suggested three necessary stages for a successful change process: ‘unfreezing (if necessary) the present level L 1, moving to the new level L 2, and freezing group life on the new level, L3’ (p. 35). In line with this concept, a key issue for successful change management is how change agents can unfreeze the current state, or, in other words, how employees’ readiness for change can be increased.

Readiness for change “presents an extent to which an individual (or groups of individuals) are cognitively and emotionally inclined towards accepting the plan to change the current situation” [133]. When readiness for change is at a high level, it is more likely that employees will begin to change the way they conduct their business, to be more cooperative, to invest more effort in change that will ultimately lead to the successful implementation of change. In contrast, if the members of the organization are not ready, the changes can be rejected, and employees may have negative reactions to the change effort. They will observe it as undesirable and will avoid or resist participation in change [122]. Similarly, tries to implement new practices or policies in the organization often fail because the leadership of the organization has failed to establish sufficient willingness to change.

Readiness for change, as Armenakis argues, “is reflected in organizational members’ beliefs, attitudes, and intentions regarding the extent to which changes are needed and the organization’s capacity to successfully implement those changes” [122, p. 1]. Armenakis argues that ‘readiness, which is similar to Lewin’s concept of unfreezing, is reflected in organizational members’ beliefs, attitudes, and intentions regarding the extent to which changes are needed and the organization’s capacity to successfully implement those change (Ibid.) , According to Armenakis, readiness for change is primarily created by a message incorporating two aspects: “(a) the need for change ...and, (b) the individual and collective efficacy (i.e., the perceived ability to change) of parties affected by the change effort” (Ibid., p. 684). The authors consider readiness for change as one of the most important constructs for assessing employee reactions to change, because it determines whether employees support the change project or not, and so interpret readiness for change as the opposite of resistance to change.

Change often fails not because members of the organization resisted change due to their disagreement with the content, but because they simply did not understand its nature or how they might profit from it in their daily work [8]. The success of the changes will be greater if the members of the organization know what to do and how to do it, if they believe that they have enough resources to implement the changes and when they find that they have enough time to change. Successful organizational change is possible when employees understand the meaning and strategy of these changes, while also playing an active role in the planning of change process. Therefore, the first step in initiating the changes is creating high level of readiness for change, which is a tool for reducing resistance to change [122].

In our research, the concept of readiness for change will be used to assess how well the change agents managed to establish and prepare the university for change, and how well the main messages, goals and methods of the reforms were transferred to the members of the university. The concept has its source in the research question 1 and the Research expectation 2 and is closely related to the earlier discussed concepts “Involvement and participation” and the Change management strategies. Furthermore, we expect that the next concept that we will discuss, the institutional limitations and obstacles, will be influenced by the level of change readiness and will its feedback effect on the readiness level.

5.3.8. Institutional limitations and obstacles

The concept “Limitations and obstacles” is the topic of Research question 3, and it originates from the fact that the process of abandoning the traditional training of young researchers and replacing it with structured doctoral programmes with all the other novelties that follow (team supervision, taught courses, transversal skills training, internationalisation of the research and mobility etc.) does not happen without difficulty and resistance on the university. The sources of the resistance are what we call “Limitations and obstacles” as they present a challenge to the change agents in the implementation of the reforms.

Sources of limitation and obstacles can be viewed from several perspectives, depending on the theoretical approach. Some theories of change, for example social cognition, suggest that resistance to reforms comes from misunderstanding of proposed changes, which in itself comes from poor communication and exclusion of members of the university in the change process [8]. We have discussed this briefly when we introduced the concept of readiness to change. According to cultural theories, major resistance to change can also emerges when the values and underlying beliefs promoted in the change process contrast with existing cultural norms,

making them harder for people to understand [8]. This obstacle is especially difficult to overcome, as people are not always aware of their own underlying beliefs and values.

The political theory approach to change for example suggests that change agents will face limitations and obstacles because different individuals will have their own agenda which does not have to be in line with the proposed changes [8]. The most common argument of the academic community against the introduction of changes is based on the hypothesis of endangering the autonomy of members of the academic community to do their job unhindered. If the change process is not agreed and implemented in cooperation with the academic community and the professionals who make up this community, there is a great potential for the failure of reforms.

Other sources of resistance are structural inertia, existing power structures and related resistance from groups (“cliques”), or cynicism of members of the university [132], [134]. Limitations and obstacles facing the implementation of the change can also come from inadequate funding, need for staff training or obsolete procedures which must be updated [92].

Structural inertia toward change at universities originates from the fact that in universities the power is shared among various individuals or groups within the organization, and where hierarchical sources of power do not play overly significant role. Instead, principles of collegiality hold a significant place in how the university operates [117]. Such structure of universities, with its distinctive horizontal and distributed hierarchical divisions, is an obstacle to the clear definition of the aims of the reform and its implementation into practice mainly due to the coordination of the efforts. It creates a source of inertia for the introduction of changes. Universities are also characterised by a high degree of academic freedom to - for example - choose how curriculum will be designed and how the teaching or research will be performed. Additionally, number of policies which are used at the university were developed by members of the same university. This leads to higher level of attachment of university staff to the culture of their university, and, consequently, to the higher resistance to change [92].

We will try to analyse the major limitations and obstacles which were faced by the change agents and look for the methods used to circumvent these limitations. We assume the strong relationship between the concepts of limitations and obstacles, change management strategies, involvement and participation and the readiness for change. But we also assume that the transformational concepts of institutional culture and institutional structure will present - in one

form or another – limitations and obstacles for change. Ultimately, these limitations and obstacle will affect the final result of the changes process.

5.3.9. Results of change

The results of the change process are always unpredictable, and no one can envisage the final results once the process has started [92]. Since organizations and institutional cultures are different, each change process will also be different. Therefore, any change model that claims it can predict the results, or that by following its steps the change agents can assure that they will reach their goals, does not consider the fact that organizations are very complex systems consisted of hundreds of independent members whose behaviour and decisions cannot be controlled or supervised.

The last concept in our proposed framework, the results of change, presents the desired increase in individual and organisational performance of the university, in our case specifically the improvement of doctoral education. As in the original Burke-Litwin model of organizational change, we can assume that the results of the change process will have impact on the external environment. If the organization of doctoral education changes at one university, it will likely influence other universities in some way, depending on the results of the change. Here we are faced with the limitations of our research: we will be relying on the interviewee's subjective assessment of the results of change using a limited sample. Therefore, it is difficult to objectively assess the results of change, especially since the data on doctoral education is hard to collect due to the short time-frame since the reforms. We will therefore use the concept "Results of change process" to assess if the change agents believe their first goals were reached or not. Change agents will be asked whether a change benefited doctoral students, as we believe students' interests should be the ultimate interest served through any change initiative. They are primary beneficiaries and main focus of educational institutions [8].

6. Conceptual framework in practice: research design and methodology

6.1. Introduction

Based on the theoretical framework developed in the earlier chapter, we will be using a comparative case-study approach to compare the adaptation of doctoral education on selected universities in Austria, Slovenia, Portugal and Montenegro. Before turning to the empirical part,

in this chapter we will explain the research design, motivation for the case selection and time frame, and discuss methodological considerations that influenced the operationalisation, data collection, and analysis.

The research will rely on a qualitative, constructivist approach in understanding the changes in doctoral education. The research design will take into account that individuals, seeking to understand the world in which they live and work, create subjective interpretations of their experience [135]. The extent to which change agents will devote themselves to the implementation of changes in doctoral education depends on their perception of the opportunities in which they are located, as well as the "objective" context in which their action is carried out [136]. Such approach has its application in the study of organizational changes. Organizational changes are largely associated with the contextual conditions, which is why determining different dimensions is a change and understanding the interaction between these dimensions is of great importance in the study of change.

Many researchers therefore emphasize the usefulness of case studies in the study of such phenomena, while interviews, analysis of documents and observations are considered a key procedures in gathering information about the content, context and process of change [137].

Qualitative methodology can be very useful for researching issues that are focused on organizational processes and when a researcher seeks to understand both the actions of individuals and the group experiences. Organisational dynamics and changes are essential areas in the study of organizations, and qualitative methodology provides enough "sensitivity" for detailed analysis of organizational changes. The quantitative methodology, although able to diagnose that the change has occurred during time, is unable to respond why (in terms of circumstances and stakeholders) or how (which processes were involved) the change occurred [138]. Furthermore, due to the novelty of the observed phenomenon, the quantitative methods cannot rely on the reliable statistical data to give the necessary answers.

6.2. Multiple case study design

Since the subject of research is a relatively unexplored area in which there are a limited number of studies that observe the organizational aspects of change in doctoral education, we have decided to design the research using Yin's approach to the case study methodology. According to Yin, the case study is the recommended methodology for the analysis of new phenomena, in which the researcher has no control over the observed events [63], [139]–[142]. Several reasons

contributed to the decision on the use of qualitative approach to the observed phenomenon as opposed to quantitative.

The main reason is the use of theoretical model in which the analysis of the organization is based on the experience of the participants of the process. This experience can be best observed and understood using case studies, namely the methodology of multiple case studies. Yin suggests that "when you have a choice (and means), the advantage should have multiple case studies" [106], [143]. Multiple case studies consist of a series of cases that are contained in one joint study, while the analysis unit stays the same in the study. In this way, more sophisticated descriptions can be developed and stronger explanations [103]. The reason for this is simple-- conclusions based on two or more different case studies have a higher value than the one that comes from a single case. Multiple case studies allow for comparison between the cases carried out and the possibility of generalisation of results is far greater than if the results are based on the implementation of only one case study.

Furthermore, the multiple case study is also particularly useful in situations where we want to understand the contextual conditions of an event or in situations where the boundaries between the context and the observed phenomenon are not easily determined. In this case, the context is one of the most important aspects of organizational change in doctoral education. It is assumed that different types of universities will change in different ways, and the context in which these universities operate is of crucial importance and affects whether the reform will be accepted or not. By conducting multiple case studies and using the interview as the main method of data collection, we will be able to gather the relevant data on changes in doctoral education.

Yin's approach to the case study was chosen because it provides a very high level of scientific reliability, which can be achieved through several methodological procedures during the implementation of the research. The main objections to the case study are based on claims that the case study does not achieve sufficient scientific rigor, that it is not suitable for generalization, and that case studies often last too long and produce large, incomprehensible studies. By strict application of methodological procedures and criteria for the quality of the case studies, the elimination of the aforementioned shortcomings of the case study can be achieved.

The basis for achieving these criteria are four test of validity – construct validity, internal validity, external validity and reliability. Three of these criteria will be applied in this research,

while the internal validity will be omitted because it relates to the causal case studies, while this research is descriptive or exploratory.

The threat to the construct validity of the case study comes largely from the inadequate degree of identification of the major events that make up the observed phenomenon. In other words, researchers often have trouble deciding what exactly they want to explore through a case study. When it comes to researching changes, the problem is in insufficiently determined operational events that make the observed change. For the solution of this problem, Yin proposes that the researcher choose a clearly defined type of changes to be studied within the observed phenomenon, linking this change with the aims of his research. Then the researcher can show how the selected indicators of these changes reflect specific types of changes. To fulfil this validity requirement, we will be using the conceptual framework and focus on certain dimensions of change doctoral education, identified according to the dominant topics in the existing literature on change. We will try to see how changes occur in these dimensions, focusing our research and applying the same criteria for each case.

External validity refers to the question of whether the results of a case study can be generalised to other cases. In this study, the particular question would be whether the results of this research, obtained by case studies at four universities, can be generalized to other universities and to the processes of changes of doctoral education in general. The problem with generalization in case study research is that the case study is often compared to questionnaire-based studies conducted on a sample. According to Yin, this is a wrong analogy. The case study uses a different type of generalisation than the questionnaire-based research, the so-called analytic generalisation, which has its power when it is linked with someone broader theory and thus supports that theory. In our research, the results of the case studies will be explored in relation to the three theoretical perspectives discussed earlier, the Henry Mintzberg's understanding of universities as professional bureaucracies, the neo-institutional theory of organizational changes and the understanding of universities a loosely-coupled systems.

Reliability, the third test of the case study's validity, is the assurance that the use of the same procedures applied in one study will lead to the same findings and conclusions if it is applied by another researcher on the same case. Reliability can be achieved carefully documenting all the procedures that will be taken when conducting the case studies. Yin suggests two tactics to achieve this – creating a case study protocol and creating a database of case study. Therefore, before the collection of data starts, we will create a case study protocol. Case study protocol is

of particular importance when conducting multiple case studies because it serves as a reminder of what data should be collected [63]. The protocol promotes the reliability of the study, because, when properly used, each study case will be implemented in the same way, thereby diminishing the possible methodological errors.

6.3. Selection of cases

This section explains two choices: the number of cases chosen, and the choice of countries/universities included in the study.

Case selection was motivated by theoretical and practical rationales. Firstly, the selection of cases was made with the intent to achieve the results that will be relevant to the research questions and the expectations of the study. We have taken into consideration universities that are comparable to each other based on their tradition of doctoral education as they all belong to the continental tradition of European higher education. But they also differ in their histories, context, national role, available resources and size. Such approach is known as the "theoretical replication", where researcher predicts contrasting results but for predictable reasons [63]. Therefore, purposive sampling was used to select universities that are information-rich with respect to the topics under investigation. As the contacts in academia and friendship can be helpful to establish a list from which cases can be selected, potential cases were obtained using personal networks and word-of-mouth referrals [144, p. 540].

Practical reason for selecting these universities was because we had "extended access to multiple sources of information regarding many important dimensions of university history, organizational structure, and cultural orientation" [98, p. 698]

Research was conducted at these four universities: The University of Vienna (UniVie), the University of Ljubljana (UniLj), the Universidade NOVA de Lisboa (NOVA) and at the University of Montenegro (UMN). The key criterion in the selection of the aforementioned universities is that they have passed or are undergoing a process of reform of doctoral education. These four universities have higher education systems with clearly different roots and have undergone doctoral education reforms but at a different timing and to a different degree. By selecting these four universities, we had the access to the experience of individuals who were actively involved in change and who could provide us with the information about the perceptions and experiences in the process of change. In this way we can analyse the best

practices used in the reform of doctoral education at other universities and try to understand how these practices are implemented.

6.4. Data collection

6.4.1. Interview

Qualitative interview has today become a key method in social sciences, and some argue that it is the central resource to deal with issues in social science [145]. Interview is, according to Vujević, "type of a poll in which questions are asked and answers are given verbally" [146, p. 124]. It is a conversation initiated by the examiner with the specific aim of obtaining information relevant to the investigation and focused on the content specified by objectives of the research. The interview is a means for obtaining detailed information on a subject that cannot otherwise be directly observed, in a way that the questions are asked directly to the respondents using a specific sample [147].

Interviews as data collection methods have certain advantages, for example we can use them to gain useful information in situations where we cannot directly observe the participants [139]. Also, interviews allow participants to better describe the events in which they took part, while the examiner has more control over the information he collects, as he can ask sub-questions to investigate the studied phenomenon further. On the other hand, the disadvantages of the interview lie in the fact that it supplies information that is filtered through the views of respondents, and that there is a possibility that the respondent gives the researcher the information that he wants to hear. The presence of researchers may also affect the interviewee's responses [145].

In this research, interview was chosen as the main method of data collection since the aim of the research was to determine the experiences of key people in reforms of doctoral education at different universities. Interview also allowed us to collect information which could not be directly observed, such as feelings, motivations, attitudes, values, expectations and experiences of individuals [139]. We analysed how the key actors carried out the process of change on selected universities, what constraints were placed on their ability to pursue the change and what were the results of the change process. These aims of the interview were derived from the aim of the research and are closely related to research questions and the expectations of the study.

Semi-structured interviews were used in the research. In semi-structured interviews the examiner has several specific questions, but can, if necessary, change their order and give more explanations to the subject. Semi-structured interview has almost become synonymous with the qualitative interviews, compared to the structured interviews, they can better use the potential of a dialogue to generate knowledge, allowing for more freedom in the interview process. Semi-structured interviews also allow interviewer to focus the discussion on issues that are more important to the research project [145].

In total, 16 interviews were conducted. Two types of interviews were used in this research: face-to-face interviews (13 interviews) and telephone (Skype) interviews (3 interviews). Individual, face-to-face interviews were chosen instead of group interviews as they provide interviewer with the possibility to steer the interview into desired direction, but they also provide more confidentiality and make it easier to create an atmosphere of trust and discretion [145].

On the other hand, Skype interviews were used in those instances where physical distance between interviewer and interviewee did not allow for more traditional face-to-face approach (the case of Universidade NOVA de Lisboa). As any data gathering technique, Skype interviews have their strengths and weaknesses. Although direct physical proximity is still absent, Skype interviewing “constitute the closest possible distal approximation of actual face-to-face interaction”[148].

Combination of face-to-face and Skype interviews represent a natural progression in what researchers are doing today with technologies available to them [149]. Mixing two types of interview in a single interview-based research is now relatively commonplace, motivated mostly by pragmatic reasons [150].

Face-to-face and Skype interviews were recorded to reduce the possibility of unconscious selection of data and to arrive at a complete record responses that can be studied in far more detail than would be the case if only it was written during a conversation [147].

6.4.1.1. Sampling method and participants

The motivation for choice of cases was theoretical and practical. Theoretical motivation was to achieve the results that will be relevant to research questions and the expectations of the study. Thus, the key criterion was that universities have went through the reform process of doctoral

education. The practical reason was the access to key informants on those universities. The selection of participants of the interview was carried out combining two methods, the key informants' approach and the snowball sampling technique. In key informant's approach, the interviewer collects data from informants who have special knowledge or perceptions that would not otherwise be available to the researcher. Key informants have some specific skills than other members of the population such as, more knowledge, better communication skills, and/or different perspectives [147]. We found a key informant at each university using earlier networks and collaborations, and initial interviews were performed. As the contacts in academia and friendship can be helpful to establish a list from which cases can be selected, potential cases were obtained using a personal networks and word-of-mouth referrals [144, p. 540]. We then supplemented the sample by applying the snowball sampling technique. Snowball technique is a form of accidental or nonprobability sampling, especially proper when the members of special population are difficult to locate, or the population is small or difficult to access. In snowball sampling, the researcher collects data on the few members of the target population he or she can locate, then asks those individuals to provide the information needed to locate other members of that population whom they happen to know [151].

Interviews were carried out in the period of June 2017 – June 2018 with key people on universities who had specific knowledge of the changes in doctoral education and were selected on the criteria of their expertise and experience in conducting reforms in doctoral education on their university. They were identified as “key players” in the change process and then interviewed during face-to-face or Skype meetings. Copy of the interview protocols were send to the potential participants before the interview so they knew what they will be asked and could reflect on their experiences and be prepared to discuss those experiences [152].

Each of the key players was asked to nominate 2-3 of his/her colleagues who were also actively involved in the change process and could provide more critical information on the implementation of change in doctoral education. Final number of selected participants for the interview was determined following the concept of saturation, according to which the collection of new data should be terminated once it no longer contributes to the quality of the research [153]. We were following Brinkman's rule of thumb according to which interview studies tend to have around 15 participants, which is a number that makes handling of the data manageable [145].

With the consent of the interviewees, the conversations were audio taped and lasted from 45 minutes to 1.5 hour depending on the availability of time and saturation of data obtained. Anonymity was assured, and pseudonyms were assigned to all interviewees to protect their confidentiality. The interview protocols were used in all interviews. The interviews at universities NOVA and UniVie were conducted in English, while Croatian was used at UniLj and UMN, and then the citations were translated to English. Field notes were taken during the interviews and after to record the impressions of the conversations, the setting, as well as possible observations about the interview context.

6.4.1.2. *The structure of the interview*

The focus of interviews and interview questions were directed by three research questions:

1. What change management approaches and strategies were used by the key actors to achieve reforms? (RQ1)
2. How did the key actors respond to the demands for change and what were the outcomes of change process on selected universities? (RQ2)
3. What were the institutional constraints and obstacles in the change process? (RQ3)

Additionally, expectations of the study also contributed to widening the scope of the interviews and have added to the number of observed concepts:

1. We expect that the change process in doctoral education will be less successful if it was not backed by the changes in the mission, strategy, and strategic goals of the university (Exp1)
2. We expect that the change process will be less likely to succeed if it was not aligned with the decentralized institutional structure and culture of HEIs (Exp2)
3. We expect that the change process will be more likely to succeed if the change agents created high level of change readiness among members of the university (Exp3)

The research questions and the expectations of the study were operationalised in the interview protocol. The result were 13 interview questions (not counting the introduction question), which can be seen in Table 6. Interview protocol covered all the concepts of the conceptual framework of the study, discussed in more details in Chapter 5. Some interview questions had probes, allowing for deeper examination of certain concepts, while some concepts were examined using

more than one question. This allowed to approach the more complex concepts from different directions of inquiry. For example, concepts “Institutional culture” and “Results of change process” were subject of four interview questions, as they were identified in the conceptual framework to be highly important.

The final interview protocol consisted of thirteen main questions and eleven probes but was changed to some extent during the interviews. Some interview questions were merged due to the time constraints for some interviewees, while some added probes were asked when the discussion went into the direction that offered new insights not covered with the original questions and probes (for example the discussion on the role of Bologna process).

The order of questions in the interview was determined by combining psychological approach with the funnel approach, to get the most quality answers from the respondent. Psychological approach to order of questions is more directed to the internal logic of the inquiry, which in this case was following chronological unwinding of the change process, while funnel approach starts with broader questions and leads the respondent to more and more complex ones [154].

Table 6. List of interview questions

Nr.	Question	Concepts examined	Source
0	Can you please tell me your position and responsibilities at the university at the time when reform of doctoral education was initiated?	<ul style="list-style-type: none"> • Icebreaker, introduction to the interview 	-
1	How would you describe your university at that time, in terms of internal organization, management and coherency? - Probe 1: How would you describe the interactions among different decision-making levels of the university? - Probe 2: Who had the power to make decisions?	<ul style="list-style-type: none"> • Institutional culture • Institutional structure 	Exp2
2	In your opinion, what were the most critical issues in doctoral educations at your university at that time? - Probe 1: In your opinion, was the reform needed?	<ul style="list-style-type: none"> • Readiness for change 	Exp3
3	How was the idea of reforms introduced at your university, how did the reforms start? - Probe 1: Did the idea of reform came from the university itself or from outside of the university? - Probe 2: Who were the main players in the reform? - Probe 3: What was your motivation for starting the reform?	<ul style="list-style-type: none"> • Change management strategy and approach • Sources of change • Change agents 	RQ1 Exp2 Exp2
4	What were the goals of initiated reforms? - Probe 1: In your opinion, were these goals understood by members of the university? If not, why?	<ul style="list-style-type: none"> • Results of change process • Readiness for change • Involvement and participation of members of the university 	RQ2 Exp3
5	What main steps and what activities did you use to achieve the goals of reform?	<ul style="list-style-type: none"> • Change management strategy and approach • Reform activities • Involvement and participation of members of the university 	RQ1

6	In your opinion, what were the main obstacles and limitations you encountered in your work on reforms?	<ul style="list-style-type: none"> • Institutional limitations and obstacles • Availability of resources 	RQ3 Exp2
7	How did you bypass those obstacles, what methods did you use in your work on reforms?	<ul style="list-style-type: none"> • Methods for circumventing obstacles • Change management strategy and approach 	RQ1 RQ3
8	How would you describe your relationship and cooperation with other members of university in the process of reform? - Probe 1 – In your opinion, how did the other members of the university react to the proposed reforms? - Probe 2 - How would you describe their level of resistance to the reforms?	<ul style="list-style-type: none"> • Involvement and participation of members of the university • Institutional culture 	RQ2 Exp2
9	Looking from today's perspective, how would you describe the outcomes of the reforms, how much did the things change? - Probe 1 – Did the university's strategic goals changed as part of the reforms?	<ul style="list-style-type: none"> • Results of change process 	Exp1, RQ2
10	In your opinion, did the change succeeded or not and why? Please elaborate. - Probe 1 - Are you satisfied with the results of change?	<ul style="list-style-type: none"> • Results of change process 	RQ2
11	From today's perspective, do you think the approach used (by the management) for achieving the reforms was proper for your university?	<ul style="list-style-type: none"> • Institutional culture 	RQ2 Exp2
12	Are there some things you would have done differently?	<ul style="list-style-type: none"> • Institutional culture • Results of change process 	RQ2 Exp2
13	In your opinion, and based on your experience of the past reforms, what are the preconditions for university to succeed in reforms of doctoral education?	<ul style="list-style-type: none"> • Institutional limitations and obstacles 	Exp1 Exp2

Data was collected through sixteen semi structured interviews with executive administrators (i.e., university rectors, vice-rectors, heads of the Senate etc. – see Table 7). All sixteen interviewees played a vital role in planning and implementing the reform of doctoral education and had a particularly good knowledge about the entire process. We assigned pseudonyms to all interviewees to ensure confidentiality. We used two types of interviews carried out in the period of June 2017 – June 2018: face-to-face interviews (13 interviews) and telephone (Skype) interviews (3 interviews). Purposeful sampling was used to identify the interviewees at universities, using the help of an informal gatekeeper [155]. The gatekeeper was in our case a person who was involved in the change process and had a good knowledge and connections to other key persons. All interviewees played a vital role in planning and implementing the initial reforms of doctoral education on observed university and had a very good knowledge and information about the whole process. Therefore, they were a valid information sources within the context of change.

The interviews were transcribed electronically to set up the dataset for this study and were then analysed using Atlas.ti software, applying analytical methods and procedures described later in the text.

Table 7. List of interviewees

No	Pseudonym	University	Position at time of reforms
1	Fred	UniVie	Rector
2	Douglas	UniVie	Vice-Rector
3	John	UniVie	Chairman of Senate
4	Mick	UniVie	Dean/Member of Senate
5	Bob	UniVie	Deputy Director of Doctoral Studies Program
6	Tim	UniVie	Head of central service
7	Sophia	UniLj	Rector
8	Leticia	UniLj	Director of doctoral school
9	Monika	UniLj	Vice-dean
10	Anita	UniLj	Assistant to director of doctoral school
11	Miranda	UMN	Rector
12	Igor	UMN	Head of doctoral studies committee
13	Frank	UMN	Rector
14	Boris	NOVA	Rector
15	Jim	NOVA	Vice-rector
16	July	NOVA	Head of doctoral school

6.4.2. Document analysis

Documents can be very valuable source of information in case studies, as they provide “a mechanism and vehicle for understanding and making sense of social and organization practices” [156]. Document analysis is often used for triangulation of data, which can enrich the data obtained through other means and help researcher understand central phenomenon in qualitative studies [139]. Documents are especially important when studying organizations such as universities (and higher education generally), as universities are constructed through documents. It is the documentation that forms what is called “documentary reality”, or organizational feature that is created and sustained in and through documentation. This means that features of university, its organizational structure, mission, vision, goals, even positions, exists only if they are documented [157].

Thus, the second source of data needed for the analysis of changes in doctoral education were documents (official decisions, regulations, records, strategies, presentations etc.) created before, during and after the introduction of changes. These documents supplied an additional insight into the process and content of changes and complemented the information obtained through interviews. In our research, interview data was complemented with information drawn

from gathered policy documents including internal memoranda, letters, university strategic documents. Further evidence was found through internet web- pages (for example media reports on the process of change).

In total, we collected 31 documents, and have listed them in Table 8.

Table 8. List of collected documents

University	Title of the document	Type of document	Author
UniVie	Universities Act 2002	Legal Act	Austrian Federal Ministry of Education, Science and Research
	Efficiency and effectiveness of public expenditure on tertiary education in the EU. Annex: Country Fiche Austria	Report	European Commission
	Report of Mapping Exercise on Doctoral Training in Europe: "Towards a common approach"	Report	European Commission
	Higher Education in Austria 2004	Report	Austrian Federal Ministry of Education, Science and Research
	Higher Education in Austria 2016	Report	Austrian Federal Ministry of Education, Science and Research
	University of Vienna – Organigram 2013	Organigram	University of Vienna
UniLj	Strategy 2006-2009	Strategy	University of Ljubljana
	Strategy of University of Ljubljana 2012-2020	Strategy	University of Ljubljana
	Decision on establishment of doctoral school on University of Ljubljana	Legal act	University of Ljubljana
	Doctoral studies on University of Ljubljana	Regulations	University of Ljubljana
	Statute of the University of Ljubljana	Legal act	University of Ljubljana
	Interview with “Monika”	Press release	Viva portal
	Interview with “Monika”	Press release	RTV Slovenia
	Interview with “Sophia”	Press release	Viva portal
	Renovation of Doctoral Studies in Europe According to Bologna Process; Example of University of Ljubljana	Presentation	
	Higher Education Act 2004	Legal act	Ministry of Education, Science and Sports
Higher Education Act 2013	Legal act	Ministry of Education, Science and Sports	
NOVA	Good Practice in PhD Education at Universidade Nova De Lisboa	Regulations	Universidade Nova De Lisboa
	Plano Estratégico 2012 - 2016	Strategy	Universidade Nova De Lisboa
	University Autonomy in Europe – NOVA University within the context of Portugal	Presentation	
	Self-Evaluation Report. European University Association Institutional Evaluation	Report	Universidade Nova De Lisboa/EUA
UniMN	Bilten Univerziteta Crne Gore	Press release	University of Montenegro
	IEP launches coordinated evaluations in Montenegro	Press release	EUA

	Evaluations of ten higher education institutions in Montenegro Cross-cutting summary report	Report	EUA
	Regulations on doctoral studies	Regulations	University of Montenegro
	Regulations on organization and work of system for insurance and quality improvement at the University of Montenegro	Regulations	University of Montenegro
	Doctoral studies at University of Montenegro	Press release	University of Montenegro
	Strategy for Doctoral Education (2017-2022)	Strategy	University of Montenegro
	University of Montenegro Self-evaluation Report 2018	Report	University of Montenegro/EUA
	Analysis of State and strategic commitment for the reorganization and integration of the University of Montenegro	Report	University of Montenegro/EUA
	Law on Higher Education	Legal act	Ministry of Education

6.5. Data analysis

6.5.1. Introduction

Due to the richness and the complexity of any qualitative data, there are diverse ways of analysing it – qualitative approaches are complex and diverse. Many different analytical strategies exist since qualitative data can be observed from different perspectives [158]. What this means is that there is no single right way to do qualitative analysis of the data, but that the choice of approach to analysis depends on the purpose of the research.

According to Miles and Huberman, analysis of qualitative data relies on reports that summarize and sort the data to allow the adoption of coherent conclusions, whilst the researcher avoids information overload and bias that occurs when trying to analyse the non-reduced text [103]. In our work, analysis and processing of the collected qualitative data was aided using analytical strategy that relies on theoretical framework and the expectations of research. This approach to data analysis, according to Yin, represents the preferred analytical strategies [63]. To use theoretical assumptions for the analysis of data means that data was collected following the priorities set in the theoretical assumptions and that their analysis was focused by the research questions to avoid overloading with the data. It also means that analytical deduction was applied to the data, using previously formulated and theoretically derived main concepts of analysis which are then brought into connection with the text [159].

6.5.2. Thematic content analysis

When choosing analytical tool for data analysis that would be used in this work, we were guided by the following premises: a) theoretical framework was developed before we started the data

collection, therefore we had at our disposal a number of predetermined themes on which we designed the interview questionnaire; b) we were interested to see how the predetermined concepts fit into the real situation on universities, and how our theoretical framework manages to explain the change phenomenon; c) despite the predetermined themes, we were aware that there will surely be some new themes and concepts that were not identified before the data collection, so we had to leave room for new ones and incorporate them into the new theoretical framework. We were also aware that some themes may be discarded or merged with the others, and that some themes will exchange the position in the hypothesised conceptual framework.

Based on these premises, we decided to process obtained qualitative data using *thematic analysis* which identifies, analyses and reports themes within the collected data [160]. Thematic analysis is seen as foundational method for qualitative analysis, and it is the first qualitative method of analysis that researchers should learn, as it provides core skills that will be useful for conducting many other forms of qualitative analysis (ibid.). For some, it is a generic skill that should be used in qualitative analysis, and as such is not so much a method but rather a tool that can be used across different methods.

There is some confusion about the term “thematic analysis” when used with other qualitative approaches to data analysis. The term is often used interchangeably with terms “content analysis” and “qualitative content analysis”, to refer to similar approaches to qualitative data analysis. Reasons for this are historical, since term “thematic analysis” (or “thematic coding”) is more popular in English-speaking countries, while the term “qualitative content analysis” is more spread on the Continent and especially in Germany and German-speaking countries [161].

There a few advantages of using thematic analysis versus other qualitative methods for data analysis, such are for example the grounded theory, discourse analysis or hermeneutic phenomenology. Thematic analysis is suitable for situations where researcher wants to perform a low level of interpretation of the data. This was the case in our research since we are using pre-constructed theoretical framework, and not inductively building a new one from the data. Thematic analysis minimally organizes and describes the data and is a flexible tool which can be applied across a range of theoretical and epistemological approaches (both essentialist and constructionist paradigm), unlike grounded theory or discourse analysis [160].

Disadvantages of thematic analysis lie in its flexibility and the ability to be broadly applicable. Using thematic analysis makes it difficult to focus only on certain aspects of the data during

later phases of the analysis, as thematic analysis has limited interpretative power beyond mere description. This can be avoided if the researcher uses the thematic analysis within a theoretical framework which can then support any analytical claims (ibid.). Added disadvantage, or a limit of the thematic analysis when compared to other qualitative analytical methods like discourse analysis or content analysis, is the fact that thematic analysis does not deal with the language used in the text. Therefore, it lacks a certain sensitivity to the way language is used and for all idiosyncrasies of the language.

In thematic analysis, themes can be found in two ways – inductive (bottom-up) or deductive (theoretical) (ibid.). An inductive approach means that the themes are intricately linked to the data and are not necessarily linked to a pre-existing coding frame or analytical preconceptions (although this is never really true). Theoretical or deductive approach is based on the researcher's theoretical interest in the area, and it provides less rich description of the data while offering a more detailed analysis of certain aspects of the data (determined by the research questions, as was the case in our research).

Analysis of data using thematic analysis tool consisted of the following six steps, as proposed by Braun and Clark (ibid.): 1. Familiarizing with the data (including transcribing, reading and re-reading, noting initial ideas); 2. Generating initial codes; 3. Searching for themes – collecting codes into potential themes, creating initial thematic map using computer software; in our case, we had at our disposal nine pre-determined themes based on the conceptual framework that we used in the coding process; some of these themes remained after the coding, while other were modified or rejected – more on this later in text; 4. Reviewing themes, to check if the themes work in relation to the entire data set (in our case, all interviews for single case and across all cases); 5. Defining and naming themes, refining each theme and positioning them in the revised conceptual framework; 6. Producing the report, first for each case and afterword cross-case for the entire data set (all four cases).

6.5.3. Coding the data

Central tool and the essence of thematic analysis are themes (or patterns), which “capture something important about the data in relation to research question and represent some level of patterned response or meaning within the data set (ibid., p. 10).

The method for finding patterns in the data is called coding. Coding is a method “that enables you to organize and group similarly coded data into categories or “families” because they share

some characteristic – the beginning of a pattern” [162]. Another understanding of coding is that it creates themes from our own perspective, as it is questionable if the themes exist in the data independently from our interpretation [103]. Code on the other hand is “most often a word or short phrase that symbolically assigns a summative, salient, essence-capturing, and/or evocative attribute for a portion of language-based or visual data” [162, p. 3]. Consequently, coding refers to a process of arranging and classifying, or categorizing, small bits of data which have some importance for the researcher.

Coding happens in cycles and is recurring. After the first cycle of coding is done (the so called “initial coding”), the researcher goes back to the data and performs another set of coding, checking, and assessing the initial codes, rejecting and modifying them if needed and making them more refined. Over time, codes become more abstract and conceptual, and some of the codes get “absorbed” by other codes, which instead become categories. Categories are composed of codes clustered together according to similarity and regularity (a pattern). Categories can hold sub-categories, while major categories lead to broader concepts and finally can help researcher to form a theory about the examined data (ibid., p. 12.).

Figure 5 illustrates how the process of coding happens with the data:

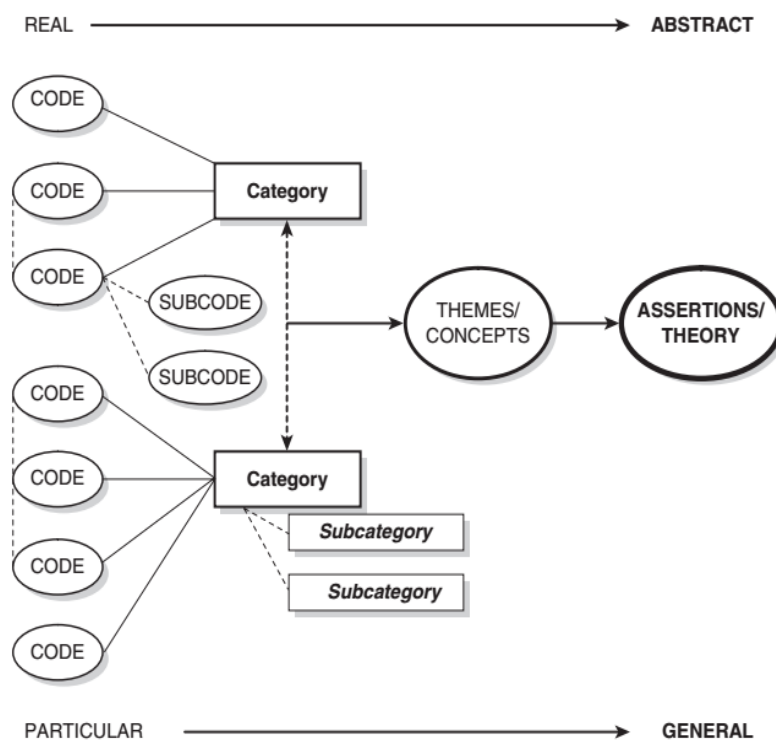


Figure 5. A streamlined codes-to-theory model for qualitative inquiry, From: *The Coding Manual for Qualitative Researcher*, Saldana, J., 2013

There are many ways a researcher can approach coding of the data – Saldana for example list 32 different methods of coding (ibid.). Which one will be used depends mostly on the nature of the central research question, and different goals of the research will need different coding technique. More than one approach to analysis of data is also applicable approach.

As our research was theory-driven and we developed a conceptual framework *prior* to the coding process, we decided to use provisional coding as a coding method of choice for collected data set [103], [162]. Provisional coding establishes “a provisional "start list" of codes prior to the fieldwork. The list originates from the conceptual framework, list of research questions, hypotheses, problem areas, and/or key variables that the researcher brings to the study [103]. In our case, we started with a provisional list of nine major codes, which reflected the main concepts of our conceptual framework and were related to the research questions and to the expectations of the research.

One danger of provisional coding is that researcher can easily fall into trap of finding what he is looking for, meaning that the preconceptions can distort the results, “pulling” the analysis into one way while obscuring the other important findings in the data. To avoid this pitfall, researcher should be open to other possibilities and be able to accept that somewhere along the way some provisional codes will be changed or even rejected. In our case, this is exactly what happened – as the analysis went on, it become clear that some of our provisional concepts are just not “filling in” – newly generated codes were not relating to some provisional concepts, but this was expected.

After we completed the analysis of all interviews, we went ahead with another methodological tool - theming the data. “Theming the data” [162] implies search for themes in the data, or “abstract entit(ies) that brings meaning and identity to a recurrent [patterned] experience and its variant manifestations. As such, a theme captures and unifies the nature or basis of the experience into a meaningful whole” [163, p. 362]. Codes for each case were sorted to see if they can form an overarching theme or whether they can be included in the main concepts of our conceptual framework (an example of one such process for UniVie can be seen in Table 9). Thematic maps were developed for each candidate theme [160], and one general thematic map was devised for each case (see detailed descriptions of each case in Chapter 7). Next step included similar process, but for the entire data set – all four case studies were analysed for similar (or opposite) themes, and the themes were re-checked in relation to the whole data set, which led to some refining of the final themes. For each individual theme, we conducted a

detailed analysis, to see how it fits into the broader picture of change management in higher education, and how it relates to our research questions and to each other. We present our analysis in Chapter 9, where we discuss the modified conceptual framework.

Table 9. The example of coding process for UniVie

1 st level codes	Illustrative quote	Category	Main theme
Political backup	<i>Talk about first, informally, with the political spheres, members of the parliament, members of the ministry, which ambitions you have, which plans you have, and try to get your back free of the resistance, that's important.</i>	External methods	Change management methods
Finances – stick and carrot	<i>...but universities were not given much chance, because there was a threat that funds would be cut if they don't implement this new system.</i>		
Use critics	<i>...give them an active role even if they are little bit fighting you, like the person who was in charge of the curriculum commission, he was always very critical. So, we gave him an active role so that he has to deal with it.</i>	Interpersonal methods	
Unanimous decision	<i>Of course, you always have divergent opinions, and...by and large, we managed to get most of our decisions done unanimously.</i>		
Work in small groups	<i>...so, it was a very small group of about five people which we called the "metronome group", because the idea was to give the beat...like, you know, from piano playing.</i>		
Dissemination of information	<i>emphasize the need of the reform, instead of just saying this is bureaucratic act or adaptation of what is already done.</i>		
Reward enthusiasts	<i>And if there is a possibility to reward early enthusiast, that would be wonderful but, very often it is not...does not exist.</i>		
Argumentation	<i>what we tried to do is convince them it is really for their...it supports the quality of doctoral education, and it support the quality of research.</i>		
Build coalition	<i>So, as long serving professor you have networks, so, it would have been perhaps difficult if I have come from the outside</i>		
Negotiation	<i>So, it is a lot of negotiations. But it has worked out reasonably well I would say.</i>		
Create new university bodies	<i>we have set up a kind of project advisory board, consisting of...members from the senate, I would say distinguished scholars, and us from the rectorate.</i>	Internal methods	
Synergies with institutional changes	<i>What went hand in hand with this reform was the reorganization of the UniVie into somewhat smaller faculties, which I think was also a good move.</i>		
Use internal examples	<i>Leading by example, if you want, to some extent...I think that is always the best if you can do that</i>		
Use existing bodies	<i>...those PhD admission committees that were established in each and every department</i>		
Top-down approach	<i>those who did not want to change would never change, never. So, you had to apply some pressure and... you had to make clear which path has to be taken.</i>		
Dynamic atmosphere	<i>You have to create atmosphere of dynamics within the university.</i>		
Formalized plans and goals	<i>So, everything that is fixed in the statute is fixed for all of them.</i>		
Change of legislation (internal)	<i>.... that was then also formally adopted by UniVie.</i>	Legal methods	
Change of legislation (external)	<i>In 2002 it was the University Act, was changed, got into force in 2004. But there was another adaption of the law and this took place, I don't know, 2005, 2006, 2007, that obliged the university to change the doctoral curriculum latest by 2009.</i>		
Allow variations	<i>There should be a certain degree of variation given the various subjects...</i>		

6.6. Limitations of the research

We are aware that there are several key limitations in our research, and they affect the ability of the research to be generalized and universally applied. Every university is unique, with different traditions, context, issues, relationships of power, and there cannot be one best way to proceed with change.

Firstly, all four cases are – to a varying degree – a success stories. What we mean by this is that the interviews were conducted with the leaders of the change, and they had - by default - a positive stance toward the change. Therefore, we examined only one side of the process. We are positive that there were members of the university who were not supporting the change and had very different views on the methods, goals and the results. Unfortunately, due to the limited resources and time, we did not have the opportunity to interview those members, and this could only represent the affirmative side of the process.

Second limitation was the inability to assess how much the reforms have improved the situation. We could not assess if the changes brought improvements to universities that we examined or not. The participants in our research expressed this limitation themselves, and on multiple occasions stressed the fact that they do not know and cannot measure the effects of change. The formal aspects of change were there – the new statutes, the new regulations, the new procedures, the new criteria, the new structures, the new services. But the question remains are the doctoral candidates better due to all these novelties? And how can we contribute this „betterness” to the reforms?

Third limitation is the researcher himself. Due to his previous experience and involvement in the change of doctoral education on one Croatian university, the views and attitudes toward the change were, to a certain degree, already formed. Consequently, some of the interpretations of acquired data and responses from the interviewees are biased.

7. Results - Reform of doctoral education on four universities

7.1. Case 1 – University of Ljubljana

7.1.1. Introduction

University of Ljubljana is the oldest (founded in 1919) and largest higher education and scientific research institution in Slovenia. It has more than 40,000 undergraduate and postgraduate students and employs approximately 5,800 higher education teachers, researchers, assistants and administrative staff in 23 faculties and three arts academies. The University of Ljubljana is the central and largest educational institution in Slovenia, and it is also the central and largest research institution in Slovenia with 30 percent of all registered researchers (according to the data from the SICRIS database). The University of Ljubljana is listed amongst the top 500 universities in the world according to the ARWU Shanghai, Times THES-QS and WEBOMETRICS rankings [164].

The UniLj belongs to the higher education system which is built and defined on the historical legacy of the transition from the former Yugoslav republic into a sovereign state during the 1990s. During the first years of independence in the early 90s, Slovenia was without a specific law on higher education. It was only in 1993 that the first Higher Education Act was adopted by the parliament [165]. Central issue of the new law was the status of the members of the university, or the faculties. According to the previous legislative (in the former Yugoslavia), universities were “associations of independent faculties”, entities without any real power, while the real higher education institutions were the faculties who had legal entity and even received the funding directly from the Ministry. Such situation was the result of the socialist model of self-governing typical for Yugoslavia, which was extended to the governing of higher education institutions [166].

With the new higher education act in 1993 and its amendment in 1999, Slovenia was the only country among the former Yugoslav republics which abolished the legal status of independent faculties, although they kept their own financial accounts outside the public budget. The change in the status of faculties happened after much debate and after the Constitutional Court was called to intervene and rule on the decision. There is some speculation that the court’s decision was influenced by the Slovenian accession to Bologna Declaration which happened six months after the Constitutional Court ruled in favour of abolishing the legal entity of the faculties.

However, according to Zgaga, “the transition from the former system of independent faculties to a re-integration of the university has been a long process that has yet to be fully completed” [167]. The effects of this transition will influence the change process in doctoral education discussed later.

The current legislation on higher education in place, with its last amendment in 2016, defines the status of universities as public institution established by the state and the owners of that part of their assets which have been obtained using public funds. The employment function becomes wholly the concern of higher education institutions [168]. According to law, universities are governed by the rector, the senate, administrative board, and the student council. Rector is elected among and by all higher-education teachers, scientific staff and higher education staff employed by the university, while state provides funding in the form of lump sum [Ibid].

Slovenia signed the Bologna Declaration in 1999, which thoroughly changed the tertiary education which had to adapt to the three-cycle structure. A degree system based on three main cycles has existed in the Slovenian higher education system since the 1960s, but the length and the structure of studies did not correspond with the Bologna guidelines. Therefore, in 2004, a new structure of higher education studies was introduced [168]. The first Bologna study programmes were offered in the 2005/2006 academic year. The progressive introduction of the Bologna reform was completed in the 2009/2010 academic year. Prior to that, the higher education system was composed of undergraduate (4-6 years) and post-graduate studies (specialisation (1 to 2 years of professional studies), masters' studies (2 years of research-oriented studies) and doctoral studies (4 years of scientific-research work).

7.1.1.1. Doctoral education before the reforms

Until renovation of doctoral studies, doctoral education at UniLj was organised mostly at individual faculties. Several postgraduate programs leading either to master or to doctoral degree were performed, usually covering one separate scientific field or study area. As was the situation on most European universities at that time, doctoral education was unstructured and highly unregulated. Doctoral candidates were people who intended to stay in academia and pursue a career in science. There were no national or institutional regulations on doctoral education, although some rules were included in the statute of universities. Doctoral candidate was tasked with working on his/her dissertation without any formal status and the entire process was considered a private matter of the candidate:

I have the impression that at a time when I was studying, that was my private affair. So, I, with my highly valued mentor - let's be clear, I didn't have any conflict -but simply, every one of us was working for ourselves. It was mine...I was a young researcher, so it was my responsibility, I didn't do it just for the hell of it, it was my job. "(Anita")

Quality criteria and the control mechanisms were almost non-existent, although the formal procedure for awarding the doctorate was fairly complicated. Before the reforms, there were three separate doctoral committees: project plan evaluation, doctoral thesis evaluation and oral defence committee. Despite this, doctoral candidate's progress was not monitored in any way, and the assessment of doctoral dissertation was considered only a formality. To be suitable for a supervisor, the only criteria was to be elected as a full professor. Consequently, there was no control over the supervisor's research activities, or the control over the number of doctoral candidates which can be supervised by one supervisor. Number of enrolled doctoral candidates exceeded the research capacity of the university, while the ratio of enrolled and graduated was very low. There was no time limit for obtaining the doctoral degree, so doctoral candidates stayed enrolled at universities for years without any consequence.

7.1.1.2. Start and goals of the reform

The process of overhaul of doctoral education started in 2004 after the new legislation classified all study programmes into three-cycle system according to the Bologna declaration. The reform of doctoral education took place with the reform and reaccreditation of other two study cycles and study programmes. The management of UniLj realized that doctoral education as the third cycle of Bologna process was very different from the first two cycles as it is inevitably tied to the research process [169]. Important decisions on the doctoral study reforms were accepted at the university level and the reform of doctoral education was included in the university strategy. The strategy emphasised the opportunity to reform doctoral education in line with the Bologna process and Lisbon declaration, by increasing the number of interdisciplinary programmes, stimulating inter-institutional cooperation, raising the quality of doctoral studies and increasing the number of awarded doctorates [170, p. 33].

Most important of these decisions was the establishment of doctoral school in April of 2007, explicitly stated in the strategy of the university. Doctoral school was established by the decree of the rector and the rector's collegium, "with the purpose of assuming the institutional university responsibility for doctoral programmes and the research training of doctoral students in all scientific areas" [171, p. 8].

Second major step was the reforms of most existing doctoral programmes and studies, which happened between 2006-2009. The reform focused on connecting several faculties into interdisciplinary doctoral programmes organized and coordinated centrally by the UniLj, joining experts from different departments and from institutions outside of UniLj. The equal study conditions for doctoral students from all disciplines were accepted at the institutional level and were published as a university document in 2008 [172]. The first such interdisciplinary doctoral programme was Biomedicine, which was a collaboration of the Biotechnical Faculty, the Faculty of Pharmacy, the Faculty of Chemistry and Chemical Technology, the Faculty of Medicine and the Veterinary Faculty, and three research institutes: The Jožef Stefan Institute, The Chemical Institute and The National Institute of Biology. After Biomedicine, interdisciplinary doctoral programmes in statistic and environmental protection were conceived, and then the other followed:

First it was biomedicine, that it included some faculties, and then we came up with statistics, and then... and then it started. Mathematics, physics, it went on...
(“Sophia”)

Reorganization of doctoral studies aimed at making the scientific research a central part of doctoral programmes and using interdisciplinary approach where possible. The change agents wanted to avoid any further overlapping of doctoral programmes (which was then very pronounced), so a decision was made to not allow the duplication of doctoral programme in one scientific field. Goal was to achieve critical mass of doctoral students and teaching staff, increasing the research capacity of the university. Generic skills training, promotion of student and staff mobility and quality assurance of doctoral education were also introduced as means of reaching the goals of reform.

Overall, aim was to create more organized, structured type of doctoral education at the university:

We have created organized forms of work, we have begun to think about who can teach or not, what are these organized forms of work, we have started to be much more systematic with the fact that people have to write an thesis proposal, so they need to write the disposition, they have to present it, how, when, why, and then present at the end the results.... so, the whole sequence of events, expectation of a PhD candidate, of a Doctoral commission, of a supervisor, who can be a supervisor, how many people can supervisor have.... so, all the rules of this process. (“Anita”)

One of the goals of the reform was to set high criteria for teachers, supervisors, and the doctoral candidates, which would be accepted for all doctoral programmes on the university. Criteria

included publishing of one scientific article as a condition for obtaining the degree, integration of doctoral candidate into the research projects, strict requirements and criteria for supervisors (research activity, involvement in research projects, number of recent publications, limit of the number of doctoral candidates, etc.). Instead of three separate doctoral commissions, single commission was introduced, guiding the doctoral candidate from beginning to completion of his/her study.

The new doctoral programmes were introduced in academic year 2009/2010, and the total number of doctoral programmes was reduced from 130 to 21. Newly designed programmes differed in their levels of interdisciplinary approach and in the organizational scheme. There were four types of doctoral programmes: doctoral programmes with a comprehensive interdisciplinary approach coordinated at the university level (under the doctoral school); doctoral programmes with an interdisciplinary approach coordinated at the authorized faculty; programmes mainly covering one broad scientific area and coordinated at the faculty level; joint doctoral programmes prepared together with other European universities (Ibid., p 22).

In the strategic plans for the period 2012-2020, university plans to “strengthened the doctoral school as an international environment for the creation of new knowledge and the emergence of new projects and research groups in cooperation between mentors and doctoral students” [173, p. 11].

7.1.2. Main findings

7.1.2.1. *External environment*

External environment for doctoral education reform at UniLj was determined by the three factors: The Bologna process, the European University Association, and the absence of national, formal incentive for the reforms.

Bologna process was the main force behind the reform of doctoral education. Slovenia signed the Bologna declaration in 1999, and with it all the commitments which followed. Without the Bologna process, the reform would most likely never happen:

Interviewer: So, if it wasn't for Bologna, this wouldn't have happened?

“Anita”: No... I'm sure it wouldn't...

“Leticia”: Not likely...not likely. There would not be a defined third degree....no we have defined third stage...

“Anita”: Now the PhD is a separate degree...

“Leticia”: We started with the Bologna reform... All conclusions that we brought were due to Bologna reform...

Bologna process was regarded as a “lucky coincident”, a trend which made the changes possible and allowed for the creation of doctoral schools by making doctoral education a distinctive cycle of education. But more importantly, Bologna process has contributed to the integration of the university, and to the strengthening of the role of rector. This change has been an ongoing process from the early 1990s with the new law on higher education, but the Bologna process gave it even more momentum when the integration became a part of the university strategy. The integration (or centralization, depending on the view) made the changes possible, but it was also a source of resistance by the members of the university. The challenge was finding a balance between the tension for integration, at the same time keeping the relative autonomy of the faculties. External factors, for example the requirements in European projects in which the university had to compete as a single entity and not as a confederation of faculties, helped in this effort.

Second external factor that had an impact on the reforms in both steps, the creation of doctoral school and in the renovation of doctoral studies, was the European University Association (EUA). EUA, and later its Committee for Doctoral Education (EUA-CDE, founded in 2008), played a key role in the change, providing ideas and examples on how to organize doctoral education. UniLj was among forty-nine participants of one of the very first European projects on doctoral education, EUA’s *Doctoral Programme Project* in 2004-2005, which helped in the creation of seminal document for doctoral education in Europe, the Salzburg principles [174]. Interviewee named “Leticia” was taking part in the project and was one of the key speakers on the topic of interdisciplinary doctoral programmes using UniLj as an example of good practice. At the same time, she had a crucial role in doctoral education reform at the UniLj. Moreover, some of the members of the EUA-CDE steering committee are members of the UniLj responsible for doctoral education. Connection between these two institutions has always been strong and has influenced the process of reform content wise. Ideas that were being developed in doctoral education on the European level found their way into doctoral educational system of UniLj, with the founding of doctoral school as one of the prime examples of this influence. The concepts of new doctoral education at UniLj was built on the recommendations of EUA presented in the documents *Salzburg principles 2005* and *Doctoral principles in Europe 2006*. UniLj was among the first universities in Europe to officially introduce doctoral school as an organizational entity in charge of doctoral education for the whole university.

On the national level, situation was completely different when compared to the developments in Europe at that time. UniLj was acting alone in its efforts to modernise its doctoral education

and was in fact leading the change for the whole country, even in relation to the ministry. Reasons for this situation should be looked in the above-mentioned links the key players had with international organizations. As a result, the UniLj was at the forefront of the change in doctoral education in Slovenia, while the ministry was lagging due to the lack of knowledge and expertise. It went so far that the university was considered the authority for doctoral education on the national level and were used as an example and a source of information:

We were constantly in front of them... when we made something, then they listened to us, and then after one or two, three years, they accepted it. ("Leticia").

Ministry, although not actively participating, was not impeding the process in any way either. They accepted and supported the views of the university and respected their autonomy, but there was no legislative on doctoral education on the national level. The university was reforming ahead of the national legislation. Other universities in Slovenia were not interested in the reform, mainly due to the much less developed doctoral education system. They joined the reform much later, although with only minor changes.

7.1.2.2. Institutional structure

Institutional structure of UniLj at the time of change was determined by the historical factors and was determined by the Higher Education Act from 1993. During the 20th century, since its formal beginning in 1919, university was formed by joining strong faculties. At the beginning of 21st century, the university consisted of 23 faculties and 3 academies, which merged into the university during different periods of 20th century (mostly during 1970s and 1990s). Power was distributed between the faculties, Senate and the rectorate, with the former gaining more influence due to the legislation change, but also due to the changes in the management of higher education in Europe caused by the new public management ideology.

Although the influence of new public management was much less felt in Slovenia then it was in for example Austria, some trends are still noticeable in the Slovenian legislative. The tendency to emphasise the autonomy of the university, and the abolishing of micro-management by the ministry, setting up external quality assurance agency, performance monitoring, lump sum financing – these elements of the new public management were still finding their way into the Slovenian higher education sector. As was the case in other European countries, policies of the new public management needed strong position of the main management bodies at universities, thus strengthening the rector's role at the expense of deans.

Despite the policy of new public management, the historical structure of the university resulted in some difficulties for the implementation of the reforms. Primarily, the relationships between the faculties themselves were not always ideal. Some faculties who were included in the creation of the interdisciplinary doctoral programmes were not willing to cooperate, and were not able to agree on the common leadership of the programme, nor the criteria and rules that would govern it:

Those two faculties did not know how to come up with one person who would lead it... I have suggested, one year it would be us, the other you... but that didn't happen. Still, it's weird, it's bad, I keep saying this, but it didn't happen, still two vice-deans and two institutions running it together. And it does not work well, to be clear, to a large extent these two institutions still have some practices that are not good. ("Monika")

The result is the existence of somewhat different practices for doctoral studies on universities, despite the universal rules and criteria. This distributed characteristic of university was very pronounced during the change process when the interdisciplinary doctoral studies were formed, and is still felt today:

... some people still do not believe in joint doctoral studies, to be clear, some people – I know it – are just waiting for everything to fail and that they again have what they had before. ("Monika")

The Senate was the university body who held the most decision-making power and was responsible for every key decision on the university. As such, it presented a major obstacle for the reforms of doctoral education, mainly since it was composed of deans, who, as interviewee “Sophia” observed, did not want to give their consent for the establishment of doctoral school. Reasons for such behaviour could lie in the dynamic between the faculties and the university, and the will of the deans to preserve the autonomy of their faculties, which still had a degree of independence when it came to the disposition of funds.

Another university body taking part in the reform process was the Senate’s Committee for doctoral studies. As an overseeing body of the university, it had the task of assuring the quality of doctoral education. This includes, among other things, assessing the doctoral thesis proposals and the competences of the supervisors. The committee existed for a long time but was given more authority and power during the reforms and has provided support to the change agents:

I think that the Commission was a great support to me, that the Commission were the smartest people at our University... I would have said, and they were getting along with our vision of doctoral education. (“Leticia”)

Even before the introduction of the new programs, the Commission prepared positions and starting points for the renewal of doctoral study programs. It was later complemented by focusing on the research work for the doctoral dissertation, with competent supervision and an proper commission that monitors and evaluates student's dissertation at all stages.

7.1.2.3. *Change agents*

Change agents at UniLj were characterised by the high level of internal motivation for the reforms, as they were willing to invest their time and energy because “we believed it was worth the effort, “Leticia”. As we have seen in the description of the external conditions, there were no formal demands for the reform of doctoral education from, for example, the ministry or the national quality assurance agency. Instead, the idea for reforms came from the top of the university:

Interviewer: How did the idea that doctoral education should be changed, how it appeared, how it came to university?

“Sophia”: This idea came about as I read about it, and I changed my mind...

Change agents shared the understanding of the university as a whole, and they understood that only unified university can face the challenges originating from the context, for example the competition from other national and international universities. In a sense, creation of interdisciplinary doctoral programmes had a role of strengthening and unifying the university:

My goal only later became to unite all... so much has been, so many of those schools have had their medical studies, and they need to be joined together somehow. It needs someone... something should be taught together, not everyone can teach his own, it cannot, it does not work. ("Sophia")

We can assume that the personal relationships played some role in the process, as both the rector and the first head of the doctoral school were from the same faculty. The role of the rector and the first head of the doctoral school was decisive in starting the reform and keeping the momentum once the changes were in place. They were considered the motor of the reforms. There were of course other same-minded persons on the university who supported the change, the so called “enthusiasts” (“Leticia”). Common denominator for them was the understanding of unified university. They were identified and recruited firstly during the creation of the interdisciplinary programme in biomedicine, which served as a model for later programmes:

... and then we made one type of group, pharmacy, medicine, chemistry, veterinary science, biotech, these were people who had, who were not paranoid, this is very

important, and here people have concluded that one needs to connect in our brain and to make a program. And that's how biomedicine was born. ("Leticia")

International experience of people in high positions (e.g. deans, vice-deans) contributed beneficially to the overall process of change. Those who had the experience of working on quality institutions abroad were in general supportive to the change. The interviewees noticed that there was a high chance of failure if the same-minded people were not involved and were not cooperating. But this constellation of same-minded change agents was not deliberate, it was a result of coincidence and luck, as "Monika" described it when talking about creation of interdisciplinary doctoral programme:

That I think happens or it doesn't happen. I have had great luck, on the other side, on the institution that hated us by default, was a man who was normal, and I appeared the same to him. ("Monika")

Another category of change agents at UniLj was the university's administrative service for doctoral studies, formed specifically for the task of coordination of interdisciplinary doctoral programmes. They supported the work of the doctoral school and overseeing the doctoral programmes at UniLj, functioning as a repository of knowledge and expertise. Without them, the success of the reform would be questionable:

One thing without which I think it would be nothing is an excellent service at the Rectorate for doctoral studies. So, you have a team.... whoever comes, goes, comes back, in the doctoral commission, the rector... I would die without a good administrative service, so nothing would happen. ("Monika")

7.1.2.4. Institutional culture

Institutional culture of UniLj at the time of reforms was characterised by the fact that UniLj is the largest and oldest Slovenian university. In its vision and mission It considers itself as a "caretaker of national identity" ([170, p. 3], and a central national higher education institution. As such, it aspires to join the company of other top-level universities in the Europe (Ibid., p 4.). At the same time, it is a comprehensive university with more than 20 constituents – faculties and academies - which have a high degree of autonomy. Integration of the university was seen by the leadership of the university as a condition for achieving the stated mission and vision, and that is to be excellent and achieve better international recognition of the university. But in achieving that goal, the independence of the constituents had to be preserved. It could be said that the institutional culture of UniLj was polarized between the efforts to integrate the university and the efforts keep the faculties independent as much as possible. Bologna reforms only intensified this polarization, as it required interdisciplinarity cooperation among the

faculties and programmes, while the access to European funds and projects required unified university.

Prior to the Law on Higher Education in 1993, faculties negotiated funds directly with the ministry. Due to this, so there was no feeling of belonging to the university among its members, but to the faculty. According to Klemenčič and Zgaga, “it is likely that academics internalized that value system and have not shifted their perception of belonging in the wake of the university governance reforms” [175, p. 7]. Due to this internalization, the situation at the university in the time of reforms was a struggle between the forces of integration and the forces of fragmentation.

Another aspect of the institutional culture, which is common at universities, especially the comprehensive ones, were the differences between the faculties and scientific fields. Each scientific field had a slightly different understanding of how to do a doctorate and what is the criteria for quality doctorate. The biggest differences were between social sciences/humanities and sciences/biomedicine:

Interviewer: You said that some criteria already existed, but not at the university level. At which faculties?

“Leticia”: They existed in pharmacy, in medicine, in chemistry, in more or less technical and natural history faculties, but less on social and humanities

There were differences even within the same scientific field, which contributed to the difficulties in the implementation of the reforms and in the creation of interdisciplinary doctoral programmes.

Institutional culture was further influenced by the fact that the university was not very open to the influx of external members, resulting in an inbreeding of academics and their relatively old age [170]. Inbreeding in academia refers to phenomenon of academics who are employed at the same institutions where they obtained their PhD [175]. Academic inbreeding leads to personal ties, nepotistic practices, biases in hiring procedures, the influence of tight social networks and supervisor-supervisee relationships. In a fragmented university such was the UniLj in the beginning of 21st century, it was this interconnectedness of academic communities, especially the senior academics within the faculties, strengthened by the phenomenon of inbreeding, that influenced and determined the overall culture. It also led to high degree of resistance to proposed reforms, which will be discussed later.

7.1.2.5. *Change management approach and strategies*

Main tool for implementing the reforms at UniLj was the introduction of doctoral school, new interdisciplinary doctoral programmes, and reducing the existing high number of overlapping programmes. To achieve this goal, several change management methods was applied. Taken together, these change methods formed an approach unique for UniLj and which we named “incremental approach” due to its gradual and limited character. The change management methods used within this approach can be divided into legal, internal, and interpersonal methods.

Legal methods at UniLj had their source in the change of national legislation, although the national legislation only very broadly referred to doctoral education. Adaptation of Bologna process in the national higher education legislation resulted in the new statute of UniLj in 2004, which defined doctoral studies as the third degree of study programmes, introduced the use of credit points (180 for doctoral studies), conditions for the enrolment, procedure for awarding doctoral degree etc. Apart from the national legislation, the reformation of doctoral education was explicitly stated in the university’s strategy for period 2006-2009, which was a first step in changing the system:

But it was the first time it was written in a strategic document, to reorganise the doctoral studies. It was the first paper like this that we could say that the Senate had taken some decision to reorganise the doctoral study. The strategy, yes, that was the university's strategy. ("Leticia")

Strategy emphasised the intention to „increase the number of interdisciplinary doctoral programmes, organized on the level of university in „doctoral schools“ (for example „Biomedicine“, „Environmental protection“, „Statistics“ and other university's studies) [170, p. 33]. The strategy was adopted by the Senate, and this gave the change agents justification for their planned activities. The subsequent steps and discussions that took place could always be backed by the official university strategic plan, although the real effectiveness of such strategies should not be exaggerated.

Fundamental *internal method* used to implement the changes was starting the doctoral school in 2007. Several iterations of regulations for doctoral programmes were conceived and adopted at the senate, preparing the ground for setting up the doctoral school. Doctoral school played the role of focal point for all efforts on integrating the university through the establishment of interdisciplinary doctoral programmes, as they were organized and led by the doctoral school.

The experience and good practices from the existing doctoral programmes on university were used for the creation of the new ones:

We have worked on the example of biomedicine that has been created long before the doctoral reform. We have had biomedicine for twenty years, and we have seen that it works. We've all seen that. In fact, we had some model in hand, in UniLj, and we concluded from that first, that it can be organized at university level, secondly, that we have quality and that we should only persist, not only for those who already have it, but to spread it. ("Leticia")

Examples from foreign universities were also used as an inspiration and the model for the doctoral school and doctoral programmes. These examples were mostly from European universities and the United Kingdom, but also from the US universities although to a lesser extent.

Top-down approach was used to reduce the number of doctoral programmes and to integrate them into interdisciplinary ones. The decision was made at the highest level of the university and then the task was delegated to the deans and vice-deans to work on the creation of interdisciplinary doctoral programmes. Doctoral school was responsible for overseeing the process, which was met with some resistance at faculties:

So, "Leticia" came to us and said, "You must, you must, you must...", then we went back to our faculties, and there they were howling, "you will not, you will not" and that created a good mix. She was like a whip. ("Monika").

Instrumental in this effort of reducing the number of doctoral programmes was the office for doctoral studies on the rectorate, supplying administrative support to the doctoral school in the implementation process.

Together with the other change agents at university, which were primarily the head of doctoral school and the Senate's Committee for doctoral studies, the university applied the "incremental" approach of change management. This type of approach is based on the gradual, slow, steady, and progressive change of situation through the step-by-step normative changes, which happened at the university throughout the long period of time – almost 10 years. As interviewees "Anita" and "Leticia" describe the approach,

"Anita": But we worked so that we have individual parts, individual decisions, accepted at the Senate, and I did not have the rules on the doctoral study until last year, it was... I don't think people knew we were going to get those rules and that doctoral school was going to do it. They did not know what's going to happen to them.

“Leticia”: That is right, professors didn't have all the rules in their heads, they didn't have that, and we gathered all these rules in one book, which is called *“Rules and Procedures at UniLj”*, which should not have been adopted on the Senate, because it has already been adopted, and that is what she says that we did if perfidiously. And those rules were good because they were already adopted, they just weren't aware what they have adopted in the last five years.

Using such an approach was beneficial in many ways for change agents: the changes were not huge or drastically, and therefore not susceptible to backfire from the traditional and conservative elements at the university. Due to the slow pace they were not causing significant resistance. First set of decisions for doctoral studies were compiled and published in late 2008, after they already existed for several years and were used at the university. In 2012, the publication was expanded, and new decisions were added, again after they were adopted at the Senate years before (“we went for minimal standards, we went for all those things that we slowly changed through the years, and now we just wrote them down”, „Monika “). Logic for using the “incremental” type of approach by the change agents was their understanding of the fragmentation of the university. They knew that the adoption of any university-wide regulations on doctoral education was impossible task. To illustrate this situation, it is worth mentioning that the official decision to create the doctoral school at UniLj was adopted by the Senate in May 2017, more than 10 years after the doctoral school was established by the decision of the rector’s collegium, in April 2007. Similar, the Senate adopted the *Regulations on doctoral studies on University of Ljubljana* in July 2017, more than years after the first interdisciplinary doctoral programmes were set up. Until then, the entire system was functioning on a set of discrete decisions and norms.

Relevant for the success of “incremental” approach were the interpersonal change management methods used for mobilizing and persuading the members of the university on the benefits of change. Some of them we mentioned already, for example the personal relationship which were either already existed or were created during the process. Another method were regular, yearly consultations with the members of the university on the issues in doctoral education. During these discussions, change agents explained the motivation and reasons for the decisions that were being gradually introduced into the system, resulting in a much less resistance and faster adaptation of decisions:

„Then we explained it all to them. And since that made sense, no one... they had objections, but there was no opportunism... because everything had a head and a tail.“ (“Leticia“.

Meetings, especially during the creation of interdisciplinary doctoral programmes, were numerous and lengthy, and were sometimes confrontational in nature. Nevertheless, they brought the results despite the scepticism of members of the university that cooperation between the faculties could be established:

The faculty management responsible for the reaccreditation were given clear rules, we have these clear rules presented on our Senate and on the doctoral commission at the faculty... that's where they spat me out, right, that's where they told me it wouldn't work...so, we met each other several times, and it did work.
(“Monika”)

7.1.2.6. *Readiness for change, involvement, and participation of members of the university*

At the start of reforms at UniLj in 2004-2005, readiness for change was, according to the interviewees, at low level. Even though members of the university were aware that the reform was inevitable due to the Bologna process, there was a widespread lack of faith in the success of changes:

... somehow, they thought it would be in the future, that it's not right now, each calculating what it represents, and everyone thought "it is something that will happen once I'm God knows where", that's how it worked. ("Leticia")

Even the rector leading the university at that time was very sceptical about the Bologna reform, considering it “the most fateful mistake in the history of universities, including the University of Ljubljana” [176]. Reasons for this lack of faith could be found in the traditionally lacking interrelations between the faculties and scientific disciplines, and the unfavourable conditions for cooperation between them, which was essential prerequisite for the start of the interdisciplinary doctoral programmes.

Low readiness for change was also related to the high resistance to integration efforts, originating in the decentralised nature of the university and the loose coupling of its constituents. In the late 1990s and early 2000s, the university was still strongly divided into “them” and “us”, with “them” being the rector and the rector’s team, while the “us” were the faculties with intense sense of independence and individuality:

I remember when I started to participate actively in these management bodies, at the end of 1990s, at that time I remember our dean when he came from the university meetings, we all perceived this relationship as "they", the university as a service that always wanted something, it was that kind of relationship. ("Monika")

Change agents, especially those at the faculty level who had the task to create interdisciplinary doctoral programmes with other faculties, were met with scepticism from some of their colleagues who were convinced that the interdisciplinary doctoral programmes would never happen (“...and that was seen at the beginning of that 2007 like something that couldn't happen“, „Monika“). The environment for change was „hostile“ [165], as universities still hold the considerable autonomy from the university, and the old professors were highly influential in the decision-making process at the university.

Despite the low readiness for change and the negative first response from the members of the university, change agents were still able to fulfil their tasks of bringing together disparate faculties and programmes. In some cases, it even served as a source of motivation for them (“When they told me it was impossible, it was just a challenge”, “Monika”).

Readiness for change was gradually increased through various awareness-raising activities such as conferences, meetings, and workshops, which served as a tool for persuading members of the university in the benefits of modernized doctoral education. These activities lasted for the whole duration of the reform process, almost ten years (the most important event of such kind was the hosting of annual EUA-CDE conference in 2018, which was the culmination of the reform process).

7.1.2.7. *Institutional limitations and obstacles*

Institutional limitations and obstacles at UniLj were caused by two main factors: organizational inertia and the resistance to integration. Organizational inertia to change is a common phenomenon at universities and it relates to the fact that organizations are prone to slow change as a response to changes in their environment [177]. Inertia originates in the fear that changes will destroy something good that existed before the changes. Even more, the inertia is also related to the loss of individual power and prestige. In the case of UniLj, one of the goals of reform was to introduce higher criteria for supervisors – for example, the number of publications in the last five years - and to decide who can and who cannot be a supervisor. For some full professors, this meant that they could no longer be supervisors:

“Leticia”: Five years, it means that today, when I am retired, and in recent years I did not publish anything, and I would think of myself that I am God knows what, I cannot [supervise] anymore...this is crucial... and these teachers had a hard time accepting that, you know... that they are no longer worthy...to is difficult to comprehend .

“Anita”: These were full professors, tenured, that had no conditions for a supervisor.

“Leticia”: And they could not appoint him as a supervisor, it was difficult and painful.

Inertia was further increased by the differences between the disciplines and the scientific fields, as the understanding of criteria for doctoral education in social sciences and humanities differed from sciences or biomedicine. Implementing universal rules proved to be very difficult due to these differences, and change agents were forced to set the minimum requirements which, for some, were too low.

Second factor which contributed to the institutional limitations and obstacles, the resistance to integration, was much more determined by the historical legacy of the university and is common at universities which are fragmented and decentralised, as was the case with UniLj. According to Zgaga et al. [166], faculties on such universities have difficulties giving up their autonomy in favour of a centrally administered and strategically run university (p. 23). All the persons at UniLj that we interviewed stressed this difficulty and agreed that the resistance to integration was the major obstacles to the implementation of the reforms. For example, interviewee “Anita” stated that

The biggest problem was the university itself... we had, for example, they understood it as a centralization of universities, not as... integration. And let's say, it was in that period the hardest. That we set benchmarks at university level for all members, because the university was - under the old law, these were the autonomous organization of the joint work, the faculties were organized, that integration was the hardest. (“Anita”)

The resistance to integration was felt most strongly at the Senate, which proved to be major obstacle for change agents. The idea of centralised doctoral education at university, under the guidance of one, university-level doctoral school, was also met with disapproval. Unsurprisingly, a better idea for opponents was to have a faculty-level doctoral school with some level of interfaculty cooperation, or even national-level doctoral school. This was perceived as better solution to a university-level doctoral school, which, for some, was established only so that university could say “we have it” [178, p. 5]. Change management approaches described earlier were used to circumvent the most difficult obstacles and to persuade the sceptics (some of the main opponents of the reforms became its supporters in the years that followed).

Institutional structure of the university was the limiting factor for the change agents and their plans for reform. The span of options available for influencing the members of the university was limited, as there were no legal mechanisms with which uncooperative members could be persuaded to join the reforms. Conversely, those same members had no means of disrupting the reforms, they could only choose to ignore it, which sometimes they did. When the reforms began, many members of the university did not take the changes seriously. For some, it was just another thing that will pass, a formality that will be fulfilled for the sake of the form, while in reality, the things will stay the same:

And these people mostly act the same way, you know, you can't force people, I think it's illusionary, you can't. In academic institutions, Universities act - -they can write rules as they will - but it works with people, and you can't [force] a man who doesn't want to be a good supervisor, who will not hold lectures, who won't.... I mean, there's no force, right, you can't, that kind of control.... we're not a factory, you can't even do that in a factory, let alone a university, you just simply can't. ("Monika")

In distributed organizations, this phenomenon is known as loose coupling, which permits the formal structure to be detached from the actual organizational behaviour [179]. In itself, loose coupling is neither good nor bad, as it can serve as a buffer against unnecessary change due to the academic fads [128]. At UniLj, this feature of universities helped the change agents to introduce changes to doctoral education slowly and gradually, as “a lot of people didn't take that transition seriously, right, that was something to be done on paper... ”, “Monika”). During several years, because of the loose coupling and not taking the reforms seriously, university has managed to adopt a set of norms and regulations for doctoral education which were then published, and had a much stronger impact then when they were individually introduced.

One limiting factor for the reforms was the lack of financing, although the opinions on the relevance of funds for the success differ among the interviewees. In general, change agents are aware that the UniLj cannot compete with the top universities when it comes to financing the students and staff, but were also aware that change cannot be fully realized if the university is not backed by at least some funds (e.g. for financing the guest lecturers, or for generic skills development). At the same time, they realised that the university has a role as social institution, and that raising the cost of scholarship is not a possibility. Funds were not considered crucial for the success of reforms, but more to back up the efforts of change agents. They were, however, considered important for the future sustention of the quality and for the improvement of services.

7.1.2.8. *Results of the change process*

Results of the change process at UniLj were many and profound, and they changed the system of doctoral education completely. The first change was the structuring of doctoral education in the form of organized study plan, defining the steps in obtaining the doctoral degree. These steps included drafting the research proposal (disposition), presentation and defence of the research proposal, publishing, and the defence of the thesis. Although some of these steps existed before the reforms, now they were set in more details, the composition of every university body included in the process was defined, while the expectations and obligations from all the stakeholders in the process were made transparent and clear. Before the reforms, doctoral education on most faculties was done individually, without any taught part or methodological courses. The reform changed this situation, bringing lectures, seminars, credit system and checkpoints for doctoral candidates into the doctoral programmes.

Another change that was introduced by the reforms were the strict rules and the universal quality criteria - although minimal - for doctoral education on the university. Until the reforms, each faculty had its own, often different criteria for the quality of doctoral education, resulting in diverse quality of doctoral thesis and uneven conditions for doctoral candidates. Due to the reform, this diversity was reduced, and an environment was created where

The rector of the university signs a PhD diploma, which is a university diploma. This means he has the pleasure of signing some doctorate that is a quality doctorate, when we have a promotion, there is no quality difference if it comes from let's say faculty of law, or chemistry. That used to be a big difference. Now this is... the rector awards a doctorate of University of Ljubljana. ("Leticia")

Defined criteria for supervision were also set, and the task of enforcing these criteria was transferred from faculties to the Senate's Committee for doctoral studies. By doing this, there was less stress on the deans, but at the same time the faculties were trying harder to fulfil the criteria set by the university.

The role of doctoral education in strengthening the integration and internationalization of the university cannot be underestimated. This role was most visible in the reduction of existing doctoral programmes and during the merging into the interdisciplinary ones. The new doctoral programmes intertwined the university and forced the faculties to work more strongly together despite their differences. Although cooperation existed before, the reform brought better integration and cohesion of research capacities, but also on the level of internationalization. The new doctoral programmes emphasised international components, either in the form of foreign

doctoral candidates, or in the form of foreign lecturers and members of the supervision committee.

The doctoral education became the prime topic at the university, and the problems that were not discussed before were now regularly discussed at university bodies:

I think that what's good at UniLj is that it [doctoral education] became a top topic, I don't remember discussing the doctoral studies in 1990s very much. It was not a top theme, now it becomes, and it is a nice legacy of several rectors who have put it high on the priority list, and it will surely lead to something. ("Monika")

One of the consequences of the reforms was the change of university culture, at least the change of parts of the culture related to doctoral education and internationalization. University members became aware that to improve internationalization and to be more competitive, the university must act as a whole and not as a group of individual faculties. Doctoral programmes were not any longer considered as being the faculty programmes but were seen as a mutual interest of the university ("People are not thinking any more "my program", it is now a common program. "Anita").

7.1.3. Discussion

It would be difficult for us to generalize and to say without reservation that the reform at UniLj was a success, as the limited scope of our research does not allow this. More detailed analysis would be needed for this. What we can say is that the results of the reforms certainly varied from faculty to faculty ("My assessment is that it is very different for various faculties... ", "Monika"). One - if not the main - reason for starting the reform in the first place was the idiosyncrasy among the faculties and the strong fragmented nature of the university that is still limiting the university-wide application of the reforms. Such feature of the university was even described as a certain "separatism" of the faculties ("Sophia"). The topic of integration of universities represents the central issue in Western Balkans higher education institutions, who all have similar tradition, issues and historical legacy [166]. UniLj was no different, although Slovenia was the only country among the former Yugoslavian republics in which the full autonomy of the faculties was taken away, but they nonetheless continued to have huge influence in the university politics (Ibid.)

Fragmentation of the university was seen by the change agents as a weakness preventing the UniLj in being more competitive and in reaching its goals set in the mission and vision. These goals were to "join the group of most prominent European universities", and to become more

international by “attracting foreign students, reputable foreign scientists and international projects” [170, p. 4]. Doctoral education was seen as one way to help in the process of integration and internationalization of the university. Internationalization was a priority for the development of higher education in a small country such is Slovenia, where the resources, human and financial, are limited. The number of enrolled doctoral candidates was on the decline (for example, in academic year 2011/2012 there was 2210 enrolled doctoral candidates, while in the academic year 2015/2016 there were only 1448), so attracting foreign doctoral candidates was seen as one solution to the problem of low critical mass. To attract them, the university had to offer a high-quality research environment and the excellent doctoral education, which was one of the goals of the reforms.

In achieving these goals, UniLj was following and applying the European trends in the reforms of doctoral education, which were at that time led by the EUA and later the EUA-CDE. The UniLj and its change agents were enforcing the newly developed guidelines for doctoral education (the Salzburg Principles) “by the book”. This was not surprising as the key persons involved in the reform at UniLj were at the same time actively involved in the work of the EUA-CDE. The trends in doctoral education developing on European and US universities were recognized by the change agents as a useful model to which the reforms at UniLj should strive. The mechanisms of institutional isomorphism could be seen here, as the university was adopting practices used by the other, more successful universities, to legitimize itself in the changing higher education environment. The modernization of doctoral education was a step toward this legitimacy. But the question of the necessity of the reform was never put on the table and discussed, as it was self-understood by the change agents that the change is needed. There was, however, a lot of discussions with the members of the university on the benefits of the reform, and what it will bring to the university.

UniLj presents an interesting case due to the type of approach used for managing the change process and overcoming the institutional limitations and obstacles. We named it “incremental” approach, as it consists of a series small and incremental modifications to the system, which in the end succeeds in producing huge transformations and changes. The implementation of minor changes to doctoral education was taking place during almost ten years, mostly due to the resistance of members of the university toward any large-scale, comprehensive and formalized initiatives. There was a risk that such approach would be understood as an attack on the autonomy of the faculties and as an attempt to centralize the university:

“Anita”: I have tried once to propose the regulation....

“Leticia”: No way, no way...

“Anita”: And it just did now work....

This type of change management strategy proved to be highly successful. It was backed using other university’s bodies who were given a task to assure the quality of doctoral education. One such body was the Doctoral commission. The collegial nature of such commission – it consists of members from all scientific disciplines, even the deans, and is appointed by the Senate – resulted in a high level of authority in the matters of doctoral education, and, to a certain level, impartiality. As it had a long tradition at the university (more than 20 years), it was not perceived so much as a rector’s tool for controlling the faculties, but as a collegial body tasked with quality assurance of doctoral education. The Doctoral commission managed to enforce specific recommendations on doctoral education, although these recommendations did not have the status of legal rules or regulations until the 2017. They were nevertheless accepted by the Senate and as such had some power to change doctoral education, until the unification of all the recommendations in the formal legal act.

7.2. Case 2 – University of Vienna

7.2.1. Introduction

The University of Vienna was founded in 1365, by Duke Rudolf of Austria, and is the oldest university today in the German-speaking world. Up to the 1960s, the University of Austria, as was the case with all Austrian universities, was organized on the basis of the traditional Humboldtian model of higher education [180], which makes higher education institutions “inherently incapable of changing themselves” [181]. Major characteristics of this model is the unity of education and research, with universities as state agencies owned and run by the government which appoints and hires academics as civil servants. Academic freedom in its full form is only given to the top of the university’s hierarchy – full professors. Universities in Austria were up to 1960s regarded as “ivory towers”, elite institutions with very few students and lacking innovative aspects. This situation was a result of many factors, one of which was the heavy emigration taking place before and during the Second World War, which left Austrian universities lacking quality staff and unable to renew themselves on their own [182]. The overall consequence of this condition at universities were weak hierarchies, weak governance structures and inability to initiative strategic development of universities. On the other hand, deeply rooted Humboldtian tradition led to poor incentives for academics, and low

competitiveness. All academics were on lifelong contracts hired by the government and their salaries were being provided by the federal budget [181].

During the 1960s, universities were beginning to be seen under the light of *human capital theory*, according to which the knowledge leads to measurable economic value. Education was not only regarded as a matter of culture and personal advancement, but it was seen in the light of national economic prosperity [182]. Consequently, qualifications of the workforce needed to be raised to obtain these economic benefits for the society, and thus a reform of higher education system took place in Austria. Major goal of this first reform was to open universities and to increase student participation, at the same time offering a wider spectrum of disciplines than before. This first cycle of reforms was legally backed by the University Organization Act in 1975, which, “in legal terms, marked the end of the old regime of chairholders (*Ordinarienuniversität*) and the beginning of a more complex and formalized approach to academic decision-making which encompassed the middle ranks of academia (*Mittelbau*) and students” [180]. The 1975 Act did not bring a revolutionary change to higher education system in Austria, but rather made decision-making process at universities a much more complex, time consuming and bureaucratized, as it gave students and junior academics limited voting power in collegial bodies (before the Act they had no power). Rectors and deans remained weak as they were before the Act.

In 1993, a new University Organization Act was adopted and so the 2nd cycle of reforms started, after many versions of the new Act were rejected by academics and student organizations [180]. Original ideas of parallel managerial structure, which was to supplement existing traditional collegial decision-making structure, was water-down, together with the idea of lump-sum budget and the idea of strengthening the role of the rector (who should have been replaced by a “president”). Instead, organizational structure with many small institutes, often with only one professor, remained as the dominant form. Nevertheless, the Act presented a move into policy of a new public management, and new actors appeared at the university - mainly the rector and the deans, who had increased their power considerably by the enactment of the new law. This new groups changed the power dynamics, as they were representing university vis-à-vis external pressures, and mediating the interest of university toward the government. The University Organisation Act 1993 gave universities increasingly more scope for decisions and configurations, which was the first step towards full autonomy [183]. The changes introduced by the Act in 1993 can be understood as a response to the trends of globalisation in higher education, the abandonment of the idea of the traditional Humboldtian university and “the

adoption of a mixed model, combining the academic tradition and culture of the German-speaking area with elements of university management which stem from the Anglo-Saxon context” [181]. Therefore, the Act of 1993 was considered a kind of “soft managerialism” [180], and has prepared the ground for even bigger changes which followed in 2000s toward more efficient management structures.

New rectors wanted more autonomy for universities and a lump sum budget, which was received favourably by the government who wanted to minimize bureaucratic procedures and state influence on institutional structures, pushing for further reforms inspired by the new public management concept [16]. In 2002, the new Organizational Act was passed and implemented at the start of 2004, and it is (with its 2009 amendment) the current governing act for all universities in Austria. The new Act is based on the principles of New Public Management with its premise that increased autonomy will lead to better performance. The most important changes include transformation of universities to full legal entities under the public law, lump-sum budget under university discretion allocated on the basis of performance contracts and based on indicators, introduction of governing board as a controlling and steering body of the university, strengthening the role of rector (who is now elected by the university board to make him/her more independent), and change of the status of academics from civil servants to employees of the university on private contracts. Power at universities was spread over three levels: they are now headed by a university council (*Universitätsrat*), a Senate, and a rector with his/her team (rectorate).

Since 2007, performance agreements were introduced according to which the state enters in arrangements with every university for a term of three years, providing them with funds allocated based on negotiations, development plan and criteria such are requirements, demand, performance and objectives of society (ibid.). They receive about 75% of their funding directly from the Austrian government. The remaining 25% of the funding are acquired through public research funding, study fees and private funding [184].

For some, this new Act made Austria the leader in “managerial revolution” in Europe, as it was an unprecedented change in the way universities are managed [182]. State regulation of universities was completely reduced, and universities received the liberty to decide how to spend their budget. Goal of the reforms was to modernize the state-university relationship, and was not the result of immediate response to specific pressures [16], but rather, as we will see later, a strategic decision made to increase the overall competitiveness of the country.

7.2.1.1. *Doctoral education at UniVie before the reforms*

Before the start of reforms, doctoral education on all Austrian universities was determined by two main factors: its Humboldtian tradition of education, and the free enrolment guaranteed by law. Doctoral education was (and still is, although some changes are being done in that respect) open to anyone who had completed the required earlier level of education. It was mostly performed in “traditional” one-to-one relationships between the student and the supervisor. It was a highly private relationship in which the university did not interfere much if it interfered at all. There were many weak points in doctoral education, as was discovered during the interviews, and all these points contributed to the creation of high readiness for change, which we will discuss later.

Key features of the “old” system were, as follows:

Free access to doctoral education. The University was, by law, required to admit into doctoral education anyone who fulfilled the legal requirements. As we have seen, this was a consequence of previous attempts to open the university and increase the number of students.

Low quality of doctoral projects. Low quality was linked to the high number of doctoral candidates and the unfavourable ratio between doctoral supervisors and students. At the time before the reforms, that number was reaching 10,000 doctoral candidates. It was not possible for supervisors to keep a high standard for each doctoral candidate as the amount of time which could be devoted was extremely low. Consequently, quality of doctoral theses was not up to international research standards. Funding of the doctoral project was seen “as a private matter left to the individual student who should apply to some unknown and unanimous funding institution somewhere in Austria or abroad, private or public, which hardly existed....” (“Bob”). There was no strategic thinking about the importance of financing doctoral projects. Consequently, drop-out rate at the university was very high.

Long time to finish. Since doctoral education was performed in one-to-one relationships with supervisors who were overburdened, without any real monitoring or support, doctoral projects took exceedingly long time to finish. Consequently, those who did get their doctoral diploma were having a low chance for academic career since

they ended their project sometime during their 30s and then nobody was interested in their qualifications, because it has taken so long, and they were slightly out of touch. (“Bob”).

“Feudal system” of doctoral education. As was the case on many universities at that time in Europe, the relationship between the professors and the doctoral candidates was one-to-one, and it “followed a little bit the apprentice model, where there is a master and apprentice..., “Mick”). Individual doctoral supervisors rarely ever cooperated in teams although formally, doctoral candidate had two supervisors, but in reality,

it was the first advisor who had the total control and rule over the process, with the semi-feudal underling who was the PhD candidate, short of being a slave, and the second advisor didn't even have much to say. (“Bob”).

We do not claim that this “feudal” model cannot produce high quality doctoral thesis – because it can – but, in combination with other factors, it tends to produce an unfavourable environment for doctoral education. This unfavourable environment at Vienna included individual non-transparent dependency on the supervisor and on his/her level of commitment to the doctoral candidate (“Outsiders could never really know what doctoral advisor and his doctoral student were actually doing, there was no transparency, no critical cross examination from other colleagues, “Bob”). Commitment and responsibility were in many cases lacking due to the high number of doctoral candidates, but also from the lack of incentive or control mechanisms for the professors. Added negative feature of the “feudal” system was the unity of supervisor, reviewer, and the examiner in one person – there was no separation of these functions in the process of awarding the doctoral degree, which led to highly subjective evaluations of doctoral thesis.

Closed system. In some disciplines, most of the professors were hired from the pool provided by the same university (“academic interbreeding”, as it is called), meaning there was almost no international academic staff employed at UniVie in some departments. At the same time, due to the decline in overall quality and rankings of the university

it became more and more difficult to attract well-trained international staff, be that as new staff members, be that junior people from neighbouring countries, be that senior professors...just became more and more difficult. (“Bob”).

7.2.1.2. *Start and goals of reform*

All the features of doctoral education listed above were seen by the change agents as weaknesses that should be addressed. Goals of the reform at UniVie were in most cases a reaction to this negative state of doctoral education, which was at that time diagnosed by the management of the university. But it is worth noting that the reforms of doctoral education at UniVie were part of a much more complex and comprehensive reform of whole university

which was happening at that time. It is necessary to see the reforms of doctoral education in this light, and not as an isolated and separate process.

Although the increase of the quality of doctoral education was an overarching goal of reforms, the university management realised that it had to be broken down into several minor goals to achieve it. We will group these goals of the reform in relation to the negative features of doctoral education stated above.

Free access to doctoral education. Although the university could not forbid or limit the entry of doctoral candidates into doctoral education, it could however implement some filtering mechanism and assessment procedures which would eventually lead to the lowering of the total number of doctoral candidates. One of these mechanisms was the introduction of presentation of research results during the early initial phase of the studies, in which the candidate had to defend his/her research proposal in front of an audience. If the candidate successfully defended the thesis proposal, he or she would then sign a doctoral thesis agreement with the university. Doctoral thesis agreement served as a filtering mechanism for raising the standards of doctoral programmes, as many candidates found it difficult to cross this threshold.

Replace the feudal system of doctoral education. One of the main goals of the reform was to break with the tradition of the existing “feudal” system of non-transparent, master-apprentice type of doctoral education typical for German-speaking countries. Management wanted to move the entire system toward “more modern, European structured way of doctoral education”, “Tim”). The three roles of supervisor, examiner and reviewer were separated and the process of writing and defending a doctoral thesis was made more transparent, de-personalized and structured process

because we thought that [the old system] had been essential for maintaining the feudal system and it would objectify the process if the first advisor and the entire advisory committee would not be and could no longer be identical with the reviewer and the examiner. (“Bob”).

The members of the university considered this as one of the most critical parts of the reforms, and it was a source of resistance to the management. It was seen by some as a mistrust of the management toward the professors and the supervisors. The one-to-one relationship was also changed with supervision teams, so the doctoral candidate had not only one supervisor, but a group of supervisors who were looking at the quality of the doctoral dissertation.

Create new culture of doctoral education. Main way in which the new culture was created was the introduction of *Initiativekollegs*, a structural doctoral programmes which were developed similar to the model of *Doktoratskollegs* introduced by Austrian Science Fund (FWF) [40]. University of Vienna started with twelve of these structured programmes lasting for 3 years, which was a novelty at the time. The selection of the doctoral programmes was subjected to strict quality assurance and the assessment made by international peers. Admission to an *Initiativkolleg* was competitive and based on an international call for applications. Doctoral candidates enrolled in the programmes were employed by the university, with full social coverage, which was in line with the European trends of doctoral candidates as early stage researchers [37]. They worked together in a research field, thereby focusing on their topic but at the same time being part of a comprehensive research project, and thus enabling them to network on an international and often interdisciplinary level. They were supervised by a team of top scientists and had the access to newly introduced support services.

These new programmes were very effective in changing the culture of doctoral education because they offered something completely new at that time and offered solutions to most common difficulties in doctoral education, for example the lack of financing and one-to-one relationship (“That was the reason why we came up with *initiativkollegs*, to guarantee employment within the *initiativkollegs*, and to set an example”, “Fred”). Transparency of the process was also increased, and the system of doctoral education was stirred into the direction of wider European changes that were happening at that time, mostly determined by the Salzburg principles and the European Charter for Researchers. Although the *initiativekollegs* presented a step into this direction, they were not a universal form of doctoral education at the university. In fact, they presented just a part of total number of programmes and enrolled doctoral candidates but were nevertheless an example of excellence that other programmes could follow.

Second step in replacing the feudal system and creating a new culture was the introduction of added support services for doctoral education. Newly established centre for doctoral studies was responsible for devising support activities for doctoral students, throughout the entire process of doctoral education, including support in writing doctoral thesis proposal, transferable and generic skills trainings, project writing etc. This helped the students to deal with the isolation in writing the thesis, and provided them with opportunities for collaboration, but more importantly, it showed them that doctoral education is now being regarded as an institutional responsibility, and that the management is willing to invest time and resources into its advancement.

7.2.2. Main findings

7.2.2.1. *Context of change*

During the first half of the 2000s, the higher education system in Austria was going through the over-all process of change. This fact made the things easier for the management of the university, because it enabled them to use the broader changes to move their university towards a new vision of doctoral education. Primarily, it was the University act of 2002, which came into force in 2004, but there was also another change in legislation in Austria that obliged universities to change its doctoral education latest by 2009. This fact made the change easier for the management.

Other important aspect of the change in the legislation was a “carrot and stick” approach used by the ministry, and that was the financing and a new funding scheme. According to the performance agreements, university had to produce the development plan, a strategic planning instrument which is the basis for a performance agreement. New type of doctoral education was included in the development plan as early as 2005, together with the goal to strengthen the research of the university. Change was, in fact, incentivised by the increase of financing and new sources of funding offered to the university if they change, so the understanding among the key players was that they do not have any other choice but to change:

But universities were not given much chance, because there was a threat that funds would be cut if they don't implement this new system. (“John”).

Due to the change in legislation and the introduction of performance agreements, universities were encouraged to improve their outputs. The old doctoral system was considered a hindrance to their ability to access new research funding schemes, and it therefore had to be abandoned.

The observed changes were also under the influence of the Bologna process and its impact on doctoral education. Since 2006, corresponding to European developments and especially to the Bologna Process, the three-cycle system with bachelor's, master's and doctoral degree programmes was adopted following the Bologna guidelines. Although the Bologna process would not target doctoral education until later – after the reforms of programs at the bachelor's ('first cycle') and master's ('second cycle') level, it was nevertheless clear that something had to be done with the 'third cycle' of higher education. The Bologna process was seen by the interviewees as outside pressure for change, and they usually discussed it with scepticism. It was understood that the university did not have much choice in the matter – it had to adapt to the requirements for change in European higher education. The model used in the Bologna

reforms was based upon foreign, 'elite' universities and their ways of organising doctoral education. In most aspects, the U.S. universities were used as models, as well as some universities in Europe.

The period during which the reforms at UniVie took place was also the period when the major changes in the paradigm of doctoral education were happening in Europe. The change agents were referring to all the policy papers that were developed on the European level and that gave them "a lot of credit" ("Tim"). This synergy with the European developments allowed the change agents to more easily explain their goals and motivation for change and assure the members of the university that the reform is not something that was being done for the sake of reform, but rather that it is a major trend all over the Europe.

The general economic and political environment at that time was supportive, although there was little direct interference from the political side. The goal for Austria was to become more competitive on the EU level, and that implied to a certain extent that universities should become more competitive, have better governance, and make better use of their autonomy. Doctoral education was seen by many as one part of the efforts to raise the country's competitiveness, so the reform efforts were supported by the ruling politicians. Neither the form nor the content of the changes was dictated by law, however. The universities were given greater freedom through the University Act of 2002, and they oversaw all aspects of their development and work, which included the freedom to develop their doctoral education programs as they saw fit. It was left to the university to decide how they wanted to change.

7.2.2.2. *Institutional culture and structure*

As mentioned earlier, reforms of doctoral education were only a part of a much more comprehensive reforms that were at that time happening at University of Vienna. University was going through a complete organizational modification, and the structure of the university was changed dramatically (it went so far that at one point the university was actually closed and re-opened, to symbolize that a new university was created). The new organization of the university included the so-called "matrix" organization, in which research and teaching were separated among faculties and the study programmes. Faculties with its deans and vice-deans were responsible for the research part, while the study programmes and study programmes directors were responsible for teaching of students. The goal was to create a new setting via the formation of new faculties and organisational units of the university. This left the university observed in this study with fifteen faculties and four centres (at four different faculties). With

this new structure, the role of deans and vice-deans was strengthened, while the role of full professors was reduced. New power structures were created, along with new key players and the new structure of the university.

The institutional structure at UniVie consisted of the university council, the rector with his team, and the senate. The university council (consisting of five, seven or nine members) has a strategic function and a supervisory function, as well as the task of tendering, electing or dismissing the rector and the vice-rector(s). The senate (eighteen to twenty-six members) is the executive body of a university. The rectorate (one rector and up to four vice-rectors) is the actual operational body of a university. All central executive tasks are vested in the rectorate and the rectorate's members are elected by the university council based on short lists of three prepared by the senate (for the rector) and by the rector (for the vice-rectors). The rector is the chairperson of a rectorate representing the university vis-à-vis the Federal Minister when entering into performance and development agreements. Rector also appoints the university professors on the basis of proposals by an appointment committee, and signs the employment contracts of the university staff members and is their highest superior [183].

Creating a new organizational structure was part of the change management strategy that we will discuss later in the text, but at this point it is worth noting that this new structure had immense influence on doctoral education. One way this influence was felt was the reduction of research fragmentation by strengthening the faculties and reducing the number of study programmes to 25-30 (in relation to more than one hundred before the reforms). New faculties were created in the process, following the disciplinary criteria, so the university ended with fifteen faculties and four centres. With the new structure, position of deans and vice-deans was strengthened, while the position of full professors was reduced (although it stayed reasonably high).

The new institutional structure was followed:

The model of the modern let's say, modern share company, there is the CEO and there is a board of trustees, looking that the CEO and his team is doing the right work. That was...that was...following the model of company. ("Mick").

Such new structure was also needed because of the new way of university's financing, which was the three-year performance agreement with the ministry. The quality of the research outputs was one of the indicators of the university's success on which the contracts relied.

The institutional structure led to differences between the faculties and scientific fields. The major difference was between the social sciences and humanities on one side and the natural sciences on the other. The differences were felt in the ability of individual faculties to adopt the changes, as different faculties had a different degree of “openness” to the ideas of change:

I mean some institutes like my own have started this process of change and opening up much earlier. Which was a personal decision of some of the newly appointed professors. I think in other fields like mathematics and physics, they were always internationally organized, this is inevitable. Now, in the humanities, history, and sociology and philology, and whatever, philosophy.... they maintained for a very long time this closed system. (“John”)

These differences among the disciplines led to different PhD cultures, as the traditions of doing a doctorate were diverse and what was considered a standard in one discipline was unfeasible in another:

One problem we had with the PhD was that different fields had different culture. In science, you start very early with doing your research, or participating in the research programme. In economics, worldwide, it is different. PhD programmes we took as examples from the best universities, always have say one-year intense coursework, and then you do research, which is completely alien to science. It is a different culture. (“John”)

An important aspect of the institutional culture at UniVie was the sense of national and international prestige, which was one of the motivators for change. Being the most important university in the entire country, many members of the university were aware that UniVie was “losing reputation” (“Mick”), and that it was falling in the rankings. Therefore, they supported the planned change and wanted to contribute in the effort to make UniVie more competitive.

According to the interviewees, the institutional culture at UniVie was considered conservative and rigid university (“University of Vienna, being such a huge organization, is also by default a conservative environment”, “Tim”). Reform of doctoral education at UniVie was primarily a top-down approach to change, due to several reasons. The most important reason is the tradition and the culture of the university, but also the wider Austrian culture of (any) change. As one interviewee said, the university was used to such approach to change due to the national history:

This typical Austrian top-down revolution which follows Maria Theresia and her son Joseph II and enlightened revolution from above, because, usually, in our history the big changes do not happen bottom-up. (“Bob”).

The prevalent opinion among the interviewees was that there would be no change at all if there was no leadership and pressure from the top, and an accompanying clear goal of the change (“Those who did not want to change would never change, never. So, you had to apply some

pressure and... you had to make clear which path has to be taken, “John”). This kind of thinking is in line with the observations made by other authors, for example Scheytt and Scheytt, who state that “universities in German-speaking countries are generally regarded as institutions that are inherently incapable of changing themselves” [181, p. 2]. Due to such institutional culture, the impetus for change of doctoral education had to come from the top.

7.2.2.3. *Change agents*

The concept “Change agents” helped us to determine the features of key players in the reforms on University of Vienna. Two major themes appeared: the key players had a very good academic reputation and they had a considerable international experience. Distinguished scholars were chosen and elected on important positions (mostly newly created), for example as members of an advisory board – a body on a strategic level responsible for the supervision of the reform process – or as directors of study programmes. Choosing distinguished researchers helped in discussions about raising the quality and in persuading other members of the university in the benefits of the reforms (“These were the people who were not...whom you cannot argue against when it comes to quality. This was also kind of important step I would say...”, “Tim”). Academics with good research background, who were in favour of the reforms, were used as examples of good practice as in many cases they have already started doing some type of reforms at their own departments, even before the official reforms have started. Moreover, non-academic key players with research background, who were hired specifically for supporting the reforms process, helped in the setting-up the supporting services and connecting with the researchers and doctoral candidates. Their research background made them more legitimate in the eyes of the academics.

Another important feature of key players was their international experience, either from working outside of Austria (in most cases, this was the US, but also the German universities were high on the list) or in taking part in international projects, funding institutions, international doctoral committees etc. The experience of different academic culture and different tradition of doctoral education contributed to the emergence of “enlightened professors” (“Douglas”), who supported the reform process and wanted to contribute. The more international experience a professor had, the more he or she was ready to go along with the new type of doctorate that was being introduced at UniVie. It is interesting to notice that international experience of the change agents is a characteristics of not only Austrian members

of the university, but it can be observed in many different countries in Europe (see for example [125]).

The international experience and the connections with the foreign universities helped in the preparation phase of the reforms, when other models of doctoral education were considered and compared: “And also because I also studied at the US it was for me very clear that one needs tremendous changes in doctoral education. “Fred”). The goal was to define the standards at the UniVie by comparing it with other universities, and to move the university in the new direction. In most cases, it was the US universities that were considered as models, but also some universities from Europe were considered.

The interviews showed that the key players were highly motivated to participate and lead the reforms based on their intrinsic motivations and were not so much motivated by external factors. Intrinsic motivation was enforced by international experience and the insights into the global trends in doctoral education, which resulted in the will to change the situation at the home university:

So, that motivated me, and I thought there was too little of that, as I mentioned earlier, in some parts of the university....and I thought that we should raise the level, do everything in order to do that. (“John”).

Important aspect of change management approach used in the case of University of Vienna was careful choice of people – outside of core reform group – who were agents of change. In almost all the interviews, emphasis was on the “good choice of people” (“Bob”), and the human factor in the reform process (“I think it is not so much the structure or the organization, I think it is the people, it is people that matter”, “John”). The “good choice of people” relates to high level of commitment to the goals of the reform, first and foremost from the leadership of the university, but also from the whole team participating in the reforms. Secondly, the team pushing the reforms had a good mixture of people – men and women, senior and junior members, people from different scientific fields – which made it successful in their work. It was not purely administrative or management group, as the team had a good research background, not only the academics in the team, but also the non-academic members, and that proved to be particularly useful eventually. This combination proved to be highly successful in achieving the goals of reform.

7.2.2.4. *Change management approach and strategies*

Analysis and coding of the data obtained through the interviews showed that the change management approaches used in reforms could be separated into two main categories): internal methods and the personal methods. We will describe in more details each of the emerged categories.

Internal methods

The category “internal change methods” describes those methods that were aiming to change the institutional structure and culture using existing bodies or by creating new ones.

Change of doctoral education went hand in hand with the reorganization of the university and the creation of new, smaller faculties, and the establishment of study programmes, which was at that time already finished. The reorganization set up a whole new structure of power, in which the deans and the study programmes directors had a significant role, opposed to the old structure in which the full professors held the most power. Many deans supported the change and were helping the rector and his team in the process, as they were coming from scientific fields that were already taking steps to improve their quality of doctoral education and were following international trends in doctoral education.

The Senate also had a key role in the support of change, with respect to the changing the organization structure of the university and the creation of new curricula for doctoral programmes, assuring that they were up to high quality standards. Formalization of the strategic change plan happened through the Senate, where it was discussed and accepted, and finally elements of the reform plan became part of the university statute. For example, presentation of the doctoral thesis proposal, separation of the functions in awarding a doctoral degree, progress reports etc. were all stated in the statute and therefore valid for all doctoral programmes. There is one important aspect of formalization which was considered, and that is to allow variations among the disciplines, and not to be too rigid in the enforcement of universal rules. Although the general standards were set, different disciplinary traditions were considered, and some freedom was given to the different departments. By doing this, the resistance that would surely be expressed toward the reforms by the departments which had a different culture than others were reduced.

The position of the Senate was delicate, as it was generally in favour of the rector and the changes that were being implemented, but at the same time it was against any changes that would limit its role. A lot of discussions and persuasion was needed to navigate such a position:

I mean there was some cooperation with the rector, as far as the organization structure is concerned, as far as the planning for the future is concerned, at times it was very intensive discussion. (“John”).

Another important group of internal change management strategy used during the reform is what we called the “Dynamic atmosphere”. This concept consists of several methods used to “push” (“Fred”) the university into the state of change and to create an atmosphere of change. Such atmosphere among the members of the university was contributing to the easier acceptance of the change and to support by most of the members of the university (“If university is not pushed, then it won’t move”, (“Fred”).

First step in creating the dynamic atmosphere was getting rid of the past. Only modifying the old structures and leaving it mostly intact was perceived by the management as not enough if one wants to really change the system. The goal of structural changes was to create a completely new setting, in this case by creating the new faculties and introducing the matrix organization of the university. The reason behind such radical change was the danger that the old system can prove to be a too huge obstacle to overcome if left intact:

If you leave the old structure, it will fight back in a period of time. So, you need some kind of change, so that the university cannot fall back on the old organizational structures. (“Fred”).

Second step is to “start going” (“Fred”) with the reforms, even if sometimes it is not completely clear in which direction the process should be going or what the final goals are (“You have to start moving, and then you have to try to find good solution”, “Fred”). The university, according to interviewee “Fred”, needs to be “on the move” if it wants to change, and it needs to be in a dynamic state all the time while the reform is happening. Following these ideas, several simultaneous activities were happening at UniVie during the reforms to create and keep such dynamic state and to create a synergy with other change processes at the university. Creation of a new doctoral culture accompanied this dynamic state with the introduction of *initiativekollegs* and student support services, but it was also the establishing the new organizational units (for example the centre for doctoral studies) which helped the effort. One of the explanations why the university should be put in this dynamic state, and why the change agents must be “on the move” is offered by the interviewee “Fred”, stating that what “you need

to do is to be always on the move a little bit, you need to be quicker than the other one". It is possible that the strategy of the management was to not let the conservative elements within the university react on time or to let them have the time to re-group and offer a significant resistance to the efforts of the management.

Even though the creation of dynamic atmosphere was a top-down change management method, the implementation process itself often included some aspects of the bottom-up approach, primarily by involving members of the university into the implementation process. These members were not necessarily considered as members of higher management but were still included in the discussions on the goals and reasons for reform (even the students were included, who supported the change process). Furthermore, internal examples were used as best practices and as a model for proposed changes:

Well the best is always this to provide good examples, good practice, and, for example, someone who helped me quite a lot, he is now a president of [deleted]... in physics, because he already had something like PhD I would say school within the physics department... So, you use best practice, people with reputation, in order to move. ("Fred")

Interpersonal methods

The second category of change management methods was labelled "interpersonal change management methods" as it relates to all the methods used by the key actors to convince, motivate and engage others in the process of change, or in other words, to get them to support the change or to limit the resistance to reforms. Opposed to the internal methods, they are focused on the individual and not on the structure or culture.

Interpersonal methods in the case of University of Vienna were focused mostly on the rational argumentation that the change is needed for the good of the university ("What we tried to do is convince them it is really for their...it supports the quality of doctoral education, and it supports the quality of research.", "Tim"). This rational discourse was mostly successful since university professors respect and are used to using rational argumentation:

Professors are by person...they are accepting rational argumentations. Sometimes it is harder, sometimes it is easier, but if you are successful and you can convince a group of professors that it is fine, then it is like an avalanche, it's a self-feeding process... ("Mick").

Academic people, according to Ramsden [185], fundamentally understand change given their familiarity with the uncertain process of discovering new knowledge, but they need to see

change as something which is beneficial to their work. To start this “avalanche”, a lot of negotiations and persuasion (or even lobbying, as it was sometimes called) had to happen on many levels, from the Senate to the departmental level, and even on the level of individual professors:

And to achieve it we had to discuss with many professors that this is a good reform, that it makes sense, and we are following international trends, and we can improve the quality of doctoral study programmes. So many talks, many negotiations into that direction. Or if you want, many PR, public relations activities, were necessary to convince our professors. (“Mick”).

“Public relations” activities included a detailed dissemination of information on the goals of the reform – why the management team was doing what it was doing. Atmosphere of open discussion was created on the senate, PhD admission committees, departments, PhD advisory committees, where talks and negotiations were held with all the stakeholders.

Aside from negotiations, building coalitions with other members of the university (often based on personal affinity and previous personal relationships) emerged as one of the methods used, with the central – preferably small – group of people who were leading the change (the so-called “metronome group” as it was setting the pace of the reforms). This group was then complemented by people who were recognized as supporters of the reforms and were willing to help the management in its efforts. Extra effort was made to have any decisions at the senate done unanimously, and the critics were given an active role to make them part of the decision-making process and not to create an impassable obstacle. The basic idea among the key players was that the reforms could not be decreed, and that the convincing people why the change is better and why it should happen was a much better way.

7.2.2.5. Readiness for change, involvement, and participation of members of the university

The analysis of the data showed that the readiness for change was relatively high among the members of the university, which can be contributed to the influences from the external environment but also to the change management approaches used. According to the interviewees, members of the university understood that the old system had to be changed, and that it was time for university to join the other modern universities (“Apparently, people... thought that reforms for doctoral education are necessary, it’s time for reforms...”, “Douglas”). This understanding of the need for change was combined with a type of resignedly acceptance

among the members of the university which can be related to the feeling of no choice in the matter - university had to accept the changes no matter what:

Let me say, they have gone through a lot of reform between 2004 and 2007 already, so they were used to reforms to some extent there was no much strength left for resistance". ("Douglas").

University members knew that doctoral education was next in line for change and that resisting the change will not be of much use. And since they had mostly positive experience with the past reforms, it even proved to be an advantage in some cases since the top members of the university had a reputation of good reformers, increasing their trustworthiness.

Readiness for change was further improved by the involvement and participation of members of the university in the preparation of reforms. Management understood that only the deep changes of doctoral education will lead to better research performance of the whole university, combined with the changes in the funding models, introduction of new organizational structures etc. But they also understood that for success of change and minimalization of resistance to reforms, it needs to be explained, reasoned, and backed by good, rational arguments to all members of the university.

Although the incentive for change of doctoral education came from the top of the university, the implementation process itself often included some aspects of bottom-up approach. Primarily, it was carried out by involving in the process members of the university who were not considered higher management (deans, vice-deans). Important characteristic of the reforms at UniVie was careful choice of people outside of the core reform group who were then acting as agents of change. In all the interviews, emphasis was on the "good choice of people" ("Bob"), and the human factor in the reform process. This finding corresponds with the understanding of human role as dominant in the reforms of complex systems [186], and the necessity to include wide array of members of the university in the reforms.

These members of the university were then included in the various activities and discussions, and their opinion was heard by the management. Even the students were included in these activities and supported the change process:

We did this project in a way that we invited on the one hand side students and other administrative staff, to think about how to actually implement things and what is needed to be done. ("Tim").

Sceptics or opponents of the reform were offered the opportunity to be involved in the process, a move that made them responsible for the outcomes and in a sense reduced their initial resistance.

The interviews showed that the wide engagement of various levels of university structure and bodies, from the senate, deans to the individual professors, was vital in creating high readiness for change and, eventually, achieving the desired results of reforms.

The senate had a role in the support of change, regarding the change of the organizational structure of the university and the creation of the new curricula for doctoral programmes. The senate was assuring that the new doctoral programmes were up to high quality standards. Many deans supported the change and were helping the rector and his team in the process. Those who were supportive were mostly already taking steps at their faculties to improve the quality of doctoral education and were following international trends in doctoral education:

As I indicated, there were quite many deans who supported that. For example, [omitted] supported that very much, for example dean of the faculty of computer science supported that very much, with respect to doctoral education it was also [omitted] who supported that, that is because we both come from the department of economics and we had a big discussion in the 90s how to get more quality into our programme. So, there was quite many deans supporting that. (“Fred”)

7.2.2.6. *Institutional limitations and obstacles*

Despite the prominent level of readiness among the members, the institutional limitations and obstacles still proved to be large. They mostly originated from two sources: the ‘behavioural obstacles’ at the university, and the structural features of UniVie.

The concept “behavioural obstacles” appeared in the interviews and is used to describe a group of sources of the resistance to reforms which originated in the old habits and power structures. This concept stands for the resistance from the ‘old guard’, usually the older professors still valuing the tradition of doing a doctorate in a personalized relationship. Some professors were offended by the changes, as they were not seeing the change as affecting the organization, but as affecting them. To them, it meant their way of doing things was not good enough (“There was resistance from some of the older faculty members, some of them, who felt they could not keep up, so they felt left out to some extent”, “John”). Such behaviour is understandable and common during any attempt to change an organization, as one of the features of higher education institutions is to defend its traditions due to what is called the ‘IKEA effect’. IKEA effect is a tendency to overvalue products that we ourselves participate in creating, and in

university it translates to overvaluing policies or programmes which faculty members created themselves [92]:

And some of them of course they feel offended, because if you change something, and you tell them you want to improve, it means that it did not work very well and they, of course their reaction is that they feel kind of offended by...if you tell them the way they did it was not proper. (“Tim”)

The structural features of UniVie that contributed to the institutional limitations and obstacles for reform were the differences between the faculties and scientific fields. As we have seen when we discussed the institutional culture and structure of UniVie, there were huge disparities in the understanding and the practice of doctoral education:

And then, there is a huge diversity in the outlook of faculties on doctoral programmes. In the law faculty, there are no doctoral programmes as such, individual, still one on one doctorates more or less, whereas in the sciences they work in groups, they work project based, they work in various constructional forms, and then there are the humanities and social sciences in between. (“Douglas”)

These differences led to various issues for the change agents who were trying to introduce a common approach to doctoral education (“It was a bit difficult to find ways and structures that take into considerations these differences. I think that was partly the reason for resistance”, “John”). One way for overcoming this obstacle was to allow variations among the disciplines and scientific fields. The change agents realized that the insistence on the levelling of the criteria and disregard of the traditions would prove counterproductive. Instead, they gave more freedom to different departments to implement the general standards in way that was proper for them:

Every doctoral student has to do in principle the same procedures, but they look slightly different in different faculties. For example, in the humanities, students have to give a paper on the outline of doctoral dissertation. And they do that in front of a lot of people, and people can come and listen and so on...so there is a real process with certain day and time and so on....as far as I know, in the law faculty they just collect the topics and send them round to several eggheads in the faculty, and then it’s kind of approved. And there is, as far as I know, there is no public presentation of the dissertation outlook. So, in principle, it is the same, but it’s sort of...adapted to the traditions of the faculties. (“Douglas”)

7.2.2.7. *The results of the reforms*

In all the interviews, interviewees were satisfied with the results of the reforms and thought that the change was carried out in a way that was proper for University of Vienna. The overall opinion was that the quality of doctoral education has increased as a direct result of the reforms, both doctoral candidates and of the doctoral programmes:

Well, I think that by and large we have managed to get...uhm...doctoral degree holders of much better quality, with much more international or internationalized view.... on things. ("Douglas")

And:

My impression is, but that is really from the outside point of view, that the quality of PhD programmes has improved in most respects. ("John").

Introduction of filtering mechanisms and quality barriers such as public defence of thesis proposal reduced the number of doctoral candidates, which was a good thing, while the dropout rate has been reduced drastically even in mass fields like humanities and social sciences. Doctoral education has become a university responsibility, as it was moved from the domain of personal relationship between the student and the supervisor ("we manage that people are really interested and recognize that doctoral education at the university is not just question or the task of the individual, but is really university responsibility", "Tim"). The entire process of awarding the doctoral degree was made more transparent and simpler, and the responsibilities in the process were spread over a team of people. All in all, doctoral education became a prime topic at the university, and the topics which were not discussed before:

To talk about doctoral education, to talk about the quality of supervision, but also to have a kind of transparent discussion about the data, success rate, completions rate, dropout rates, is now possible. ("Tim").

Despite the positive effects of the change, the interviewees also noticed that there were some negative results of the reforms. Regardless of the lowering of the overall number of doctoral candidates, there were still not enough doctoral supervisors, particularly in the fields like social science and humanities. Furthermore, possibility for high quality doctoral candidates to stay at the university was low, mostly because of the legal reasons:

What is problematic is top opportunity for doctoral graduates. The...uhm...chances to stay at the university are not particularly high, and there is a lot of hire and fire, and I'm not sure if this is, in the long... if this is particularly good. ("Douglas").

Some bureaucratization of the processes at the university was necessary, especially in respect to the European funding's and the external sources of financing in general. It was not clearly characterised as a negative result of the process, but more as an unavoidable consequence of the new funding model ("As far as the money goes, we tried to encourage the faculties to go for external money, European money or research fund money...unfortunately, there has developed certain degree of bureaucracy, that seems unavoidable to some extent, I'm not sure

whether it's too much or not", "Douglas"). More concern was given to the fact that the administration was now "taking over more and more", and that the monitoring of the quality of the doctoral programmes was now more a responsibility of the administration and less of the Senate, as was the situation before.

In relation with the structural changes at the university, one of the results of the change was the redistribution of power at the university. The faculties were experiencing a loss of power, although this result varied from faculty to faculty ("Their power was diminished considerable. At least at paper, it always depends a lot on the personalities, but their power was reduced", "John"). Parallel to the faculties' loss of power, the power of the individual, full professors, was raised considerably:

The real power was with senior professors, at individual faculties, not even the dean at single faculty had enough power. It was those staff members that were full professors at that time, that is people with what is in Germany called habilitation, who had life-long positions as full professors. These were the actual power groups who excluded everybody else. ("Bob").

7.2.3. Discussion

There is no doubt that the start of the reforms of doctoral education at University of Vienna were legal changes started by the University Act in 2002. It is unclear what scope of reforms would be possible if the Act was not in place. There were already some modernisation initiatives taking place at the university in few departments due to their tradition, nature, connectedness with other disciplines and international links. However, we do not think that such deep and far reaching changes would be possible. The national law in 2002 gave the university rectors new power which made the changes possible, at the same time lowering the power of faculties. The law created a favourable situation for top-down reforms which was, as we have seen, regarded as a proper way to do change at UniVie. If the higher education system in Austria remained on the level of law in 1993, resistance to the reforms would be too high to overcome simply because the rector would not have adequate mechanism to counter the resistance. Interesting point about the UniVie is the fact that there was no national initiative for reforming doctoral education. Neither the initiative came from the ministry, as was the case for the first two cycles of higher education. The law itself opened the doors for the leadership to start the process, but it did not dictate the form or the content of the changes. This was left entirely to the university itself to decide, and was done to raise the prestige of the university, making it more competitive and comparable to the high-level universities in Europe and the world:

...make entire programme therefore....one of the best in German speaking countries, including Switzerland and Germany, and therefore move closer to the upper third of the doctoral and PhD programmes in EU, that was the general goal. And all the steps that followed were responding to that goal. ("Bob").

Change agents wanted to live up to the standards of a capital like Vienna, which “is so proud to be cultural capital of the world, when it comes to music, opera and theatre etc... you know, in a certain way science is also part of the living standard of society and you cannot be too bad in that field if you are so proud of other fields”, (“Bob”). The factor of national prestige played a key role as a motivational factor for the reforms, but it was the research prestige that was vital for modernising doctoral education:

It was also the question of living up to international position, reputation of the city like Vienna that we could no longer afford to have our main university in such situation when it comes to the most important part of students, and whatever we think about BA and MA programmes in a way PhD degrees are the calling cards and the most important...you know...a kind of passport a university can show to the outside: look what we are doing. ("Bob").

Link between doctoral education and the high-level research was well understood by the change agents, and the effort was made to strengthen this connection: “And, one of the goals was to establish UniVie as a leading research university. And in order to be a good research university, doctoral education had to be, according to the latest standards”, (“Douglas”).

Although the reform was internally started and driven, this does not mean that it was done in a vacuum. As we have seen, the new doctorate at UniVie was modelled according to the top-tier universities in the US and Europe. The reforms were based on the experience the key players had by working on those universities that served as a model and by having close connections with the colleagues on those universities. Furthermore, role of international professional organizations cannot be underestimated in the case of UniVie. Salzburg principles were developed in 2005 and were being heavily used in the conceptualization of the reform goals at UniVie. They were used on some of the faculties and departments even before the reforms started. Some of the key players in change at UniVie were actively involved in those international professional organizations and “*were eager to realise the things that (they) preached*” (“Douglas”). International organizations for doctoral students also played a role in the reforms, in a sense that they were observing what was happening at the UniVie and supported the reform. Therefore, change process was influenced by more broad developments in doctoral education.

Apart from the professional organizations, the general economic and political climate in Austria at that time - which was a member of EU since 1995 - was one of competitiveness. Goal was to become more competitive on the EU level, and that implied to a certain extent that universities should also become more competitive, to have better governance, and to better use their autonomy. Doctoral education was seen as part of the effort to raise the country's competitiveness, so the reform efforts were supported by the ruling politicians who wanted Austria to become more competitive. Representatives from the economic sector were also supportive to the change efforts at UniVie, as they understood that good universities will help in the economic development by providing quality workforce:

Austrian companies have become quite competitive. But at the same time, they have also started to come up with affiliations here and there, so they.... they did not think provincially anymore. So, industry for example was a very helpful organization in pushing for reforms. ("Fred")

It can be said that the environment or the context in which the reforms were enrolling at UniVie was supportive. The ministry wanted universities to move forward and was not impeding the progress in any way. They did not want to interfere in the university's matter either, so their role was mostly of positive observation. The universities were given greater freedom through the University Act in 2002 and were in charge of all aspects of their development and work, which included the freedom to develop their doctoral education as they saw fit. The three-year performance contracts with the ministry, on which the budget was defined and spread, was the consequence of new public management approach to governing universities and "letting go" of the micromanagement that was the rule before the legislation change.

Changes happening at UniVie were also under the wider influence of the Bologna process and its impact on doctoral education. As we have seen earlier, doctoral education was targeted for change much later than bachelor's or master's level, but it was also clear that something had to be done with the "third cycle" of higher education. In the words of "Bob":

I think on the one hand the situation was getting more and more unbearable once the BA has been introduced, once the MA of a new bologna type had substituted the old magister degree...it was clear that the doctoral programme was the next big obstacle to be overcome and substituted by a new bologna PhD programme at any rate...so there was this external pressure from the bologna process.

Bologna process was seen by the interviewees as an outside pressure for change (or help in the process, depending on the viewpoint of the interviewee), one that was looked at with scepticism ("What I was not convinced, I must say it, was with the introducing the Bologna architecture",

“John”), but it was also understood that the university does not have much choice in the matter—it had to adapt to the requirements for change that was sweeping the European higher education.

To summarize the analysis, we can say that the key features of the reform process at UniVie were the prestige as a motivation for change and, connected to prestige, competitiveness on both national level and university level. Even more, the strong international and research background of the key players in the reforms, favourable contextual conditions for the change which were defined by the Bologna process and international professional associations are also dominant features of change at UniVie. Change management approach that included deep structural changes, the creation of the dynamic atmosphere and a high level of participation and involvement of members of the university in the process resulted in a reform which is considered to be a success by the interviewees.

7.3. Case 3 – University Nova de Lisboa

7.3.1. Introduction

Universidade NOVA de Lisboa (NOVA) is a relatively young Portuguese university, founded in 1973, and is the youngest of Lisbon’s three state universities. The university was started as a new model of university in Lisbon and Portugal, with the three faculties joining and forming a university. The new university was supposed to be an alternative to the “traditional” University of Lisbon and the Technical University of Lisbon, which existed since 1911 and 1930, respectively. NOVA was created with the idea to be innovative and decentralized university. Such founding principles were linked to the ideas of revolution (in 1974) and to the new ideas of democracy which were replacing the old understanding of universities. The university was created by professors who came from other universities, the two beforementioned universities in Lisbon. Opposed to the traditional universities, NOVA was based on the idea of a university which is closely connected with its community, one which is entrepreneurial and innovative, and one which emphasises interdisciplinary approach to scientific research [187].

Initially, the Anglo-Saxon model of departmental structure was supposed to be used in the creation of the university, and the facilities should have been concentrated in a single campus. Despite the original idea, Ministry of Education decided to fragment the NOVA into different units and the Anglo-Saxon organizational model was dropped in favour of the continental one. The university is also physically decentralized – it has locations scattered around Lisbon, which

reflects on its structural and ideological decentralization. The change in the organizational model and the geographical dispersion accounted for some of the difficulties in inter-institutional cooperation within NOVA, which are still currently felt [187]. This historical legacy of a non-traditional university had an overarching effect on its institutional culture and on the choice of change management approach used in the reforms which happened in 2007, and which will be discussed later in the text.

In 2006 - on the request of the government - the OECD and the European Network of Quality Assurance in Higher Education (ENQA) conducted an extensive review of the Portuguese higher education system [188, p. 121]. The recommendation was that the institutional organization and legal status of universities should be reconsidered and reformed, to easier adopt the guidelines set by the Bologna process. Before the reforms of university in 2007 and according to the university's statute from 2001, managing structure was different – there was no general council, and the power mostly in the hands of board of deans. The new statute of NOVA came into effect in 2008 and changed the structure of university to strengthen the inter-institutional coordination.

Today, NOVA consists of nine academic units (faculties), which have a high degree of autonomy, and is governed by three managing bodies: a general council, rector with his team and the boards of deans. Nova has around 20,000 enrolled students, 1,700 teachers and researchers and more than 750 non-academic staff [189].

7.3.1.1. Doctoral education before the reforms

Doctoral education at NOVA before 2007 was based on the individual model, meaning that the doctoral candidates worked directly with their supervisor, often in isolation or within a specific research group. Structured doctoral programmes were extremely rare and as such were not the most common way of organizing doctoral education at NOVA. Most interaction during the process of obtaining the doctoral degree was occurring between the student and the supervisor, while the institution had little or no influence on this semi-personal relationship. As “Jim” describes the pre-2007 situation,

So, what was happening was, at each faculty, there were a number of scientific areas that were approved by the scientific council, so the students could apply to develop a PhD, work together with a supervisor of course, in a particular scientific area, and that was it.

The issues with such system of doctoral education were numerous and were further enlarged by the high level of autonomy of academic units and departments. For example, one such issue was the lack of transparency in the process, as doctoral education was run without any supervision on institutional level and with little or no communication between the faculties. Consequently, the quality control mechanisms were “almost non-existing”, which

somehow created a fragile situation for the students, I would say, because if something went fine, no problem at all, but if there was a problem then you are talking about one-to-one relationship, nothing else, and no one looking into it.
(“Jim”)

The rules for doctoral education were often different for different departments or academic units. There were some general rules for the whole university, for example the number of publications needed prior to the defence of the thesis and the rules how the defence of the thesis should take place. But more specific rules were determined by the scientific councils of each academic unit, meaning that rules which applied on one academic unit did not necessarily applied on another.

More importantly, this model of doctoral education resulted in long time to finish the study. It could take 10 years or more, as there were no clear rules on the length of study, while the relevance of doctoral education and the doctoral thesis for the society was low. Additionally, and due to the diversity among the scientific fields and the different requirements for doctoral degree in each field, each unit defined its own internal regulations on doctoral education. For example, there were different classification of general and specific scientific areas, the duration and management of the doctoral studies varied from field to field, but also the scientific supervision, composition of thesis committees and rules to be followed for the public defence of the thesis [187]. Those doctoral candidates that did finish the studies were lacking transversal skills which reduced their employment perspectives, as the chances to be employed at the university and continue pursuing the academic career were very low.

The interinstitutional cooperation and coordination of the university were hampered by the geographical dispersion and by the high level of independence of academic units, creating a closed system in which duplication of doctoral programmes was not uncommon. The term that was often used by the interviewees to describe the situation at that time was “non-aligned”, signifying the decentralized and dispersed nature of the university with poor communication in between the academic units (“Internal communication could be good (depending from the

research group) but external communication and interaction with other areas of knowledge was minimal, “Jim”). It was against this background that the first wave of reforms was started.

7.3.1.2. *Start and the goals of the reform*

The reforms of doctoral education at NOVA started with the introduction of the Bologna process in Portugal in 2006 and have in fact happened in two separate phases or waves. First reform process happened during 2007-2008 and is intricately connected to the adaptation of the Portuguese higher education to the Bologna process. The second phase of reforms took place more recently, during the period in between 2011-2013. The second phase is marked by the founding of the NOVA doctoral school.

The application and the adaptation of higher education system to the Bologna process on all universities in Portugal started after Portugal signed the Bologna agreement. The Bologna process affected all three cycles of higher education in Portugal and was mandatory for all universities:

The thing was, the change that was introduced, really the driver for this change, was this new legislation, OK. So, this was not an internal change, this was a change that was promoted by an external stimulus, let's say. This legislation that changed the PhD education, not only on my university but I would say on all Portugal universities at that time, Ok. So, this was a change that was somehow promoted from the outside. (“Jim”)

But the Bologna process did more than just change the structure of higher education. As we have mentioned, in 2007, Portugal's higher education sector went through the evaluation done by OECD, resulting in a new law on higher education which defined, amongst other factors, a new governance model for universities, based on their newly adopted statutes. The NOVA approved the new statute based on this law in 2008, reflecting the coordination efforts that have been taking place within the university. The new governing bodies were chosen and operational. The new statute brought a stronger role for the rector, allowing him to appoint and dismiss the directors of the academic units and institution's services, decide on the rules for academic evaluation, decide on the creation, suspension and accreditation of study programmes, and decide on the maximum number of admissions and enrolments [190]. Under the new statute, the Rector, as coordinator and manager of the institutional policies, was given essential functions regarding the government of the whole university. Namely, he had the initiative in strategic planning, the importance of which “must be reemphasized since the lack of planning has been a major drawback in NOVA's management” [187, p. 6] In general, the power of the

rector and the deans through the board of deans increased, while the power of the senate was diminished.

The adaptation to Bologna took several years, and “offered NOVA the opportunity to reflect on the content of its educational programmes and stimulated a process of modernisation of its pedagogical approaches, focusing on active learning and on learner-based methods” (ibid., p.7). The new regulation for doctoral programmes at the university were approved in 2007, specifying the general prerequisites and procedures concerning the award of doctoral degrees. With the implementation of the third cycle of the Bologna process, new doctoral programmes were created at NOVA and the old ones were adjusted, while the overlapping of the programmes was reduced. Creation of the curricula for doctoral programmes was the first step in the reform process, as it did not exist in the old model of doctoral education at NOVA. This was done considering the existing strong sides of the university:

...there were created different programmes, but I would say that they mostly arrived from practice that was already in place, which means if you have lots of people, you know lots of candidates starting every year in mechanical engineering, so it was logical to create a programme in mechanical engineering, so that means there was already number of people that every year would start PhD in particular scientific area. (“Jim”)

All new doctoral programmes were accredited by the national quality assurance agency in the following years, giving the university management credibility for further changes.

In this first phase of reforms, the main goal was to reduce the fragmentation of doctoral education, to combine and merge existing doctoral programmes and to introduce a degree of structuring into doctoral education. But,

the most difficult was to align everything because the academic units and the departments were so autonomous that they did not want anything from each other, and so the doctoral programmes run without any supervision and completely back-to-back. (“July”)

Once this goal was achieved (although the data is insufficient to truly assess the actual results of this consolidation), a second goal of the reforms was slowly introduced in 2011 and later by the leadership of the university. This second goal of reforms was named in the data analysis process as “added value” of change, as it is based on the following argumentation: the consolidated doctoral education system at NOVA was producing good quality scientists, but they were lacking the competences in the non-scientific areas, for example transferable skills

and teamwork. The leadership of the university decided that the best way to achieve this second goal was to introduce the concept of doctoral school:

..my initial challenge to the rectors team and to the deans, was is there a specific profile of a doctor from NOVA university, what is the added value of that person being a physicist, or a historian, is there any specifics that we can add to his competences as a scientist, as an autonomous scientist, and we developed the doctoral school around this paradigm of added value. “(Jim)”

The doctoral school was envisioned as an institutional platform for cooperation between the doctoral students, and as a means for developing their new skills:

This school is much more to work as a space to bring students from different faculties together, make them work together, think together, know better, and give them new tools, transferable tools which they are not used to have”. (“Jim”).

The change agents used the added value concept of doctoral school extensively as a leverage for convincing the members of the university in accepting the proposed changes, as will be discussed in more details later in the text.

7.3.2. Main findings

7.3.2.1. *Context of change*

The context of changes in the first phase of reforms which unfolded at NOVA during 2006-2008 was determined by the nation-wide reform of higher education sector in Portugal. As was the case in a number of European countries at that time, the ideology of New Public Management inspired the change of national legislation on higher education, aiming for “reinforcing centralised decision-making with the suppression of collegial decisions, while allowing universities to become public foundations under private law” [191, p. 466]. The former legal framework based promoted collegial decision-making as way of governing universities with strong student participation (ibid.).

The new law in 2006 created the national Assessment and Accreditation Agency for Higher Education, shifting responsibility for quality assurance from the institutions to the external bodies. More importantly, the new law “changed the governance bodies of HEIs by limiting their dimension and changing their composition to include a strong participation of external stakeholders, while eliminating all the traditional collegial decision-making bodies” (ibid., p. 466). The central managing body of the university became the general council, consisting of several members that were external to the university and of representatives of teaching staff and students. The general council, presided by a personality external to the University, is an

independent governing body, responsible for the election of the Rector and it plays a decisive role in the supervision of the strategic management of the university by approving the Rector's proposals on such matters. The senate was given a more peripheral role than it had before the new law. The rector was now obliged to respond to the general council, meaning that he could not anymore make decisions on his own:

Ok, this was a minister [name omitted], that took that in hands, and it was not only a change related with Bologna, the impact on the study cycles themselves, but I think that around the same period there was a complete change even on the governance bodies of the university, totally change, even the way the rector is elected, which are the bodies that govern the university, also at the faculty level the way that director is elected and also governance bodies, so there was a complete change of university system. ("Jim")

In 2008, two years after the application of Bologna process to the first and second cycle of higher education, a new law was passed aimed specifically at the third cycle. This law regulated the status of the doctoral candidates, how they are monitored and evaluated and also defines their competences after the graduation [192]. The basis for this law on doctoral education were the conclusions of the Bergen's ministerial conference in 2005.

Therefore, the Bologna process brought changes to the structure of doctoral education in Portugal. It could be said that the Bologna process created a fertile ground for the reform of higher education in Portugal, and, consequently, doctoral education. It allowed the policymakers to go ahead with the adaptation of the system, to introduce new national laws (and new university statutes), introducing novel mechanisms for higher education management. This opportunity was recognized and used by the newly elected rector of NOVA, who saw it as an opportunity for "alignment" of the university. This is clear in the new statute of the NOVA, which "complies with the law passed by the parliament in September 2007, but also reflects the coordination effort that has been taking place within the university in the last two years. (It) aim at preserving a decentralised governance model, coupling it with shared strategic planning and management" [193, p. 5].

7.3.2.2. *Institutional culture and structure*

The institutional structure of NOVA was determined by its high degree of decentralization, while its formal structure was set according to the national regulations. Because of historical developments, the university was spread across several locations which further contributed to the decentralization of the university. Prior to the change of national regulation on higher

education, the result of such high decentralization was weakness of main governing bodies of the university. The rectorate only had a formal role without much influence over what was happening at the faculty level. In the case of the study programmes for example, the rectorate could ask questions and clarifications about the programme, but those were concerned more with the formal and administrative aspects of the programmes. The decision-making process was done centrally by the rector and his team but had to be confirmed by the board of deans. The quality assurance aspects and the quality control of the programmes were left to the individual academic units, meaning there was little transparency of the process. The actual physical dislocation of academic units and the rectorate only added to the increased feeling of autonomy among the university constituents.

With the new statute of NOVA in 2008, things started to change. The rector became “coordinator and manager of the institutional policies, [and] was given important functions regarding the government of the whole university” [187, p. 6]. Some of the Rector’s powers allow him to become involved in the management of academic units, for instance by appointing the external members of their councils, by approving the creation or extinction of study programmes, by supervising human resources policy etc. Despite this, the autonomy of academic units was preserved - when it came to internal matters of the individual academic units, the rector was still obliged to consult the board of deans before making the decisions.

The entire system was decentralized in terms of the decision-making process, and the scientific councils at each faculty oversees the first, second and the third cycle of education. Such situation had a tendency of creating a closed system, in which the cooperation between the academic units and between academic units and the rectorate was at a low level even despite the Bologna reform. The number of study programmes organised by more than one academic unit was limited on all three levels of education. The study programmes were bound to scientific areas within the faculty, resulting in low intra-institutional synergies and minimal communication and interaction with other areas and other faculties. Moreover, at the faculty level, the programmes were organized at the departmental level, and only few programmes were offered at the faculty level. In such highly compartmentalized structure of the university, “each unit defined its own internal regulations, such as the classification of general and specific scientific areas, the duration and management of the doctoral studies, scientific supervision and thesis committees and rules to be followed for the public defence of the thesis” [187, p. 28].

It is from this decentralized nature (created on purpose) that the whole culture of the university was defined, The institutional culture of NOVA was in many ways determined by its foundation as an alternative university, one that is different from the more traditional University of Lisbon and Portugal in general (“I mean, we are created by professors that came from the old one”, “July”). The key characteristic of NOVA was its decentralized nature and strong autonomy of its constituents, the nine academic units influencing on the possible change management approaches.

7.3.2.3. *Change agents*

The main change agent in the both phases of the reform process was primarily the rector of the university. The rector was highlighted by the interviewees as the key person in both phases of the change (“You see I did not mention that much the rector, but the rector was important in the process. Because if I did not have his full support from the very beginning, this would not have worked”, “Jim”). His position was strengthened by the change of the national legislation and with the new statute of NOVA, allowing him to continue with the planned alignment of the university. The rector’s team supported the rector, consisting of the vice-rectors and later by the head of the newly founded doctoral school. In the second phase of the reforms, the vice-rector and the head of doctoral school were the key players in the process, while the rector had a less pronounced role:

But my role as a rector was not...this was not the project of the rector, although maybe (inaudible) so, the fact that I had a vice-rector and the deputy dean, actually the rector of the doctoral schools was very important, because the people felt that they could share and discuss with them a lot of issues, and then I would meet with the vice-rector and deputy director, so we felt that this was how it worked in our institution. (“Boris”)

Apart from the rector and his team, the scientific councils and deans of academic units also had a key role in the reforms, as they were the centres of power. As the reform process developed, especially in the second phase when the doctoral school was introduced, other players entered the process. These were the representatives of the doctoral students, and the stakeholders from the business sector who played a vital role in the financing of the doctoral school.

Right choice of key people was crucial for the success: although the core team was very small (basically only three people, with the heads of nine academic units as), they all had a good understanding of the concepts of multidisciplinary at the doctoral level and had a vision and the will to proceed with the changes. Furthermore, they had earlier experience of working at

the rectorate and had good connections with those who were in power at that time (the deans, vice-deans, the heads of quality system etc.). The leadership skills were also important, although all the interviewees stressed that the change was a team effort (“As I said, it's not a one man show, and I don't think it was ever planned like that”, “Boris”), and that the process was a dialog between the rector’s team and the academic units.

The key players had a good understanding of the academic culture at NOVA, and they were able to adapt to that specific culture – in this case the decentralized, highly autonomous culture – and add value to what was already there. The fact that key players had a good academic reputation as being prestigious researchers with international experience helped in the process.

As joining the doctoral school was done on the voluntary basis, all the people that accepted the positions in the coordinating bodies and were taking part in the process were, by default, people with positive motivation, as they were there to help and not to act as a counterforce. Those who were against the reform could chose to stay out, and thus not interfere with the efforts of the change agents.

The key characteristics of the change agents were their international experience and good academic reputation. The international experience relates to their knowledge and access to the information on the contemporary trends and developments in doctoral education at that time. For example, the interviewee “Jim” was at that time holding a prominent position in EUA-CDE and was involved in international meetings, having a first-hand experience how other countries organized their doctoral education. Other change agents were also involved in the work of EUA, but also in some other international organizations focused on doctoral education. The academic reputation also played a role as it gave the change agents credibility in the eyes of other members of the university (“vice-rector [omitted], he is more formal guy, but he is very well accepted, he is very good researcher, he has considerable prestige. So, prestige runs the place here, too”, “July”).

7.3.2.4. *Change management approach and strategies*

As we have seen, the strong autonomy of the academic units was affecting the whole university, creating unfavourable conditions for the modernization of doctoral education. The change processes were difficult to start and maintain due to the heavy decentralization (“Always the talks "we are losing autonomy", and there was a big group of people always complaining that we are losing autonomy”, “July”). Specific change management approaches and strategies had

to be considered by the leadership to bypass these institutional obstacles. At the same time, the leadership understood very well that the institutional culture of the university had to be respected, and that any attempt to change the decentralized culture would cause high resistance from the academic units and its members.

Following the division of change management methods that we used in the earlier cases, the main change management approaches used in the two phases of the reforms were separated during the analysis into two categories: the internal methods and the interpersonal methods.

Internal methods

The first category of change management methods consists of the strategies used to influence and change the internal structure of the university and to reduce the fragmentation of the university. The change management strategies falling under this category are characterised by their administrative, financial, and formal nature, and were dominant in the first phase of the change when the Bologna process was used as a stimulus for changes. The university was exploiting the possibility of change created by the new national legislation and the new role of the rector (with greater authority), who was able to create new university bodies, for example the Council of the deans. Change agents wanted to start cooperating with the key persons on academic units on the goal of the alignment of the university and creating a new structure that would allow this cooperation.

The main strategy used by the key players in these efforts was the “carrot and stick” approach, which signifies the necessity of negotiations among the power holders and more generally, the specific nature of decentralized higher education institutions:

.... he asked that, but he gave things back. I mean, it was top-down, but very clever negotiation process. "I'll give you this this, I'll grant you this lab t if you align, if...if". So, he had always the carrot and the stick. (“July”)

The main “carrot” in this case were the access to finances, or the official budget of the university, which was used by the key players to negotiate the positions of the university leadership toward the other power holders at the university. It was through such negotiations that the new doctoral programmes were created, and the old ones were aligned and merged during the first phase of the change. Those academic unites who did not want to take part in this alignment were risking the possibility of reduced financing, or even not receiving the financial support from the university at all:

...because here at the university we receive the whole budget to be distributed for the schools. So, criteria were, "are you having overlaps in your PhD programmes, so you won't receive the money. ("July")

Another internal method for consolidation of doctoral programmes was the use of external authority. As the new law on higher education was introduced in Portugal, all doctoral programmes had to go through accreditation process conducted by the external body, the Quality Agency for Higher Education. The leadership of the university was relying on this external quality assurance agency and managed to gain credibility and leverage using the results of the accreditation of study programmes. The agency set the guidelines and procedures which had to be respected (although often on only formal level), adding to the momentum of change ("We had all the accreditation process, and this was very heavy for each academic unit, so we didn't go into the this added value model of doctoral school until we had everything accredited", "July").

In the second phase of change process, the main "carrot" was the creation of an umbrella- type of university doctoral school. This type of doctoral school was made on the university level and not on the level of academic units or scientific fields. It was open for all doctoral students from all academic units, and it offered added value for all doctoral programmes. In this second phase, the doctoral programmes were accredited and aligned, their number was reduced, the overlapping has been minimalized, so the goal of the change agents was to create an overreaching structure which would be used for transferable skills training of PhD candidates.

To achieve this goal, the leadership used the "noninterfering" change management approach, characterised by the complete and intentional absence of any interfering from the central university level of the university into the internal organization of doctoral programmes or control, assessment, and guidance of doctoral programmes. Without interfering with the structured PhD programs of each of the nine schools of the university, the NOVA doctoral school embraced a specific mission – to reinforce personal and professional development of PhD students and supervisors through transferable skills training:

The concepts that we deal was added value, so the reform in a way was not formal. Because the doctoral school is very flexible structure, contrary to our institution who built the autonomous school, we did not want to have centralized doctoral school, we wanted to have a sort of a "spider" unit that would be able to involve the students in specific activities that were shared, and these activities were much more related with their overall training, not to their specific training. ("Boris")

Any other mission was not in the description of the doctoral school:

We don't care the way your final document, thesis, looks, we don't care how you discuss the thesis, we don't care on administration procedures, we even don't care about the courses you include in each PhD programme, we don't care about that.
(“Jim”).

This was the “price” that the change agents had to pay due to the institutional culture and the decentralized structure of the university. The creation of the doctoral school in the second phase of change was a result of a long-lasting negotiations between the leadership of the university – the rector and his team – and the leadership of the academic units. Therefore, for this phase of the change, the bottom-up approach was more dominant than in the first phase, when more emphasis was put on the top-down process. Additionally, the goal of starting a doctoral school was formalized in the university’s formal documents and it was a part of the rector’s programme. The establishment of the doctoral school was considered a strategic goal of the university, and was discussed in detail with all stakeholders, including the students.

The model of the doctoral school which was used was “flexible”, meaning that it allowed variations in the specific regulations of doctoral programmes and avoided to be prescriptive and normative. It also meant that from the financial and the organizational aspects, the doctoral school was not causing any excessive expenses for the university and therefore not causing reasons for resistance and opposition. The number of staff employed in doctoral school was very small, and the head of the doctoral school was already employed at the university, so the only thing that had to be done was to re-arrange the existing duties. The “noninterfering” approach used by the change agents relied on their understanding that any initiative for change must not be understood as a personal initiative or the initiative from the rectorate. This was the reason the leadership tried from the beginning to involve the whole university in the process. The coordination of the change process was done at the rectorate level, but the great effort was made to show everyone that this was university project and not a specific project from the rectorate (“So, I think that people understood that we were not really trying to rule things over their own wishes”, “Jim”).

Personal methods

The second category of change management strategies used was during the analysis of the data labelled as “personal methods”. This group of methods was focused primarily on the interpersonal relationships between the key players and the various stakeholders in the change process. Which of the personal methods would be chosen by the change agents in their activities depended on the choice of the internal methods.

The goal of the personal methods was to

explain to people that what we are trying to do is something new that adds value to the process, is something that we are not creating to control others or control them, but is something you give them a certain degree of freedom they had in the past, but we develop something on top of that, that can be useful for the students, and also for the supervisors. ("Jim")

Primarily, negotiations between the management and other stakeholders, mainly the leaders of the academic units, was the leading personal change method used in both phases of the change process. Negotiations included visiting every academic units, meeting with the scientific councils and the deans, and discussing the reasons for and against the change. New doctoral programmes were presented during these meetings together with the new structures and standards ("it [new regulations] was sent to all the heads of the schools, and it took me one year to negotiate that with the schools. But then, it was really, it was agreed, and everything was OK...", "July").

In the first phase of change, negotiations were mostly taking place between the rector, rector's team, and the scientific councils of academic units, as it was the scientific council of each faculty that had the power to approve the new doctoral programmes. The plans for the new doctoral programmes were presented to academic units and discussed at the meetings in the presence of deans (often using "carrot and stick" method), while in the second phase, the plans for setting up the doctoral school were presented and explained to each academic unit. Other stakeholders were also included in the negotiations, for example the university quality council, an internal quality control body, but also the doctoral students. The students were included in the doctoral schools' council, where they could discuss and present their ideas about the activities offered by the doctoral school. The representatives of the PhD supervisors were also included and consulted in reform. There was a lot of teamwork and meetings with the persons from the various academic units.

Negotiation was supported by other two change management methods, distinctive for higher education: the argumentation and the dissemination of information.

The argumentation relied on the fact that the new organization of doctoral education would help the academic units and not endanger their position in any way:

We said, "this school is much more to work as a space to bring students from different faculties together, make them work together, think together, know better, and give them new tools, transferable tools which they are not used to have". So,

once we set the grounds, then we said these are the grounds, do you agree and everything, ok, now let's work and when we start working, everyone has a say there. That was the process. ("Jim").

Once the main ideas and the goals of the reforms were explained, as well as the mechanisms for participation of academic units in the reforms, the resistance to the change was minimal. The entire process of negotiations was quite lengthy – it took more than one year to present the ideas and negotiate the creation of doctoral school with all academic units.

The dissemination of information on the goals and activities of the reform were interwoven with the negotiations and argumentation. It included dissemination of innovative ideas and trends in doctoral education. Exposure to the novel ideas on the organization of doctoral education, which were at that time circulating in the Europe, had an influence on the key players ideas and goals. Some of them were involved in the work of EUA-CDE, or were at least participating in international meetings, and were seeing how the other countries organized their doctoral education. But although these ideas were available, it is not exactly clear how much of an effect they really did have at the NOVA. One interviewee stated that

I knew about these, because at that time I was involved in the council [EUA-CDE], in fact I felt that they were playing a very interesting role, but it was not what we wanted. We wanted to do it as a tool for the strategy of the university, and now obviously we are quite involved and I'm very happy with that, but at that time I felt it was too much top-down and a lot of sharing experience at the level that was not within our objectives at that time. ("Boris")

Instead, the examples from similar decentralized universities were used, mostly from Anglo-Saxon universities, which had doctoral schools organized as an “umbrella” type, meaning there was one doctoral school for the whole university. This model was different from the continental model which employed several smaller doctoral schools for one university. But another interviewee, when asked if some examples from other universities were used in doctoral school creation, clearly stated that no models were used. Instead, experience and methods, used in the previous position (in this case, staff and student development at medical faculty) translated into an umbrella type of doctoral school:

“July”: What I did was, I talked with people within the university, and then created something, and then I understood, after reading, that I have an umbrella school. But to tell you really the truth, I discovered that afterward.

Interviewer: So, it was a confirmation of all the things that you did...

“July”: Exactly, exactly, and it was a relief really.

It seems that there was some convergence between the key person's ideas of doctoral school and those that were being promoted through professional associations at that time.

The application of personal change methods resulted with the creation of the enthusiasm for the reforms among the university's members, thus raising the level of readiness for change ("Every time I was involved in this type of processes [2006 and 2013] my main role was to contribute for an atmosphere of enthusiasm about the new ideas and plans", "Jim").

7.3.2.5. *Readiness for change, involvement, and participation of members of the university*

The level of readiness for change in doctoral education at NOVA was at reasonably high level, according to the interviewees. This was especially true in the first phase of the transformation, which could be related to the Bologna process that was changing the first and second level of tertiary education in Portugal at that time. The members of the university were expecting the change of the third level and they were prepared for it. In a way, there was no choice but to accept the change:

At a certain point, we were not dealing with the opinions, we were dealing with the fact that it was a need to adapt the third cycle to programmes, because this was enforced by law. So, people...you can discuss whatever you want, but you know that the direction is that one, because there is a law that enforces you to do it.
(“Jim”)

Although the reform of the third cycle was common for the whole country, interviewees still believed that the change would have happened even if the Bologna process was not unfolding at the time. There was an understanding among the members of the university that doctoral education was ready for change as new challenges appeared (for example, the high number of PhD candidates and the issues of their employability outside of the academia). The contemporary trends in organization of doctoral education were circulating in Europe at that time. Certain degree of external pressure for change was therefore present, either in the form of international organization in higher education (for example OECD who conducted evaluation of higher education in Portugal and recommended the reforms) or originating from the non-academic community who wanted the university to be more relevant and capable of dealing with the real-life issues. Besides, the state demanded more responsibility and accountability from the university, following the trends of New Public Management. The new law on the higher education in Portugal added to the speed and depth of the changes, offering the management much needed leverage in the process.

The leadership of NOVA managed to achieve a satisfactory level of involvement and participation of the members of the university in the change process, due to two main reasons. As we have seen, the level of readiness for change was high which made it easier for the management to implement their ideas on the new doctorate. The second, more important reason, was the use of the “noninterfering” change management approach. The deans, vice-deans, heads of scientific councils and other stakeholders were willing to take part and contribute to the process as they could only gain from it. The management did not make the participation in the process obligatory. Instead, the key players in the process understood that

the only way to have a reform to be accepted [was] to involve people as relevant actors, academics, staff and students. Every time I was involved in this type of processes (2006 and 2013) my main role was to contribute for an atmosphere of enthusiasm about the new ideas and plans. Involving people as part of the process is the key issue. (“Jim”)

The rector even emphasized this wide participation of all university bodies in his rector’s programme in 2007. An informal management board was created in February 2007, including the rector, the vice-rectors, and the deans of academic units, and they would meet on monthly basis. This informal university body became the Board of Deans under the new statutes [187], substituting the Senate. Therefore, different stakeholders were involved from the beginning in the both phases of change. Different mechanisms were used to collect the opinion of the key players in the process, from regular meetings, discussions, “tours” of the academic units, to the quality assurance mechanisms such are regular evaluations of the trainings offered by the doctoral school. Another mechanism was to include the representatives from all academic units into the newly created managing bodies at the university, the council of doctoral school which is the doctoral schools’ governing body. Once the people agreed with the general ideas about the change that were proposed by the leadership, and once they were delegated to the council of the doctoral school, that meant that they supported the project rather than opposing it from the outside. This involvement of different stakeholders created an understanding that the change was not started by a small, isolated group of people for some vague reason, but rather that it was a university-wide effort which would bring added value to the existing situation.

The entire process of change was characterised by the bottom-up approach, although the initiative and the main ideas came from the top and the effort was coordinated on the university level. But on the level of academic units, the new doctoral programmes were created in the departments, and were created from the practices that were already in place. For example, there was a considerable number of doctoral candidates in the mechanical engineering, so it was

logical to create a doctoral programme in mechanical engineering instead of inventing new areas for doctoral programmes.

In the second phase of the reforms, when the idea of doctoral school was introduced, the process and the methodology of change was similar to the first phase. The deans understood that there existed a space for improvement of doctoral education, as there was a lot of joint research projects among the various academic units. But the doctoral students were not always involved in these projects on the satisfactory level and they were not developing skill that would complement their research skills. During the discussions with the deans, an idea was formed to put the doctoral students from different academic units together and train them in the transferable skills, so the concept of doctoral school was introduced. In the beginning, not all academic units wanted to take part and send their students to the doctoral school, but as the time went on and as the word of the benefits and the quality spread, increasingly more students joined. For the leadership of the university, this was a confirmation that the change was a success due to the bottom up approach used:

...but I think really the secret was to bring people inside, to have responsibilities, and tell them we are going to build doctoral school, and this doctoral school is going to be the thing you would like to have. (“Jim”)

7.3.2.6. *Institutional limitations and obstacles*

Strongly decentralized structure and the institutional culture of autonomy among the academic units, was the main institutional limit and source of the resistance to the leadership’s efforts to create more structure and align the university. In practice, this institutional limitation resulted in a fear of losing the autonomy of academic units, which was especially pronounced during the first phase of the change:

And there was a big group of people always complaining that we are losing autonomy, so, from the departments, and from the schools. (“July”)

The academic units were concerned that the doctoral school would interfere with the scientific orientation or the administration of their doctoral programmes.

The high level of autonomy proved to be a burden for the leadership of the NOVA, as it led to the weakness of the main governing bodies of the university in the period before the introduction of the new law on higher education in 2007. The leadership of the university had a difficult task to increase their coordination role, and at the same time to respect and preserve the autonomy of academic units as an “institutional principle” [187]

Secondly, there was a general level of resistance toward the Bologna process, efforts to change the third cycle. But as the reforms of the higher education were obligatory on the national level, these obstacles were not considered as problematic. More effort from the leadership had to be invested into the negotiations with the deans and various other key players, to get them to align their doctoral programmes on the university level. As we have seen, the leadership employed several strategies to counter the resistance, and to create positive atmosphere among the key players. In the second phase of the reforms, the main opponents of the change were the PhD supervisors, who were in fact the only notable group of people with reservation toward the creation of the doctoral school. Their resistance can be contributed to the fear of the supervisors that the training in transferable skills will be a burden on the PhD candidate and that it will take considerable time which could be spent on research. It could also be explained as the fear of losing the control over the PhD student:

The resistance that you could in a way forecast, based on for example the fact that the supervisor is a little bit a controller of a PhD student, [that] was a process that we had to discuss, this was in the first and second year. (“Jim”)

The supervisors also had some reservations toward the supervisors' training, which was offered as part of the doctoral school programme, but this attitude quickly changed once they realised that the courses were not obligatory.

The overall resistance during the both phases of change was limited due to the two factors: the necessity of the transformation caused by the Bologna process, which created a sense that there was no other option but to comply with the new demands, and, during the second phase of the change, the noninterfering character of the change process which offered added value to the academic units without requiring any waiver from their side. As “July” explained, since the whole doctoral school was based on the voluntary basis, the only people who were using the services offered were those who were very enthusiastic, either the students or the supervisors. Those who did not want to take part, were indifferent (“Some of them love us, others do not even care, and it’s a perfect world”, “July”).

7.3.2.7. *Results of the change process*

The results of the both change phases were profound for NOVA. Primarily, doctoral education was organized in the PhD programmes with structured curricula, including the universal rules for supervision and for the entire process of obtaining the doctoral degree. The number of doctoral programmes was reduced, and the overlapping between them were removed. The

taught courses were introduced into the doctoral programmes, offering the students a chance to set up contacts with other students. The one-to-one relationship between the PhD candidate and the supervisor was supplemented with a commission that follows the candidate's progress and was composed of the supervisor and two or three other members. The commission had the final say before the doctoral thesis is submitted, and therefore providing a team supervision to the candidate. Furthermore, new university bodies were created with the task to assure the alignment of the doctoral programmes, for example the council of the deans, consisting of the heads of nine academic units, so the programmes, mission, and the activities of all the nine faculties could be more aligned.

The profile of the PhD students has changed, and their skills are now much more interdisciplinary-oriented than before. Thus, the quality of the research improved – at least according to the interviewees who think that the PhD candidates are now much more open-minded and better prepared “to face the challenges of the future, which are not just subject-related but are global” (“Boris”). From the point of skills development, the change is a success, as PhD candidates are now working together with the candidates from different faculties and are getting new knowledge in terms of transferable skills. The supervisors, at least those who want to participate in the supervisors' courses, are “absolutely delighted with the process” (“Jim”) and have evaluated the doctoral school very highly during its internal evaluation.

One of the goals of the change was to create a sense of unity at the university, or a new culture, as the earlier decentralized structure and the physical dislocation of the academic units contributed to the sense of isolation among the staff and students. Several methods were used to create this new culture, from the quite simple but effective to the more complex methods. For example, the PhD candidates were given the same T-shirts when they were attending the transferable skills workshops, which resulted in the “T-shirt atmosphere” among the participants (“July”). According to the interviewees, the reforms succeeded in these efforts to create a new feeling of the university:

I really think we built a much more university spirit, because people now understand in which university they are, and what the university does. (“Jim”)

Both phases of the change contributed to this new spirit and the feeling of belonging to the same organization, although it is difficult to assess and measure how much impact on the overall quality and the success of the individual doctoral students the change had:

One thing are the outcomes; another thing is the impact. And I really don't know, to tell you the truth, the outcomes are superb, we are always full, from the 2000 PhD students we have, 1000 has already been here at the doctoral school, and done some courses, so I'm very happy in five years, so the outcomes are... the evaluations are superb. The budget is balanced...but I don't know if it really has impact, because it's really, tricky, I don't know. ("July")

This is a common issue in contemporary doctoral education, as it is difficult to measure the impact of transversal training on the success of doctoral trajectory, and the impact on future career. Nevertheless, the fact is that the students were given a chance to share and discuss their ideas with their colleagues from different faculties, which was not the case before the introduction of doctoral school (or was to a much less degree). Furthermore, the cooperation and collaboration between the academic units was stimulated and encouraged on the level of staff, but also on the level of students:

Other thing is that we were very much interested in creating more and more relations in-between faculties, and I think it is interesting that this should be done not only on staff level but also at the student's level. And sometimes the students came to the supervisor and says, "Oh I met that guy from the other faculty, and you know they are doing these things over there, I think we should do something with them", you know that happens now. ("Jim").

There were also some negative side-effects of the change process. Because the management chose the noninterfering change management approach which left the internal matters of the academic units outside of the reach, the leadership of NOVA could not set up tighter control over the academic units. They kept their independence in the implementation of the doctoral programmes and were free to do as they pleased. The deans were "bought" into reforms with the promise of the added value to their doctoral programmes, and doctoral school was one of the main "carrots" in the process. But as such, the doctoral school does not have an influence on what is being done on the faculty level and inside of the doctoral programmes. Although the university-wide rules concerning the supervision, curricula etc were accepted, their actual application remained beyond the scope of the doctoral school and the rectorate. This was a trade-off to which the leadership agreed and was a conscious decision made on the top level of the university. Trying to change the distribution of power would have been too difficult for the leadership and would have created strong resistance, so the soft approach was chosen instead of a more top-down.

7.3.3. Discussion

NOVA offers an interesting example of doing change in doctoral education on a heavily decentralized and fragmented university. The decentralization and autonomy of academic units are the core values of NOVA, as the whole purpose of founding the NOVA was to break away from the traditional, centralised structure of the university in which the faculties are under the strict control of the rectorate. In such circumstances and in such institutional culture, a specific change management approach was needed by the leadership of the university, one that would not threaten the autonomy of the constituents but would instead be able to build on that autonomy and use it as an advantage in change. The main buzzword used to achieve this goal and to find the right strategy was “the alignment”, an effort to reduce the existing redundancy and overlapping in doctoral education with the goal to improve it. The reform was used to join the resources by making a clear distinction between the academic units and doctoral education that each of academic unit offered, but at the same time trying to stimulate transdisciplinary and cooperation between them.

Furthermore - and this is especially true for the first phase of changes in 2007-2009 - it was necessary to bring more structure into doctoral education. The doctoral education at that time was unregulated and one-to-one arrangement which was not performing on the satisfactory level. Doctoral education at NOVA was not tuned to the requirements and the needs of the society. Such circumstances came into a conflict with the introduction of the Bologna system, which was unfolding on the national level. Bologna process opened a window of opportunity for the university leadership, primarily by causing the adoption of the new law on higher education. As the new law needed a complete reorganization and re-evaluation of all educational cycles on all universities in Portugal, the management led by the rector of the university saw an opportunity to modernize doctoral education, in line with the new world trends.

Before the reforms, due to the diversity of scientific fields, the implementation of doctoral education was an internal matter of each academic unit. The decentralized structure of the university has one major weakness when it comes to the quality of doctoral education – it is exceedingly difficult to know what exactly is going on with the doctoral programmes, and what the quality of those programmes is even for the external agencies in charge of quality assurance and control. As “July” noticed,

But, you know, bureaucracy is something that is heavy, but we can always overcome bureaucracy. If you write things correctly, you can do what you want. And all they see is the portfolio of the programmes, I'm not in the school seeing what happens. So, when, for instance supervisor-candidate relationship, they have nothing to do with that. So, what they see is the content of the programmes, and the ratios, and if the teachers have PhDs or not, it's very heavy in terms of structure, and nothing to do with the real quality of interactions. So, yes, we applied to the agency, and everything is OK because we are smart, but don't know what happens exactly inside doctoral programmes. I mean, nobody knows. The rector of the programmes knows, but we here at the rectorate, we don't know.

Behind the new “alignment” of doctoral education was an intention to use it as an integrating force that would assure better links between the isolated and autonomous academic units, and also improve the interdisciplinarity of the scientific research. At the same time, it would assure at least the minimum level of university-wide regulations on doctoral education. The closeness of the system was perceived as a hindrance to the development and modernization of the university.

In the case of NOVA, the external pressure (the Bologna process, or more precisely the accreditation that was being done based on the Bologna system criteria) and the changes in the environment were reflected in the new national legislation built on the premises of new public management ideology. The question is still how much doctoral education would change at NOVA if there was no such nation-wide change started by the adoption of the Bologna process. One thing is certain - the nation-wide changes affected the level of resistance at NOVA, as there was no point in resisting the reforms that were enforced and backed by the national law. The real power struggle was not being played over whether to change or not, but how much to change and what. And it was here - between the leadership of the university and the academic units - that most of the negotiations and the “carrot and the stick” method was employed by the leadership of the university.

Due to the specific culture of the university, change had to be presented to the academic community as the *university* initiative that will only bring added value to doctoral education on academic units. It could not have been perceived by the members of the university as a semi-private initiative, imposed by the leadership of the university and motivated by their own interest (“Otherwise, you are on yourself, and people could say, “OK, you have this funny idea but that is your idea, who are you to bring this”, “Jim”). The resistance would have been too high and any effort to change the university would have been hindered by the power holders from academic units, as it would mean going against the culture of the organization. Instead, a bottom up approach was used to implement the ideas of alignment and to reduce the

fragmentation of the university, at the same time keeping the main values and the organizational culture intact. The bottom up approach allowed for participation of stakeholders from various levels and an open discussion on the goals of the change.

Argumentation was the dominant method in the process, as the leadership wanted to avoid being normative and allowed for variations among the academic units. The key players had a particularly good understanding of the specific organizational culture at NOVA and were acting accordingly:

[Understand] what resources do you have, what is the culture of university, I mean, just go deep, deep, kind of anthropologic work, go deep into the culture of university, and then do what you can with the resources you have. (“July”).

In the second phase of the change, this type of approach was even more emphasised, as the key players decided not to interfere with doctoral education on academic units in any way, leaving it completely to the discretion of each academic unit. Instead, they aimed at improving the research and transferable skills of PhD students and later the supervisor’s skills and competences. Using the argument of additional skills, they wanted to create a new PhD culture that would circumvent the isolation of academic units (and the PhD candidates), and promote transdisciplinary research, at the same time creating open minded scientist. By using such approach, leadership effectively avoided any substantial resistance as there was no real threat to the autonomy of the academic units.

The good practices and examples from other universities were used in the process, although there are conflicting statements from the interviewees about this topic. “Jim” for example clearly states that Anglo-Saxon universities were used as an example (“I was more attracted by the model that Anglo-Saxon universities were following, and I proposed that model at the rectorate team at that time at my university”), while “July” denies that she was transferring good practices from other universities. There was some influence of isomorphism on the strategic level, when the leadership of NOVA was deciding on the model of doctoral school, but on the implementation level, the key players were using their own ideas and experience in the formation of doctoral school and its activities. What is undeniable is the use of external source in the creation of NOVA’s policy documents on doctoral education, for example in [194]. The effect of professional organizations on the form and on the outcomes of the change was, however, not very high, even though the key persons were actively involved in those organizations and were familiar with the latest trends in doctoral education in the Europe and the world.

In the case of NOVA, it was more important for the leadership to follow the organizational culture and not to change the university in such a way that would undermine its culture. As a result, the leadership had to make an extra effort in the change process. For example, they could not entirely rely on the resources of the university, as any extra spending would cause resistance from the academic units. Instead, a deal was made with an external organization (in this case a bank) for the partial sponsorship of the doctoral school. Half the budget for the doctoral school was secured from the external sources, easing the pressure on the university budget, and pacifying the resistance. Secondly, the doctoral school started with very simplified and flexible organizational model and a small team (two coordinators, counselling committee of professors and a small administrative team). Again, this was a consequence of the noninterfering approach and the limited budget. Despite this, the doctoral school was a success precisely because of approach used and because it was in line with the organizational culture of NOVA.

7.4. Case 4 – University of Montenegro

7.4.1. Introduction

The University of Montenegro (UMN) is a public institution established in 1974 through the merger of several pre-existing independent faculties and research institutes. It is the largest institution of higher education in Montenegro, formed of twenty faculties and three institutes. It is comprehensive university that covers high range of disciplines, from humanities and social sciences, to science, medicine to technical sciences and art. It has more than 20,000 students and 1,200 staff, of which 700 are academic personnel. The university is governed by an executive governing board, dealing with management and economic issues; a senate, dealing with academic affairs; and an executive head (dean or rector) responsible for the daily management [195]. The headquarters of the university is in Podgorica, but there are ten other university units located in other parts of Montenegro, contributing to dislocation of the university. Since 2004, the university conforms to the three-cycle system of the Bologna process.

According to law, the UMN is recognized as a single legal entity, while its constituents have a certain degree of autonomy when it comes to their internal matters but are not considered legal entities. Until 2004, when the new national law on higher education was introduced, the situation was quite different – the faculties were legal entities while the university had only a formal role. As was the case with many similar universities in the region, the faculties of UMN

were created first, specifically the Faculty of economy, Faculty of technical Sciences and the Faculty of Law. The beginnings of the university were characterised by close connection to older and larger universities in the region, primarily University of Belgrade and University of Zagreb. During the 1990's and the transition of Montenegro to its independence in 2006, several new faculties and units were formed, and the dislocation of the university units started.

7.4.1.1. *Doctoral education before the reforms*

Before the reforms in 2014, the doctoral studies at UMN were organized by the faculties and involved the defence of the dissertation without any course work. The doctoral education and the awarding of the doctorates started in 1975, and it was carried out in classical way which meant that there were no doctoral studies organized, but only individual research and personal relationship between the doctoral candidate and the supervisor:

doctoral students did not have examinations, but only research, you come to the professor, choose the topic you want to collaborate, [they] approve your subject and you work, and nobody is watching you. ("Igor").

Such organization of doctoral education at UMN was prevalent until the start of the implementation of Bologna system in Montenegro, in circa 2002. Around that time, the doctoral studies were introduced which included some type of lectures and exams. Despite the changes, doctoral education was still not very structured:

...there was no strict structure like what you see now... it means semesters by semester, but mostly there were some exams you had to pass, so then you work on a doctoral dissertation. ("Igor")

The doctoral education was responsibility of the faculties, meaning that the quality of doctoral thesis was assured on the level of the faculty and not on the level of the university. The Senate of the university still had the final word when it came to the approval of the dissertation topics, although the real work was being done on the faculties and their councils. In most cases, the role of the Senate was only formal.

Doctoral education did not have the same status as the other two levels of education, due to the low number of doctoral candidates when compared to bachelor and master students:

somehow in our heads at UMN this segment of doctoral studies is something sporadic, which happens from time to time when a candidate comes, so there was no idea that this is an equal level of studies such as these [bachelor and master].
("Frank")

Until the independence of Montenegro in 2006, the university was under the heavy influence of University of Belgrade, which was then the central university in former Yugoslavia. Consequently, the doctoral supervisors were not coming from University of Montenegro but were appointed from other universities in the region, mostly Belgrade or University of Zagreb. The situation changed once the Montenegro became an independent republic, although the lack of supervisors became one of the key issues with doctoral education.

The issues in doctoral education at UMN before the reforms in 2014 were many and severe. Some of these issues are common to many modern universities, for example the long time to finish doctoral education, inability of the university to absorb the graduated PhDs into academic positions or the misalignment of doctoral education with the needs of the labour market. Several issues were specific to UMN and to the region in which the UMN is positioned. Primarily, the issue of low number of doctoral candidates caused by the general lack of interest in doctoral education and the high cost of student's fees, combined with the heavy brain drain effect and the competition from the new public and private universities in the region, have created an unfavourable environment in which the quality of doctoral education has started to deteriorate. Since the university was fragmented into more than twenty academic unites, the number of doctoral programmes was also significantly higher than what would have been best. In 2015, there were 29 doctoral programmes, while the total number of enrolled PhD candidates was only around 500 [196, p. 140]. Such situation led to the further dispersion of already scarce resources, inability to create critical mass of researches and to the decline of research activities on the university [195, p. 23].

7.4.1.2. Start and the goals of the reform

Due to such demanding situation in doctoral education, the goals of the reforms were many and, in some cases, presented a radical change with the past. The new university leadership decided in 2014 to take measures and to “reconsider its character and scope, and to define a more efficient and more quality model of organization” (ibid., p. 140). During the 2013-2014, The UMN went through a detailed evaluation by the external agency, the EUA, as part of the comprehensive evaluation of the Montenegro's higher education system. The evaluation of the university was a joint endeavour by the Ministry of Education and the university and was a part of broader overall aim to strengthen the quality and relevance of higher education and research in Montenegro. The new rector of UMN used the evaluation report to start a thorough reform of the whole university, and doctoral education was one of the aims of this reform.

The reform of doctoral education started in 2015 and was backed by the financial aid of the European union through the institutional grant given to UMN, under the project “Reform of Doctoral Studies at UoM– REDOS”. According to interviewee “Frank”, the time for the reform of doctoral education was right, as the system was in the state of crisis due to the very poor financial state caused, among other reasons, the world’s financial crisis which effected the Montenegro:

And that [the reform] came not so much from the inside. I think it was just a time of crisis, and usually in those times of crisis many see it as a chance, because in times of crisis many things change, and in quite times it is difficult to change, when the crisis comes then the criteria lowers, and then some things change easier. That's a chance to change. And that chance was used. (“Frank”)

General goal of the reform was to implement activities connected with the harmonization of doctoral studies programmes with the principles of the Bologna system and the Salzburg processes. To achieve this, the university adopted the new rules for doctoral studies, and set up two new institutional bodies responsible for doctoral education: The Centre for doctoral studies and the Doctoral Studies Committee.

The main goal of the reform of doctoral education was to “to set doctoral education standards by using comparative data and learning from good practices in order to assure quality culture in doctoral education” [197]. But the goal of the reform was part of a more elaborate effort to improve the status and the regional position of the UMN. The leadership of the university wanted to achieve better alignment with the society and the business community, increase the interdisciplinarity of the research and its innovative character [198]. Several specific goals for doctoral education were set to achieve the overall aim:

- Increase the pool of supervisors by creating the list of supervisors;
- Increase the quality of doctoral thesis;
- Increase the visibility of doctoral education at UMN by creating an information platform;
- Set new and clear rules for doctoral education by adopting the new Rules for doctoral studies, emphasising the research aspect of doctoral education and structure;
- Increase internationalization of doctoral education, and attract doctoral candidates from abroad;
- Increase research capacity and potential for research.

To counter the effect of brain-drain and the small number of doctoral candidates, the leadership was emphasizing the need to strengthen internationalization of university by introducing the study programmes on English language, but also by trying to attract foreign students. Apart from these goals that were set in the university's strategic documents, there were some goals that aimed to change the decision-making process in doctoral education. Until the reforms, the main decisions concerning doctoral education were being decided on the level of the faculty. With the reforms and the new rules, the Senate was given more say in the matters of doctoral education:

This reform that went with the doctoral studies, it went in that direction to take every step from the lower level, from the level of the faculty, to the level of the Senate. Which had good and bad sides, the bad side of such things I see on other universities, is that the set of decisions on doctoral education is raised from this lower level, which is more competent, more professional, to this upper level which is less competent. ("Frank")

Another goal of the reforms was to create a new PhD culture, one that will not be tied to the specific faculty but to the university as an institution:

...but it is very important to develop this awareness, and identification with your own home, with your own university, a new system of values, not with your own faculty, not with your own council, the chamber, whether all of this was called through time. ("Miranda")

Such line of thinking was reflecting the idea of stronger integration of the university, which was found as one of the strategic goals of the reforms:

Final integration of UMN, through establishment of functional administration of UMN, taking clear responsibilities for institutional development and leadership by affirmation of the highest values of higher education... ([196, p. 12].

When it came to doctoral education, the "functional administration" at UMN was a task given to the newly formed Centre for doctoral studies and to the Doctoral Studies Committee. These two new university-level bodies have been established with the aim of harmonisation and advancement of doctoral studies. The Doctoral Studies Committee was made by the representatives from different faculties and from different scientific fields, which supported the objectivity of evaluation process of doctoral thesis. It reduced the dangers of personal relationship between the committee members with the candidates, which was often the case on the faculty level. These two new university bodies were positioned in between the faculties and the Senate, and they were an attempt of the university's management to

concentrate in one place some procedures and a system of values, and to open the possibility of discussing the [doctoral] topic, to take the stand, to get the senate informed about the attitude of a particular body that is responsible for the quality of doctoral studies, in a certain way with the centre for the quality, and an attempt to structure a kind of body that would follow stages of the process, and [assure] that the senate is not the only body that has the right to discuss it. (“Miranda”)

The reform brought new and more strict rules for supervisors and the doctoral candidates related to publishing of scientific articles. Until then, there was no strict requirements and criteria for supervisors or candidates when it came to publish, so anyone with the doctoral degree and an academic position could be PhD supervisor. The main change brought by the reforms was the introduction of strict requirements for supervisor. These requirements were defined as the number of required publications in SCI-listed journals, and the requirement for doctoral candidates to publish one or two SCI-listed articles before finishing the doctoral thesis. Such high criteria were source of many issues which we will discuss later in the text.

7.4.2. Main findings

7.4.2.1. *Context of change*

The environment of UMN in which the reforms of doctoral education took place was characterised by the efforts to integrate the university and to complete the transition to the Bologna system. The new law from 2004 tried to integrate the university by declaring it a single legal entity, while the faculties were stripped of their status of independent legal entities. According to one interviewee, the process was not fully successful:

...and this was obviously a big bite, and it only happened halfway, that is, the university became a legal entity, many of the functions within the rectorate were centralized, united, integrated, but still [the faculties] were given a certain freedom, and not very small, this legal freedom, financial freedom, the faculties themselves could participate as legal entities. (“Frank”)

Although the Montenegro adopted the Bologna system in 2004 with the new law on higher education, the transition was not completed fully, and different study models existed on the university which were not compatible with the 3+2+3 scheme of the Bologna system. Additionally, the financial crisis has left the university in very unfavourable state for developing doctoral education, with some faculties barely having the resources for daily functioning, while the university was in financial dept to its employees.

In the ten years of transition to the Bologna system, many new study programmes were started, resulting in a hyperproduction of diplomas and the study programmes which had very limited number of students. More importantly, despite the new regulation form 2004 which were

supposed to lead to better integration of the university, “this practice has resulted in independent management and development without common strategic plans” [196, p. 13]. Such development led to many differences and inequalities between the faculties:

...and the terrible disproportions that have arisen in this development, quality, infrastructure, teaching materials, which is unrealistically, which is unacceptable for the university as an institution, that it [can have] a faculty that has no basic means of work, and the other [that] has computers, galleries, cinema halls.
(“Miranda”)

During the 2014 and 2015, the newly elected rector and his team, together with the ministry of education, started an assessment of the state of university and proposed measures for the improvement. This assessment was part of the Montenegro’s accession to the European Union and part of the national effort to improve its higher education. The evaluations were done periodically in a timeframe of four years. The external European evaluators led by the team of EUA experts and funded by the World Bank, were invited to help the rector’s team in the reforms. It must be said that the initiative for reforms came during the mandate of the earlier rector but was fully developed and implemented in the period between 2014-2017.

7.4.2.2. *Institutional culture and structure*

The institutional culture of UMN was influenced by the three main factors: the fact that it is the largest and oldest university in Montenegro (contributing to the feeling of national prestige), the fact that it was formed by joining of strong and autonomous faculties created before the university, and the fact that the liberalization of higher education in Montenegro opened the doors for economic incentives for those faculties which have a better standing in the labour market. These three facts resulted in huge differences between the faculties and created inequalities among them, at the same time weakening the integrity and common identity of the university.

Being the dominant institution of higher education in Montenegro, the social responsibility of UMN was recognized and included in the strategy for change of doctoral education:

Taking into account the needs of the Montenegrin society and the labour market, as well as the special role of UMN in study and scientific-research affirmation of social, historical, cultural and other specialties of Montenegro, The Centre for Doctoral Studies will work on the thematic profiling of doctoral research in order to fulfil the mission it [UMN] has as an institution of national significance and achieved the role that comes from its social functions [196, p. 141].

Despite the positive fact of being the national leader and having a strong impact on the community, the university was considered by its members a “loose confederation of faculties” (“Frank”). The feeling of common identity and belonging to one university was lacking. Such situation can be contributed to the history of the university, during which strong faculties were joined together only on paper, but not in reality. The faculty representatives in the Senate and in the other university bodies were expected to represent their faculties, not the university (“I appoint you, you are our representative there, please defend our [faculty] stance even if you do not agree with it. So somehow, in these university bodies is the power of these individual faculties”, “Igor”). As such, the faculties had a huge degree of autonomy further backed by law which granted them legal entity until the change of national law in 2004. Therefore, for more than 30 years, the major faculties were functioning independently from the university, a fact that did not change with the new law and abolishment of faculties’ legal entity:

As it turned out, instead of a model of integrated UMN as promised in 2004, in practice this has resulted in independent management and development without common strategic plans, which is another remark of international rating expert team of IEP [Institutional Evaluation programme], which warns of "the lack of strong leadership from the central levels". [196, p. 121]

Such state of affairs is common to universities in the region, as we have seen in the case of UniLj. The development path of most universities in the region is similar, and it often leads to the tradition and institutional culture of independent faculties with

little institutional consensus about the respective rights and responsibilities of the faculties and the central management, with the result that the governing board and the senate seem more like a gathering of individual faculties than the strategic bodies of a united institution. [195, p. 6].

The neoliberal ideology, combined with the lack of regulation and weak central management of the university, led to increased commercialization of education on some faculties and to the hyperproduction of master’s and doctoral programmes which was not supported by the increase of the number of enrolled doctoral candidates. Such development led to further deepening of differences among faculties:

And the self-financing started, the neo-liberal logic was doing its thing, the self-financing started, the so-called self-financing, but actually the co-financing of education, because it was not really the full price, but it started the money-making process and the development of certain university units, and the result was terrible disproportions in development, quality, infrastructure. (“Miranda”)

This disproportion contributed to the lack of cooperation and communication between the faculties and to the loss of common university identity, leading to “insufficiently stimulating

academic environment and to the loss of feeling of belonging to university community and to the values that [such community] advocates [196, p. 143].

The autonomous nature of faculties also had an influence on doctoral education. The doctoral education was considered a faculty matter, not a university matter, and before the reform in 2014, the major decisions on the quality of doctoral educations – for example, the evaluation of the thesis proposal and the evaluation of the doctoral thesis itself - were done at the level of the faculty. Even after the reforms and the introduction of new university bodies, the situation remained unchanged:

So, every faculty had doctoral studies for itself, meaning faculty itself had a doctoral study and in essence the doctoral studies became a university matter... since five years, since five years they have become a university thing. And until then they were a matter of faculty. There are still doctoral studies committees at the faculties, and the teaching is essentially done only there. (“Igor”)

Differences among the faculties and scientific traditions are a common thing and exists on all universities, often resulting in a stimulating competition or interdisciplinary research activities. But, in the case of UMN these differences were not only originating from the different disciplinary traditions, but were instead emphasised by the result of the financial imbalances. These financial imbalances were a result of the management crisis at the university, and

the non-transparency and non-existence of the system of financial and legal procedures, inconsistency and the presence of the illegal decision-making in relationship University - organizational units, are anomalies created in the absence of adequate legal and financial management framework and integrative development strategies. [196, p. 11]

The institutional structure of UMN and the internal distribution of power only contributed to the already deteriorated relationships between the faculties and the central structure. On paper, the organizational structure of the university consists of three central managing bodies: the steering committee, the rector, and the Senate, as three main bodies or decision-making process on the university level. The steering committee deals with the management and economic issues, while the rector handles daily management of the university. The Senate deals with the academic matters. Although this structure is fairly common for higher education institutions and should be unproblematic, the evaluation done in 2014 showed that there was a crisis of management at the university, particularly when it comes to taking responsibility for development of the institution as whole. Furthermore, many previous attempts to reform the system were left on paper and were never realized because of the inefficiency of the managing bodies [196, p. 11].

Such unfavourable institutional culture and inefficient institutional structure needed a special approach to change management, which will be discussed next.

7.4.2.3. *Change management approach and strategies*

As we have seen in the description of the institutional culture at UMN, the position of the rector and the leadership of the university was not particularly strong at the time and during the reforms. Although the rector had considerable power on paper, the real power was distributed among the deans of the largest and wealthiest faculties. Despite this, the leadership of the university employed the change management approach which was a top-down approach but characterized by long and thorough preparation phase of analysis and consultation with all the stakeholders in the change process. We named this approach “step-by-step”, as it is based on the series of well-thought change steps which follow one another and present a fairly logical process of change.

During the analysis of the acquired data, we found four main steps in this method. In chronological order, they are:

State analysis. The first step in this type of change included analysis of the university using own resources and the external help, which was the beforementioned institutional analysis performed by the experts provided by the EUA and the World Bank. The state analysis was the first activity taken by the newly elected rector:

I as a rector immediately made an analysis of the situation, reflecting on the aspects of reorganization of studies, university s in general, integration of university and the study programmes, study models and everything else. According to the recommendations of international evaluators. (“Miranda”)

The state analysis phase took almost two years to complete, and it included all study programmes and all study levels, not only the doctoral level. The change agents tried to keep the process as transparent as possible by creating an information system which held all the gathered information and documents, available on the web pages of the university to everyone interested. The leadership of the university created a repository of all collected data which included, among other, data on teaching load, infrastructure, mobility, structure of study programmes for all levels and the number of publications for each researcher. For doctoral education, the process was somewhat shorter (“we did the analysis for one year...”, “Miranda”). specific analysis was performed during the meeting attended by 30 participants from different university and faculty bodies: chairs of the faculties' committees, potential supervisors, relevant

committees for doctoral studies and doctoral candidates. Additional information fitted to SWOT analysis have been collected during some other meetings in which participants were members of rector's collegium including vice-rectors, members of University Board, Scientific Board, members of Centre for Studies and Quality Control, members of Centre for doctoral studies and doctoral candidates” [196].

Regular discussions. Second step that was taking place in parallel with the first one including visits to each faculty and each doctoral programme and discussing the issues in doctoral education with the members of the faculty and with the students. The data collected during the first phase was presented to all dean, vice-deans, and the student’s representatives. These discussions were held during the end of 2014 and beginning of 2015, “on all units of UMN to hear their attitudes and ideas, their own critical ratings and observations and made direct insight into spatial, infrastructure, teaching and other opportunities” [196, p. 8]

The discussions were also held in the Senate, where the issues and topics - which were until then considered almost taboo - were being openly discussed for the first time:

We were really breaking the ice, like a taboo, to say “what is the credibility of the Senate, where we have people sitting from all areas, to talk about a single area?”. And then there is a paradox, whether the senate decides anything at all, apart from following the decisions of the faculty council, or the position of mentors, and the commissions. (“Miranda”)

The university forum was created during the first phase of the change process where international experts were invited to talk about the trends in doctoral education in Europe. The same experts were then included in the creation of the strategy for the reform of doctoral education, which was discussed with the representatives from all UMN faculties. Each doctoral programme was assigned a dedicated working group which conducted an analysis of the programme:

from financial to all these related [data], the number of study programs, the quality, the quality of teaching, all the problems that have been analysed through this report and how and where [to improve] through the reform, after that we have been doing individual evaluations with each faculty and going from phase to phase, we have spent nine or ten iterations, I do not know how much, but there were so many of them, all with international experts that we occasionally assembled. (“Miranda”)

Creation of the strategy and action plan for change. Third step included writing the university’s strategy for reorganization of the whole university, including doctoral education. The strategy involved all the gathered data but also the results of the discussions and talks held

in the previous phase. The aim of the strategy was to offer “systematized proposal of plans, directions and solutions for rationalization, reorganization and the integration of the institutional model of UMN” [196, p. 7]. Based on this main university strategy, a specific strategy was developed for doctoral education by a dedicated working group which included external experts:

It was my opinion, and we have somehow tried through this strategy to recognize that through certain development coordinates, it is necessary to go for those doctoral studies for which we have the capacity. (“Miranda”)

Although it was not explicitly said in the strategy, it was obvious that a certain reduction of doctoral programmes was planned. The strategy emphasised the role of doctoral education in internationalization of the UMN (“Doctoral education should contribute to internationalization of the University, its students, young researchers and senior research staff”, p. 21), but also in the economic development of the country (“via critical thinking, creation of new ideas and technological solutions, University, its researchers and doctoral candidates will become main generators of economy, sustainable development and culture”, *ibid.*). The action plan developed as part of the strategy included broad goals, for example the increase of research capacity, harmonization with the Salzburg principles, increase of quality, international cooperation etc, which was then being operationalized by the change agents:

It always starts from strategy ... the paper can take anything, right? It's important to make a good strategy and then follow it, and then come all the issues and you're struggling to solve [them] as much as you can. (“Miranda”).

Execution of the action plan. The implementation included the structural modifications to the university, since it was obvious that the planned changes cannot succeed using only the existing university bodies and structures. These structural changes focused on the setting up new organizational units (for example, the Career centre and the Centre for Doctoral studies) and reorganization of the old ones to improve the functioning of the university. For example, the Faculty of Philosophy was reorganized into two new faculties, the Faculty of Philology, and the Faculty of Philosophy. Furthermore, the reaccreditation of all existing doctoral programmes was started while the two new interdisciplinary programmes were established in cooperation with the regional universities. In doctoral education, the most important change was the introduction of the earlier mentioned Centre for doctoral studies and the Doctoral studies committee, which were a novelty at the university and were an effort to include mediators between the faculties and the Senate in awarding the doctoral degree. The members of the Committee were elected by the Rector and were chosen from different scientific fields to assure

the impartiality in evaluation of doctoral thesis. Although the Committee did not have the executive power, they nevertheless had considerable advisory role in obtaining and awarding the PhD.

For the success of these planned changes, the modification of the legislation was necessary. The university adopted a new statute which allowed the founding of new university bodies, primarily the Doctoral studies Committee. The university also adopted the new regulations for doctoral education which, among other things, set new and more stricter criteria for supervisors and doctoral candidates.

7.4.2.4. *Readiness for change, involvement, and participation of members of the university*

Analysis of the data showed that at the time of the reforms, the university was facing a crisis. This crisis was identified on several levels, from the crisis of the identity to the crisis of management, but it was mostly felt on the financial level. It could be said that the members of the university were ready for change due to such situation at the university, and that they were expecting some type of reforms from the newly elected rector. The reform of doctoral education, among other reforms, was clearly stated in the programme of the new rector, so the ground was set for change once the rector was elected.

The leadership of the university insisted on the transparency of the entire process, as was seen in the first steps of the reforms when the data collected from the faculties was made public. The transparency was sustained during the whole duration of the reforms. Overall, the leadership advocated change approach which included all the stakeholders and their opinions on various aspects of the change, realizing that:

we cannot start the necessary measures and their systematic and efficient realization without personal belief in validity of the reasons and the correctness of the goals. All participants in changes must understand the changes which we undertake. We call for cooperation, support and responsibility from everyone in academic community, and also from the founder, the resident ministries, social and economic factors and the media. ([196, p. 9]

Such approach was not only on paper. As we have seen in the change management methods, regular discussions were held during the state analysis but also during the writing of the strategy for doctoral education reforms:

The analysis has been done in an open atmosphere, framed in academic but critical discussion with an articulated attitude toward positive change in doctoral education. Although there were some noticeable differences among representatives from different research fields, the whole process was lead with an expressed shared attitude of all the participants that doctoral education is relevant and needs further improvements. [197]

Consequently, the participation of members of the university in the change process was high, and university-wide participation was achieved - at least during the preparation phase of the reforms. It included various levels of stakeholders, from student's representatives, vice-deans, deans, rector's collegium, to the members of the different university management bodies and the members of the Senate.

The rector's team tried to raise the awareness about the issues that plagued doctoral education and it started regular, targeted discussions in the Senate on topics such are the quality of doctoral thesis:

I really did, I really did try to do it ... to do everything we did as much as possible through the real activities, through the conversations, thematically, along with the concrete activities prepared on the [rector's] collegium, which are... for example, as we are talking about doctoral education: "Here's an example that we need to talk about today on the Senate, and use it for the purpose of the reform and how to prevent such things: That something has been made a dissertation without having a topic, no prospect, no supervisor, no possibility to deal with such a topic. ("Miranda")

Despite the openness and transparency of the leadership about the goals and reasons for change, together with the step-by-step methodology of change, there were several negative factors which influenced the state of readiness and the willingness to accept the reforms. Primarily, the members of the university were fatigued by the earlier reforms and the negative experience they had with them. The university was in fact going through constant reform since the 2004 as part of the transition to Bologna system but

many strategic documents that have been created during the previous decade of reforms, regardless of the validity of their intentions and the necessity of their implementation in favour of the improvement of the higher education system and the institutional model of UMN, remained a dead letter on paper. It is the same case with formally created teams or service centres for Implementation of these documents and planned tasks. [196, p. 11]

A certain level of scepticism, inertia and indifference of the members of the university was therefore at play, especially because the past reform had indirectly or directly brought many novel issues for the university instead of positive results (e.g. hyperproduction of study

programmes and the financial crisis of the university). It went so far that even the word “reform” was having a negative connotation due to the number of failed attempts:

But as I say, the saturation of the very term of the reform, which lasts for the whole of this transition here for twenty years now, the mistrust from so many failed reforms, or the provisional reform on paper, reforms to reform, to fulfil the chapters of this or that, it is so hated, so much a fictitious word. (“Miranda”)

7.4.2.5. *Institutional limitations and obstacles*

The interviews showed that the limitations and obstacles for the success of the reforms were coming from the inside of the university but also from the outside of it, or from the political and sociological context in which the university was immersed.

Internal obstacles. Internal obstacles which hampered the implementation of the reforms of doctoral education can be grouped in two main categories: the system obstacles, caused by the structural, cultural, and organizational issues at UMN, and the behavioural obstacles, caused by the anti-reformist behaviour of members of the university.

The main cause of system obstacles was the “loose confederation” character of the university, which led to the constant power struggle between the ideas of integration of the university and the ideas of disintegration and strong faculties:

And all this time, in fact, [there] was a balance between those forces that I would call, under the quotation marks, the “unitarist”, that wanted to integrate the university, and these centrifugal forces of strong faculties, financially powerful faculties. (“Frank”)

Although the university was legally one entity, in reality

it does not actually work that way, it means that in that independence, depending on which of the faculty was more ambitious, had better position on the educational market or had a more creative, more exemplary leadership, a dean, whether they had influence in politics, so they had a certain influence in society, so they developed. (“Frank”)

The role of deans was crucial in selecting and hiring those doctoral candidates that would remain on the university, and such decisions were often made based on political preferences:

By itself, the selection of those doctoral candidates who can stay at the faculty, it is closely related to political activity. So, if you're a dean, you can have associates and doctoral students. (“Igor”)

The physical dislocation of the university on several locations in Montenegro only made the integration efforts more difficult for the management.

Another system obstacle which was closely related to the fact of strong faculties were the huge differences among the faculties and the disciplines. Such situation made the introduction and harmonization of the quality criteria for doctoral education problematic, since scientific disciplines and faculties were opposing the idea to have the same criteria:

The complaint of the faculty was as follows: you cannot unify some rules at the university level. You cannot say that this is a unique criterion for the selection of supervisors, both in physics and in law and in languages. It should be respected, according to faculties, the specificities of the faculty should be respected.
(“Frank”)

The leadership of the university wanted to set the same criteria for all faculties, regardless the discipline. The criteria included the number of publications listed in SCI journals. For some faculties this proved to be a too huge obstacle, since their members did not have enough publications to satisfy such high criteria. This was especially true in social sciences and humanities, where the tradition and culture of publishing in SCI journals was simply not established and needed in the past. The primary form of publication for those disciplines were books, and the few journals in which they did publish were mostly regional and not SCI listed. Such sudden rise of the criteria caused significant problems for the change agents:

So, while I was the rector, I said that it is not possible, but to do it gradually because if we immediately raise the ladder then nobody will be able to skip it at that moment, we ask some conditions for a supervisor when in that moment none of the faculty professors satisfies it, we will face problems. (“Frank”)

The resulting problem was the created lack of doctoral supervisors, so the faculties and doctoral candidates had to search for them in the neighbouring countries, which was far from ideal. Added consequence of the increase of criteria was felt on the psychological level, as many established professors were not able to supervise any more, leading to dissatisfaction and to resistance to reforms.

As the number of doctoral programmes at UMN was large for an institution with small number of doctoral candidates (and the declining number of yearly enrolled candidates), it was difficult to create a critical mass needed for raising the quality of doctoral education. One of the possible reasons for such hyperproduction of study programmes and curricula lies in the fact that the teaching load was linked to the salary. In other words, the more teaching a professor has, the more salary he/she will get. The entire system

...was simply directed towards people, not based on the need. For example, I have a person who recently got a PhD in some area, OK, so let's give this person some teaching to do. And so, the new subject is introduced. (“Igor”)

If the change agents wanted to reduce the number of study programmes or to merge the existing ones, they had to face the resistance from those members of the university that would lose the part of their teaching load, which proved to be exceedingly difficult obstacle to overcome:

Now, how do you introduce some new program to the university, if you will take him [the professor] some teaching hours? (“Igor”)

The research infrastructure at UMN was presenting another system obstacle for reaching the desired quality of doctoral research. Due to the financial crisis of the university, “research activities suffered from a basic lack of funding, which was to a large extent a consequence of the teaching-focused funding model of higher education institutions” [195, p. 22]. Here again the different development trajectory and financial capacity of faculties were creating dissimilarities and hampering the equal development of doctoral education.

Second category of internal obstacles have been named the “behavioural obstacles”, a term used by one of the interviewees to explain why all reforms at UMN fail (“As I say, we always fail on that microlevel, on behaviouristic level...”, “Igor”). These obstacles are caused by the sociological and psychological factors and are mostly common occurrence in any attempts at change. In the case of UMN, according to the data from the interviews, the behavioural obstacles mostly conservatism (including conformism) and the lack of motivation for reforms, paired with the behaviour that was described as “academic vanity” (“Igor”).

Conservatism related to doctoral education among the members of the university could be seen in their general attitude on doctoral studies, when compared to the bachelor and master’s level. We have already seen that prior to the reforms, doctoral education was not university’s priority, and for some members the opening of the system and the massification of doctoral education was considered a mistake:

And the other idea was that somehow, we have too many of these doctors of science, every year we have, I do not know, 20. And for some, it was unimaginably high, it was that rigid system. (“Frank”).

The “rigid system” was in this case a traditional system of doctoral education based on the one-to-one relationship between the doctoral candidate and the supervisor. The traditional system of doctoral education thrived at UMN, even though on majority of European universities it has been replaced universally starting in the mid-2000s. But due to the “our isolation for a long time from some European standards, and the long-term transition of the entire region” (“Miranda”), any attempt to change the system at UMN was met with stiff resistance. Argument

used by those members of the university who were against the changes was that “the reforms are happening all the time and they never bring any good” (“Miranda”). Behind such line of thinking was, according to the interviewees, “one retrograde-conservative conformist attitude and concern for their sinecures and lectures, the number of students and gathered norms and so on...” (“Miranda”).

Another behavioural obstacle to change, the “academic vanity”, can be linked to such conservative way of thinking and, although its meaning was not described in more details, it could be related to the fear of losing individual power due to the changes and the reduction of the teaching load. It could also be linked to the raise of the criteria and the fact that many of the renown academics could no longer be doctoral supervisors, since they did not fulfil the minimum criteria for the number of publications (“...when that one rector raised these criteria, there was a rebellion at the faculties, and he was removed, he was not strong enough, he did not have enough support...” (“Frank”).

Apart from the internal obstacles, the change agents also faced the external obstacles in their work. As we have seen when we discussed the issues in doctoral education in Montenegro, the environment in which doctoral education at UMN was improved by the change agents was not working in their favour. Beside the competition from the private and public universities in the region and the fact that the best doctoral candidates were leaving the country, the economic environment in Montenegro was not stimulating for the development of research-intensive doctoral education due to the lack of demand for such highly-qualified workforce:

One of the problems is the industry. Now, we do not have any highly sophisticated industries. There's no need for a PhD. And especially with us, a country that is focused on tourism and agriculture, what will you do with PhDs in electrical engineering or mechanical engineering or some similar things? (“Igor”)

Another important external obstacle specific for the UMN, was the influence and impact of political system on the development, management, and functioning of the university. Since Montenegro is small country (around 640,000 inhabitants), the boundaries between the political sphere and the academic sphere are sometimes blurred:

When your capacities are small, government members are sometimes university professors, and if it happens that an influential member of the government is from a strong faculty, economic or law faculty, then the change will not pass, one just [must] wait for a right political moment, when it is possible to make these key changes to the statute. (“Frank”)

The constant “resetting” of the political system was identified by the interviewee “Igor” as one of the common problems in the region, precisely due to such blurring of the boundaries between the two systems. The “resetting” does not allow for any long-term improvement of higher education, since every new political system had different agenda and “you can never make a move...” (“Igor”). Although this phenomenon is common in other regions, it seems that the interconnectedness of politics and higher education was emphasized in the case of UMN and it led to increase of scepticism toward the changes.

Added peculiarity of UMN was the role of public in the reforms. It seems that the public was not in favour of what was happening at the university and the direction the new leadership took. Despite the transparency and the openness of the process, the public was “polarized” (“Miranda”) and was not prepared to accept the argument for reforms:

[Despite the] lectures, some symposiums on common topics, on our common problems, we opened all the problems in reform, and despite this we had the same public politics as if we were not talking, as if we were talking to deaf, completely, as if we never have done something, so ... despite all this, we still had that same problem in the public. (“Miranda”)

What is even more surprisingly was the fact that students themselves were against the changes and were revolting against the new model of study, which would mean accepting the new Bologna-style 3+2+3 model. The students were siding with their faculties and were proposing a case-to-case solution.

The last external obstacle that the change agents were facing was time. The time was limiting factor since the leadership only had three years to implement the change. Since the reform of doctoral education was backed by the European project which gave financing for several activities, there was a pressure to complete the activities in time. Furthermore, the university had to prepare for the next institutional evaluation which was due in 2018. As a result, the change leaders did not manage to achieve the desired depth of reforms in doctoral education.

All the internal and external obstacles that we listed had a profound influence on the results of the change process, which we will present next.

7.4.2.6. *Results of change process*

Although we could not measure objectively the results of the change due to the limited time that has passed since the start of reform, and since the data was almost non-existent, we based

the evaluation of the results according to the interviewees' opinions. Based on the information gathered from the interviewees, we divided the results of the change process into two categories, the positive (planned) and the negative (unplanned) results.

Looking at the goals of the reforms, the most emphasized result was the increase of the transparency at university. The transparency in this case stands for the availability of all acquired data related to the study processes on all study levels, including the teaching load, internal and external evaluation results and the repository of doctoral thesis (although this result was not fully implemented). Secondly, the key strategic documents for further development of doctoral education were finalized and made publicly available. These documents include the strategy, action plan and the new regulations for doctoral education. The impact of those documents is nevertheless hard to assess and there were some opinions that they only lead to more bureaucratization on the university ("...so that this reform has come to a change in the rulebook, perhaps a change of some regulations. However, for the quality of doctoral studies this is not enough", "Frank"). Others acknowledged the limited scope of such documents, but were stressing that it was already a radical step to talk about the issues that were not discussed until then ("we have raised the awareness of the strategy, some developmental parameters, the basic ones, which were already radical enough through the rules, through the forms, through the centre [for doctoral studies]", "Miranda"). Whatever the case, the fact is that the rules for doctoral education were now much clearer than they were before:

And in fact, we have adopted these rules, more strict rules, insisted on supervisors' references, insisted on references on the SCI list before the defence, and insisted on quality, quality control through the centre for doctoral studies during all these phases. ("Miranda").

The doctoral education was now much more structured when compared to the earlier state in which the doctoral candidate was doing a doctorate in isolation and relying on himself/herself:

They are not left to their own as before, "here are the books to learn from, and when you're done, come," that's somehow more bureaucratized now in some places, some say it's more serious now". ("Frank")

The level of doctoral candidate's competences has increased. Before the reforms, the university's low number of international peer-review publications was an issue, as were the competences of doctoral candidates of for writing a scientific article in international journals. The reforms changed this to a certain degree ("With changed criteria for supervisors and for graduation, there is a noticeable increase of published papers in relevant international journals

(SCI/SCIE, SSCI, A&HCI).”, [197], although the results were not distributed equally among the disciplines. One of the reasons for low number of publications was the English language, and the reforms tried to change that although the resistance from some members of the university was high (“We have for the first time introduced a significant English language fund in teaching, and that caused a lot of resistance, the professors lost some other courses, and thought there was not enough time for science. Which is not correct”, “Miranda”). Despite these resistances, the interviewees agreed that the new generations of doctoral candidates and doctorate holders are now much more competent than before:

I am pleased from the point of view that people are beginning to write, they began to search for journals, they began to ... it was sometimes very rare that they knew languages, started to speak languages, one competent generation was made.
(“Igor”).

And:

The changes were for better, in that sense that the goal was to achieve that all our PhDs were able to publish in these magazines, and that actually happened. The scale was up, I thought many would not reach, and many did not, many gave up, but many said, “let’s see how it is done, we will learn”, and they did learn.
(“Frank”)

Another significant result of the change was the creation of a new PhD culture on the university. Many activities that were done during the change process included raising the transparency and visibility of the university, and they have contributed to the creation of the sense of unity and belonging to the university. The new organizational units, mainly the Centre for doctoral studies, were place where this identification with the university were nurtured and supported (“through the reform of the model of study, the reorganization of the University and the new services through which we have established the current accreditation of the University, we are specially devoted to the establishment of a new quality culture and approach to the doctoral students”, [198]).

Aside from the positive results of the reforms, we found several negative or unplanned ones. Some of those negative results were in fact a consequence of the initially planned positive results. For example, the increase of the quality criteria for doctoral candidates led to the increase of brain drain and to the lowering of the number of enrolled candidates, although this was certainly not planned by the management. It seems that the criteria to have one or two SCI listed publications before the defence of the doctoral dissertation was insurmountable obstacle

for some doctoral candidates, so they left the UMN and graduated at universities in the region which did not have such high criteria:

because it turns out, people tell us you've put up the ladder [too high], there is, now I don't know whether it is on university X or somewhere else, the ladder is somewhat lower. And people say, why would I graduate here [UMN], when I can do it on a better university, more reputable university, where it is somehow easier to pass. Maybe they do not say easier, but it is just that this criterion is not considered there, so...("Frank")

The number of doctoral candidates had not risen since the introduction of the reforms, it has in fact been lowered from 74 enrolled in 2013/2014 to 40 in academic year 2016/2017.

Moreover, due to time constraints that change agents had to face, the depth of the achieved reforms was not on the level the change agents expected and hoped for, and the results of the change were considered limited by the change agents themselves. More effort went into the reforms of the first two cycles of higher education, while doctoral education did not receive enough attention:

We did not manage to sufficiently involve with doctoral studies, we got much more involved in the undergraduate and the masters [level], and in doctoral much less than we wanted, because there was no time. Our reform was limited by accreditations. And we had to finish the reform in three years. But the big question is how much we have managed to change on the inside, and what's still there left to do. ("Miranda").

Although the reform brought new rules and regulations alongside the new university bodies responsible for quality of doctoral education, for some members this has resulted in more bureaucratization and complication of doctoral education, and introduction of unnecessary steps in obtaining a doctoral degree:

Some people think that it has bureaucratized [the system] more and that there has been some congestion of the system, that there are many of these steps, many of these stairs that must pass many instances, and then it is not so easy to pass them. ("Frank").

7.4.3. Discussion

The UMN case presents several interesting characteristics that we have not seen on other examined universities, or at least they were not so pronounced.

Like other examined cases, the reform of doctoral education at UMN was part of a much wider reform of the whole university and the higher education system in Montenegro caused by the Bologna process and the changes in the European higher education space. In all the cases that

we have examined, we have seen similar development – the leadership of the university using an opportunity created by the external factors to introduce the change in doctoral education. The UMN is no different, but it had its specifics such as financial crisis of the university and the need to adjust to European higher education area due to the process of accession to the European union.

The UMN can be considered a “late comer” as they have started the reforms of doctoral education late when compared with the other examined universities. Good side of it was that they had access to experience and knowledge from other universities in Europe, and they used it extensively in their own reforms. Therefore, one of the change methods used by the leadership of the university was the reliance on external authority in justification of own decisions, goals, and procedures for the reforms. Although such methods were also used on other observed universities, the UMN presents a case where the use of international experts and external organizations - in this case the EUA - for implementing the reforms, was raised to another level. But the use of external authority was not limited to doctoral education. The reaccreditation of any higher education institution in Montenegro is the task of international quality assurance agency, as stated in the Law on higher education [199].

The motivation behind the use of EUA in the first phase of the reform was to strengthen the authority of the change leaders and deal with the resistance, and not to discover something which was not already known at that time. Interviewee named “Frank” described this nicely when he stated that:

And as it usually happens, some things we know, but we love to hide behind other authorities, behind other experts and then we say, “that's not what we wanted, but it was they asked us to do”. (“Frank”)

We have seen in cases of UniLj, UniVie and even NOVA that the change leaders were deeply involved in the work of external organizations and had first-hand experience on the trends in doctoral education. That is why they did not have to rely on the use of external organizations in the same degree as the change leaders at UMN had to, as they *were* the external organization. To use the EUA as external evaluator had the benefit of justification and objectivity of the process, but it also carried the risk of resistance to external pressure which was used against the change leaders through the media and public opinion:

this is standard practice of destroying important economic entities in Montenegro, and the University has started major "structural reforms" with the aim of supposedly adapting to "contemporary trends" and "European standards". As the

inevitable part of the transitional folklore, the so-called international experts are called, who, like then privatization advisers, serve to nudge corruption, robbery and nonsense by the form of an "expert" opinion. [200]

Such extreme negative external pressure on the reforms and on the change agents through the public sphere is another distinctiveness of UMN case. The intertwining of the politics and academia through the public sphere, and the attempts to resist the reform through the external pressure, was not noticed in other cases we examined. Even more, the reliance on the government for the success of the reforms was expressed several times during the interviews (“and if you want to influence your doctoral studies, you can do that by changing the rulebook, but a much bigger incentive is if you do, I do not know, have some kind of action by the ministry of science”, Frank). The whole reform of doctoral education and the evaluation of the university was at least partially motivated by the sense of responsibility toward the government:

We had to do it, to make an analysis, first and foremost, internally and transparently for the government as they invest the money, they have to accept the change of study because these things are all being voted in the government.
(“Miranda”)

One explanation for this idiosyncrasy of UMN could be found in the fact that UMN was for a long time the only public university in Montenegro, and as such was more in the focus of political interests than universities in other countries. First and foremost, the statute of the university had to be approved by the government of Montenegro (“you can change the statute if the government agree”, “Frank”), and that was also the case for regional, interuniversity doctoral programmes (“but how much we are able to do anything in this whole situation, I do not know, because we need some consensus from the ministry of education, however, we need political support, political consensus, for example to open that, any regional study...” (Miranda). As the Montenegro has small population, some links between the political nomenclature and the academia were inevitable and have contributed to such state. The political affiliation played a huge role in academic life. In other cases that we observed, the political sphere was also involved in the reforms but to a much lesser degree. The political parties and the public were mostly disinterested in the developments on the university. But at UMN, the reliance of the university for the successful reforms of doctoral education on the political sphere was more pronounced.

The case of UMN is also interesting as it shows us that even when the change leaders put substantial effort in the preparation of the reforms, which in case of UMN included numerous discussions with members of the university and presentations of the goals of change, such

approach can still backfire if it is not perceived by the members of the university as genuine. The concrete example in the case of UMN was the debate whether the university should change the organization of all study programmes and make it compatible with the Bologna system of 3+2+3 years. Despite the discussions and argumentation during which all faculties were consulted, in the end, the 3+2+3 system was accepted despite the different opinions from several faculties. Leaving aside the argumentation for accepting or rejecting the 3+2+3 system, for our research is interesting that the leadership of UMN lost part of its credibility even though they tried to involve all the stakeholders in the preparation phase, and the reforms were labelled by some of the university's members as imposed:

But somehow, people said, why did not tell us right away that you wanted 3 + 2 [+3], why did you ask us in the first place? Why did you not simply said, "this is what the government wants, we want it too, the law is coming and do not think about it, just adapt to it"? Why keep the conversation when in the end ... that was said with some bitterness. And then, many good moves fell under the shadow, that they were imposed, many good moves, it was ... imposed. It was something we did not want. ("Frank")

What was planned as open discussion was interpreted as false:

In principle, the reforms should be implemented on the basis of some broad-based dialogue within the university. But sometime this is not possible, and the previous leadership has chosen authoritarian system, "I will listen to you, but it will eventually be what I want". ("Frank")

Such examples show that the members of the university are especially sensitive to any type of disregard of their opinions, even if they recognize that the reform must be a top-down process (so it went like ... that reform has gone like any other reform, it has to be pushed by force", Frank).

The case of UMN presents an extreme example of distributed organization in which the central management has little or no effect on the internal matters of faculties. Such condition brought the university in a state where no common strategic goals existed and where every faculty was governed independently. The doctoral education was used to strengthen the corporative identity of the university and to promote the sense of community to its students and professors. As was the case on other examined universities - at UniVie and to a less extent UniLj -the reforms of doctoral education at UMN were used by the management to strengthen the integration of the university and to overcome the issues created by the distributed character of UMN.

Due to the limited data that we have gathered and the bias of the interviewees (as they were all members of the leadership responsible for the change), question remains how successful this attempt was. What is certain is that the interviewees themselves admitted that the change was done too quickly and that the changes were too radical for their university:

But I'm telling you, we failed in that sense that...sometimes, they would make a feasibility study, you understand. So, the feasibility study would say that in Podgorica there will be five faculties, in Zagreb there will be twenty, in Belgrade will be twenty-five, a study of real facts was considered. We somehow thought we could make some university here, more recognizable. ("Igor")

8. Comparison of four cases

8.1. Introduction

In this chapter, we will proceed with the cross-case analysis and comparison of the main findings for each case, referring to the conceptual framework that was developed in Chapter 5. The cross-case analysis of multiple study cases aims to “increase generalizability, reassuring yourself that the events and processes in one well described setting are not wholly idiosyncratic” [103, p. 172]. Such analysis looks for processes, similarities, and discrepancies between several cases, allowing for more detailed and sophisticated descriptions and more powerful explanations. Cross-case comparison of multiple cases offers an opportunity to find specific conditions under which something will occur, and “help form the more general categories of how those conditions may be related” (Ibid, p. 173.).

In the multiple-case study, one of the goals researcher is trying to achieve is to “build a general explanation that fits each of the individual cases, even though the cases will vary in their details” [63, p. 171]. As we have stated in our description of the research design of the study, our aim is the replication logic in the analysis of the multiple cases. Replication logic, according to Yin, is analogous to that used in multiple-experiments in which “upon uncovering a significant finding from a single experiment, the immediate research goal would be to replicate this finding by conducting a second, third end even more experiments” (Ibid., p. 47).

As Yin notices, a major step for good theoretical replication is to have a solid theoretical framework (Ibid.). The analysis and comparison of four cases in our research was based on the nine major concepts from our theoretical framework, which were also used in the construction of the interview protocol.

To make comparison of the cases easier, we will use tables to present our findings for all cases. For each of the nine concepts, the relevant categories were listed together with the corresponding related codes and sub codes which were used to create the category. The selection of presented categories was based on their density, or the number of codes and sub codes which form the category [162]. In some cases, several categories were developed containing only the main code(s). The tables used for the comparison of cases also hold the illustrative quotes for main codes and the sub codes. Each case that was selected for our research was expected to give different results, due to the predictable reasons (e.g. the size of university, institutional culture, context, history, available resources etc). Therefore, each case is unique, and some categories were only identified in some cases and not in the other.

8.2. Sources of change

Table 10. Comparison of cases - Sources of change

Case	Category	Main codes / sub codes	Illustrative quotes
UniLj	Synergy with national changes	<ul style="list-style-type: none"> • Role of ministry 	<p>Interviewer: What was actually the role of the Ministry of Education and Science, how did they participate in it?</p> <p>“Leticia”: Nothing, no ... they did not participate at all</p> <p>Interviewer: They did not encourage you, they did not bother you either?</p> <p>“Leticia”: No, no, they did not take part...</p>
	Synergy with European changes	<ul style="list-style-type: none"> • Isomorphism • Role of EUA-CDE 	<p>“Leticia”: Bologna had to be accepted, it was at the state level signed ...</p> <p>“Anita”: Law was ready ...</p> <p>“Leticia”: Yes, but Europe also decided ... so there was nothing to argue about, that helped us a lot.</p> <p>They, the EUA-CDE, actually provided good examples, good practice, there were every year meetings, but not just that, they organized the so-called Summer schools, or some meetings, conferences, small conferences, topics, and one theme I was involved in, and sometimes “Anita”, and these were topics e.g., mentoring, or just the theme of ... a doctoral school organization. And these were small topics that were organized every year and we participated (“Leticia”)</p>
	External pressure	<ul style="list-style-type: none"> • Bologna process • Neo-liberalism in higher education 	<p>You know what helped us was the fact that the foreign institutions demanded the sign of the rector. All the contracts and all that, actually had to go from university. (“Monika”)</p> <p>We do not live in society anymore when the academic have all the freedom and can sit quietly and have a good salary, so no one asks what you are doing, so no one checks how many you have projects. (“Monika”)</p>
UniVie	Synergy with European changes	<ul style="list-style-type: none"> • Isomorphism • Role of EUA-CDE 	<p>So, this is what we did, we tried to make our faculty or the staff aware that there are some major trends going on in Europe, and to encourage them that we do not want to be behind what is going on internationally. (Tim)</p> <p>Within some faculties within the university, like the science for example, they have started to go into the direction of the Salzburg principles. (“Douglas”)</p>
	Synergy with national changes	<ul style="list-style-type: none"> • Role of national bodies • Change of national legislation • Support from the industry • Role of ministry • Rector – rise of power • More autonomy 	<p>It was quite a big process in the wake of a new law that came into fact in 2002/2003 and one of the changes was the different structure of faculties as we called them. (“John”)</p> <p>And of course, the ministry was somehow influencing universities that they should move forward, that they should not just accept the situation as it has been. (“Tim”)</p> <p>But inside the scheme they were quite free to do what they pleased. So, on the one hand, university became much much more independent from the ministry. (“John”)</p>

			<i>Previously, before 2002 universities were basically governed by the ministry of science. After that, they became organizations ...they were in charge now full decisions concerning personnel, they would create their own budget, main difference was that now the money they were given by the government was decided every three years and had to produce some plan how to spend it. But inside the scheme they were quite free to do what they pleased. So, on the one hand, university became much much more independent from the ministry ("John")</i>
	External pressure	<ul style="list-style-type: none"> • Bologna process • Role of EURODOC • Neo-liberalism in higher education 	<i>The path was given more or less. I would not claim that we had great innovations that could... there was a framework given and we had to try our best to get something done within that framework. ("John")</i>
	Prestige	<ul style="list-style-type: none"> • Role of doctoral education in research • Goals of reform • Doctoral education before reforms (negative) • National competitiveness 	<p><i>...it was clear that UniVie wanted to be among the good European research universities. ("Douglas")</i></p> <p><i>So, there was this mood "we need to become more competitive". So, I think that, I could work on that. UniVie had to become more competitive. ("Fred")</i></p>
NOVA	Synergy with national changes	<ul style="list-style-type: none"> • Role of national bodies • Rector – rise of power • Change of legislation 	<p><i>We have this agency and everything, even the third cycle passes through them. So, we have to apply according to some...a lot of guidelines. ("July")</i></p> <p><i>The application of the Bologna process offered UNL the opportunity to reflect on the content of its educational programmes and stimulated a process of modernisation of its pedagogical approaches, focusing on active learning and on learner-based methods, which is slowly developing with different paces. [187]</i></p>
	External pressure	<ul style="list-style-type: none"> • Bologna process • Neo-liberalism in higher education 	<p><i>And you know, we are being pressed by the interaction with the community. ("July")</i></p> <p><i>New Public Management inspired the recent legislation (2007) that aims at reinforcing centralised decision-making with the suppression of collegial decisions, while allowing universities to become public foundations under private law [191]</i></p> <p><i>The new legal framework will give UNL more autonomy to set its own governing policies, under the supervision of the new General Council, a governing body particularly relevant because it includes, for the first time, external members who will be extremely important for the accountability of UNL[187]</i></p>
	Synergy with European changes	<ul style="list-style-type: none"> • Role of EUA-CDE 	<i>Well, I'm going to be very frank, I knew about these, because at that time I was involved in the council, in fact I felt that they were playing a very interesting role, but it was not what we wanted. ("Boris")</i>

UMN	External pressure	<ul style="list-style-type: none"> • Bologna process • Economic crisis • Neo-liberalism in education 	<p><i>It was not done within the framework of single project, it was done in the framework of the Bologna process. But somehow the doctoral studies were only now coming in focus, [before] they were more focused on BSc, MSc, and then it was turn for doctoral studies. There was a need to introduce order on doctoral studies (Igor)</i></p> <p><i>And that was also the time of economic crisis, the university was in a very bad position, the whole country was. It was a very difficult time, painful...("Miranda")</i></p>
	Synergy with national changes	<ul style="list-style-type: none"> • Change of legislation • Role of ministry 	<p><i>Montenegro has a new Strategy for Development of Higher Education (2016-2020). Government is putting a lot of efforts in developing effective and good quality higher education system [197]</i></p>
	Synergy with European changes	<ul style="list-style-type: none"> • Isomorphism • Role of EUA-CDE • Links with external network 	<p><i>The University of Montenegro is implementing the process of reforms in line with the European Higher Education Area (EHEA). [196]</i></p> <p><i>The UMN should be included in the EUA program for doctoral studies and adopt the benchmark, criteria and good practice, according to the recommendations on doctoral education from the EUA. [196, p. 141].</i></p>

As we can see from the Table 10 above, the main forces affecting the change process on the contextual level were the Bologna process, the ideology of the neo-liberalism in education, and the synergies with the either national or international changes. The UMN presents an exception among the examined cases with the economic crisis as one of the key factors for start of reforms. This exception can be explained by the fact that UMN has started the reforms much later than other three observed universities (in 2014) when the whole country was going through challenging times caused by the world economic crisis from 2009.

The Bologna process was unfolding on a national scale in all four countries (“The Bologna process helped us a lot” (“Leticia”), and it was a “lucky coincidence”), and the first initiative for the reform of doctoral education came with it. Most importantly, the Bologna process affected the national legislation and the way the whole higher education sector was organized, offering change leaders the opportunity to engage in changes which included the third cycle. The Bologna process certainly acted as a catalyst for changes in all four cases, bringing complete re-arrangement of the higher education systems and forming the new, third cycle of higher education.

The synergies with the national and international (European) changes could to a degree be related to the Bologna process, although it would be a mistake to identify all the changes in doctoral education with the Bologna process. The context in which the reforms of doctoral education has started on observed universities was much more complex and it included other forces and sources, not only the Bologna process. For example, the professional organizations dealing specifically with doctoral education also had an influence on the start of reforms. In this case, the most prominent organization was the EUA-CDE and UNICA (although others were also operating at that time, at least in Europe), but also international student organizations. Besides, the changes were already happening on some faculties and departments, independently of the Bologna process.

It is interesting to notice that in all cases, the general opinion among the interviewees was that the transformation to the Bologna system was not done in a proper way. Either there was not enough time (UniVie and UniLj), or the process began without an adequate preparation and without the global orientation (from both the Ministry of Higher Education and the HEIs). Despite this negative opinion, the Bologna process contributed to the reforms of doctoral education in all observed cases. It is very doubtful if the reforms would have happened at all without the pressure and stimulus from the Bologna process and the momentum it managed to

create. Although some changes on the level of doctoral education were already happening at universities even before the Bologna process (the scope of these changes varied on the scientific field), the interviewees agreed that such extensiveness and depth of changes would not have been possible without the help from the Bologna process.

The influence of the professional organizations on the course, but also on the content of the reforms, was significant in all cases. The professional organizations served as a space for creating and sharing the ideas on how the new organization of doctoral education should look and what it should include. The key players on observed universities were at the same time actively developing and spreading these same ideas in the professional organizations and in their home institutions. The main ideas and concepts of the new model of doctoral education were promptly put into practice at universities, as soon as they were developed. The UniVie and UniLj are perfect examples of this. This, however, does not mean that the key players were automatically applying the practices and ideas developed within the professional organizations. At NOVA for example, the ideas circulating in the professional organizations were well known, but it was decided not to follow the dominant model. The exception here is UMN, although they have substituted the involvement in professional organizations by inviting and hiring experts from those organizations. The UMN took a more cautious approach relying on the experience of “flagship” universities as it started the reforms in 2014, when the new model of doctoral education was already well established in Europe.

The ideology of neo-liberalism in education complemented and supported the Bologna process. The effects of neo-liberalism on universities were felt in the organizational structure, but the intensity of this effect varied from case to case. Neoliberal trends had a major effect on the observed universities as the rectors became more powerful vis-a-vie the deans, faculties, and the institutes. The effects were most influential on the UniVie and to a much less degree at UniLj. Despite the centralization and the increase of the rector’s powers, the constituent units on all four universities managed to preserve significant amount of leverage, which was decisive in the choice of change management approaches.

At the same time, the centralization and integration of universities was strengthened, and they were given more autonomy in relation to the ministries. The autonomy was strengthened through the new national legislative, following the NPM premise of more autonomy equals more quality. The universities were given more autonomy in finances, content, management, and the quality of the study programmes. Most importantly, the change in the national political

ideology of higher education allowed universities to direct and steer the changes in a way they felt was the most proper for them, giving the key players necessary legal support.

Neoliberalism in higher education had several negative effects on the context of change, especially in the case of UMN. The liberalization of higher education resulted in hyperproduction of study programmes and study courses at UMN, but also to hyperproduction of private universities in the country. Results was further brain drain and dispersion of already dwindling number of doctoral candidates.

There were some differences among the cases when it comes to the main sources of changes. One of those differences was the role of the ministry in the reforms, which played a key role in the case of UniVie, NOVA and UMN but had very little effect in the case of UniLj. It seems that in the case of UniLj the ministry was not really prepared for the changes in doctoral education, while in Austria, Portugal, and Montenegro the ministry saw an opportunity to increase the general economic and political climate in the country through modernization of doctoral education.

Another difference that appeared during the comparison is the prestige. The category “Prestige” was noticeable at UniVie, but to a much less degree on other observed universities. The international position of the UniVie was mentioned several times during the interviews, and it had a major influence on the change process, boosting the motivation and readiness for change. On other universities, the prestige did not play such prominent role, especially international prestige.

8.3. Institutional structure

Table 11. Comparison of cases - Institutional culture

Case	Category	Main codes/sub codes	Illustrative quotes
UniLj	Role of university bodies	<ul style="list-style-type: none"> • Role of rector • Utilizing university bodies • Role of Senate • Role of deans 	<p><i>You still must work very hard - and that depends on the rector, each rector has his own ways, and the power of influence - but in any case, it goes in that direction. The university becomes more important, the power of the dean and senate weakens, but it is still not irrelevant. (“Monika”)</i></p> <p><i>Interviewer: Do you remember, what were the actual levels of decision-making, or who had the power to make decisions at the university?</i></p> <p><i>“Leticia”: The Senate. All Senate University. The key decisions had to be accepted at the Senate. The Rector had the power to propose, to decide something, but about reorganization, that was all [decided by] the Senate.</i></p>
	Distributed organization	<ul style="list-style-type: none"> • Differences between faculties and fields • Decoupling 	<p><i>The two faculties could not propose one man who would run it. That was not - I have been proposing mandate, you are one year, we are one year - I think it was clear that these two major institutions were, these others had no such pretensions, but that did not happen. Still, that's weird, that's bad, I'm constantly telling it but it has not happened, there are still two vice-deans and institutions together. (“Monika”)</i></p> <p><i>Interviewer: Do you remember some concrete steps you took?</i></p> <p><i>“Leticia”: Yes, that was directive from the rectorate, and how much they listened to this directive is another question</i></p> <p><i>Interviewer: So, you did it like that, by the directive, “you have to do it” ...</i></p> <p><i>“Leticia”: But they did not listen.</i></p> <p><i>There is an insufficient level of connection of otherwise diverse and high - quality knowledge, with which is due to the duplication of some programs and the mutual competition of members, while the possible synergistic effects of individual parts of the UL are missing. This leads to low organizational correlation and coordination among the members [170]</i></p>
UniVie	Role of university bodies	<ul style="list-style-type: none"> • Role of rector • Role of Senate • University board • Role of deans 	<p><i>So how the power was distributed.... regarding doctoral education, with respect to the structure, the main person or the main organization in power was the rector. (“Tim”)</i></p> <p><i>When it comes to the design of the curricula, so the study programmes, content wise it was the senate (“Tim”)</i></p> <p><i>That is the senate, for the curriculum, the rectorate for the finances, and the structure, and the university board, for the strategy and for discussing or for uhm presenting the budget plan to the ministry. (“Douglas”)</i></p>

			<i>And the faculties, the deans of the faculties, and the vice-deans they would take care of the organization that is good for research. And that means, in terms of structure, that in fact...the structure inside faculty was left for the faculty to decide. ("Douglas")</i>
	Distributed organization	<ul style="list-style-type: none"> • Three levels • Differences between faculties and fields • Different PhD culture 	<p><i>In fact, at the top level of the university, uhm, there are three bodies that have power to make decisions. That is the senate, for the curriculum, the rectorate for the finances, and the structure, and the university board, for the strategy and for discussing or for uhm presenting the budget plan to the ministry. The trick is that none of the three can decide on their own. They are very finely balanced distribution of powers. ("Douglas")</i></p> <p><i>But it turned out for example that chemists did not want to share their third-party funding with the physicists, so there was a lot of distrust. The same is of course true with economists and social scientist, and so on. ("Fred")</i></p>
NOVA	Role of university bodies	<ul style="list-style-type: none"> • Role of rector • Scientific council (academic unit) 	<p><i>Although it was decentralized, the rector had the power ("July")</i></p> <p><i>But it's something that in our place is still true, I mean, we have a system that is rather decentralized, in terms of decisions, it is true that once the scientific council of each faculty approves a certain education programme either if it is in first, second or third cycle...("Jim")</i></p>
	Distributed organization	<ul style="list-style-type: none"> • Geographic decentralization • Strong faculties • Closed system • Rectorate – formal role 	<i>UNL's governance was characterized under the previous statutes (2001) by a high degree of decentralization and a corresponding weakness of the main governing bodies of the university, the Rector and the Senate's Permanent Commission. The current absence of a strategic plan is a sign of the low level of coordination prevailing within the university. The difficulty of adopting initiatives involving different AUs testifies their level of autonomy and again a considerable lack of institutional articulation.[187, p. 5]</i>
UMN	Role of university bodies	<ul style="list-style-type: none"> • Role of rector • Role of senate • Steering committee • Role of deans 	<p><i>The University's governing body is the rector [199]</i></p> <p><i>However, the senate itself has no influence on who will be a member of that working body, rather than that working body is chosen by faculties. Both the working body and its representatives defend the position not of the profession, as the name says, rather they are defending the position of the faculty (Frank). Depending on which university unit was more ambitious, which one had better position on the educational market or had a more creative, more prominent leadership, a dean. ("Miranda")</i></p> <p><i>The governing body of the university is the Steering committee. The Steering committee determines the business policy of the university [199].</i></p>
	Distributed organization		<i>The international capacity of the largest university is constrained by an organizational culture that stresses faculty autonomy [195, p. 27].</i>

In the table above, we listed the categories and the codes related to the institutional structure of each observed university. The main criterion for selecting the categories and codes was the role that they played in the reform of doctoral education and the power they had at the period of changes. All four universities had the organizational structure which is fairly common for universities with continental tradition, consisting of the departments, faculties (called “academic units” at NOVA) and the rectorate. The main university bodies at the time of change were the rector, the senate, university steering committee (introduced at NOVA after the reforms as General Council) and the various university bodies on the faculty level, the deans, vice-deans, PhD directors and the faculty committees (depending on the university). The only exception to this common structure was NOVA, who did not have the Senate, as it was abolished by the new law on higher education. Instead, the Board of Deans took the role of mediator between the rector and the academic units.

During the interviews, it became clear that such institutional structure presented one of the limitations and obstacles for the change agents in their effort to change doctoral education. Although the rector had the formal power originating from law and the statute of the university, the power of the rector’s team and the rectorate on observed universities was at the time of change somewhat limited. The power was distributed among the rector and the deans, who still held considerable power to influence the politics of universities. But the power was also in the hands of the full professors, especially at UniVie and UMN, and they were affecting the direction of the reforms (“the real power was with senior professors, at individual faculties, not even the dean at single faculty had enough power”, “Bob”).

On all observed universities, the interviewees commented that their institutions were “too fragmented” (UniVie), had the form of “loose confederation” (UMN), were “insufficiently connected” (UniLj) or were “very decentralized” (NOVA). Although it was not explicitly said, on several occasions the connection between such distributed institutional structure and the unfavourable situation in doctoral education was expressed by the interviewees. Therefore, it became clear that the concept “Institutional structure” was associated with another concept in our conceptual framework, the “Institutional limitations and obstacles”. For example, the lack of control and insight into what was happening on the faculties was contributed to the non-existent or loose university-level regulations, and to the lack of university-wide criteria on doctoral education. This lack of university-wide regulations was then related to the distributed nature of universities and the fact that the faculties had their own (very limited) regulations,

which could not be applied to the whole university (“a massive organization, a large number of study programs, a large number of the so-called directions, it was a structural, organizational chaos, an inability to control”, Miranda”). Any attempt to install university-wide regulations were met with stiff resistance by the members of the university and labelled as attempts to centralize the university (“the biggest problem was the university itself...they understood it as a centralization of the university, not as integration”, “Anita”).

On all observed universities, creation of the university-wide regulations on doctoral education were one of the main goals of the reforms (“...we approved this new legal framework for our doctoral programmes. That was the main step”, “Mick”). On several occasions, the interviewees explicitly acknowledged that the reforms of doctoral education were having a role of strengthening the integration of the university:

Interviewer: Do you think that doctoral education was somehow used to integrate the university, to connect it maybe?

“July”: I do, I do. It was strategic. Yes, I do.

Interviewer: Because this is what I have seen at UniVie and UniLj, I mean, doctoral education was some kind of...

“July”: Trigger

Interviewer: Yes, to integrate the university

“July”: Yes, it was.

Furthermore, the concept “Institutional structure” was associated with the concept of “Readiness for change”, as it became clear that the external, contextual factors which influenced the start of the reforms also affected and changed the institutional structure on all observed universities. These factors were the result of changes in national legislation. At UniVie, the university council was introduced into the structure of the university as “self-administration bodies, bound by no instructions, as additional implementing bodies” [183]. Same was seen at NOVA and UMN which were given a new, overseeing bodies. These bodies were (and still are) the supervisory bodies responsible for reviewing the legality and efficiency of university, and as such included members external to the university. Any change at the university had to be approved by the university council, which was a novelty at that time.

The new law from 2007 which changed the structure of the university at NOVA, introduced the new governing bodies under the influence of the new public management. The new bodies included general council and the management board, while the role of the rector was significantly altered, and the central administration was strengthened. The general council effectively at NOVA replaced the Senate, which until then held the most power (it was no longer mandatory to have a Senate by law). As on the UniVie, the external members were

introduced as members of the general council (in this case at least 30% of the members were external). The general council had the role to “ratify alterations to the statutes, elects or dismisses the Rector and appraises his decisions” [201, p. 9] and it overviews the medium-term strategic plans, budget proposals, creation, transformation and closing of organizational units (ibid.).

Comparable situation was detected at UMN, where the role of university’s steering committee was oriented more toward the financial matters, but it could also be used for strategic issues and even - as was the case - in the procedure to dismiss the rector.

The UniLj kept a more “traditional” organizational structure with the rector and the senate as the main holders of power, and the management board as a body responsible for the matters of economic nature. It seems that at UniLj, the policy of neo-liberalism did not manage to have such influence as was the case at UniVie, NOVA and UMN.

But despite the changes in the legislation and the new organizational structure that followed, the characteristic of distributed organization was still strong when the changes took place. The key players responsible for the reform of doctoral education had to deal with the fact of distributed organizational structure of their institution and with the multiple centres of power. Such loose structure led to situations in which the directives from the management were not taken seriously, as there were no consequences for not following through. It was one of the difficulties that they faced.

Moreover, the distributed nature of the higher education institutions presented a key factor in forming the culture of those institutions, as we will see when we will discuss the findings for the concept “Institutional culture”. Thus, we associated the concept “Institutional structure” with the concept “Institutional culture”, as the “interventions directed at management practices, structure and systems produce transactional change, or change in the organizational climate” [111, p. 146].

8.4. Institutional culture

Table 12. Comparison of cases - Institutional culture

Case	Category	Main codes/sub codes	Illustrative quotes
UniLj	Prestige	<ul style="list-style-type: none"> • International prestige • National prestige • Comprehensive university • Autonomy of university 	<p><i>The University of Ljubljana, as the central higher education and research institution in the Republic of Slovenia with its focus on growth in quality will in the coming years come into the group of the most respected European universities.</i> [170, p. 4]</p> <p><i>The University of Ljubljana is the largest and the best higher education and scientific research institution in the Republic of Slovenia.</i> [170, p. 3]</p> <p><i>We already had that in Slovenia ... as it is said ... we are already, we are not managed by the ministry, but we have sovereignty, to some extent, sovereignty, so we did not have our money, we were getting it from the state. But from the inner position, we have already put sovereignty on it. And we did not have to ask anybody whether we are organizing a doctoral school or not. This was in fact the university's decision. ("Leticia")</i></p>
	Professional bureaucracy	<ul style="list-style-type: none"> • Closed system • Over-formalization • Over-discussing • Stable entity 	<p><i>Internal closeness is mainly reflected in high self-reproduction and relatively old structure of personnel.</i> [170, p. 3]</p> <p><i>Nothing is understood by itself. We have to write everything down. ("Leticia")</i></p>
	Distributed organization	<ul style="list-style-type: none"> • Resistance to integration • Differences between faculties and fields 	<p><i>When you talk to people who get top-notch projects, at pharmacy, I do not know, engineering ... where the money is ... they need young PhDs ... to give some money to work for them ... and they work in a unique way. ("Monika")</i></p>
	Integration	<ul style="list-style-type: none"> • Role of doctoral education in integration • Resistance to integration 	<p><i>But today everyone understands that the university, if it wants to internationalize, must work unanimously. Twenty-fifteen years ago, that was not the case. ("Leticia")</i></p>
UniVie	Prestige	<ul style="list-style-type: none"> • Goals of reform • Role of doctoral education in research 	<p><i>And I had the feeling that UniVie needs to be quick in order to be at...I would say, at the forefront of this kind of reforms. ("Fred")</i></p>
	Professional bureaucracy	<ul style="list-style-type: none"> • Over-discussing • Following rules • No self-critique 	<p><i>So, these quasi-parliaments of the habilitated members and the establishment couldn't be prevented in some cases and that was a real obstacle for three or five subsequent years. So quite a lot of energy was wasted on that.</i></p> <p><i>University is so critical about the outside world, but when it comes to itself, it does not like any critique. ("Fred")</i></p>

			<i>from the mentality of professors, once something is the law, there is a certain readiness to grudgingly but silently accept that because it is the law. (“Bob”)</i>
	Distributed organization	<ul style="list-style-type: none"> • Open vs closed • Conglomerate • Differences • between faculties and fields • Different PhD culture 	<p><i>I mean universities are conglomerates of eccentric people and highly gifted specialized and so on. (“Douglas”)</i></p> <p><i>So, we wanted to somehow pull the third-party funding, but it turned out for example that chemists did not want to share their third-party funding with the physicists, so there was a lot of distrust. The same is of course true with economists and social scientist, and so on. (“Fred”)</i></p>
NOVA	Distributed organization	<ul style="list-style-type: none"> • Rectorate – formal role • Strong faculties • Geographical decentralization • Closed system 	<p><i>The current absence of a strategic plan is a sign of the low level of coordination prevailing within the university. The difficulty of adopting initiatives involving different AUs testifies their level of autonomy and again a considerable lack of institutional articulation. [187, p. 5]</i></p> <p><i>There is a lot of autonomy granted to the academic units. (“July”)</i></p> <p><i>.... but the rectorate had a role of very much, verifying if from the formal end, the administrative way, the proposals were correct in one hand, and on the other hand be sure that there would be no overlaps and later having disputes around certain scientific areas. I think that was most the role of the rectorate at that process. (“Jim”)</i></p> <p><i>Internal communication could be good (depending from the research group) but external communication and interaction with other areas of knowledge was minimal. (“Jim”)</i></p>
	Non-traditional university	<ul style="list-style-type: none"> • Roots in opposition • Connecting with the community • Entrepreneurship mindset 	<p><i>I mean, we are created by professors that came from the old one. (“July”)</i></p> <p><i>Because we have people from the inside, and also people coming from the community, from firms, from civil society let’s say, in this council. (“July”)</i></p> <p><i>So, we are supposed to be more entrepreneurship, have more entrepreneurship, being more innovative... (“July”)</i></p>
UMN	Distributed organization	<ul style="list-style-type: none"> • Loose confederation • Independent faculties • Weak leadership • Lack of identity • Differences between faculties and fields • Different criteria 	<p><i>In the overall communication process there is a lack of identification, i.e. the perceptions of belonging to the University, which points to the unclear image of the University as an integrated, dominant institution with corporate identity [196, p. 142]</i></p> <p><i>We have a problem with social sciences because they do not have...they have a very small selection of journals on our language, where they can publish. (“Igor”)</i></p>

	Prestige	National prestige	<i>University of Montenegro is the most relevant public institution in Montenegro and plays an important role in knowledge production and its translation into society. [197]</i>
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The institutional culture of each observed university was influenced by the history of that university, by a degree to which the university was centralized or decentralized and its position and the prestige it had in the society. Three of the observed universities – UniLj, UMN and UniVie – are the largest universities in their countries, and as such have a certain prestige and reputation they must uphold. They are considered flagship universities and place a foremost importance to not only their national position, but to their international rank and image in the scientific community. For example, the UniLj has stated in their strategic plans that their goal is to “reach excellence and better international recognition of the whole university” [173]. At UniVie, international prestige was one of the reasons to engage with the reforms in the first place:

But at the same time, given international standing of Vienna, given the fact that we are after all together with Geneva and New York one of the three UN centres...you know, it was also the question of living up to international position, reputation of the city like Vienna, that we could no longer to afford to have our main university in such situation. (“Bob”)

The international prestige as motor of change was more prominent at UniVie, while at the UniLj and UMN prevailed the sense that the university should be the leader in the reforms of doctoral education on the national level (international aspirations were also there, but to a much less degree). For UniLj, such leading role was most visible in their relationship with the ministry in charge of higher education. From the start of the reforms, the ministry was passively taking part in the reforms of doctoral education, while the university took the leading role and was spearheading the changes on the national level:

We were constantly ahead of them... when we made something, then they listened to us, and then after about two or three years, they accepted it. (“Leticia”)

This leading role was considered as a proof of university’s autonomy and it fitted the role of the top university in the country:

But that is... proof that there was autonomy at the university. Before the legislation, we could have done it before the legislation. There were no obstacles at the university level, it was recognized by the ministry that the university is in that autonomous. (“Leticia”)

The institutional culture on observed universities seems to have been one of the key factors in change process for two main reasons. Firstly, it influenced the PhD culture at universities or, to paraphrase the common definition of the institutional culture, it effected the way doctoral education was being done at university. The PhD culture involves behaviour, values and norms

that are often outside of the written rules. On all observed universities in the time preceding the reforms, these rules for doctoral education were very loose or even did not exist at all in the written form. Doctoral education was mostly based on the tradition of the scientific discipline or the tradition of the faculty without the common, university-wide rules.

All observed universities had a goal of creating a new PhD culture, one that was more in line with the modern doctoral education. This goal of changing the PhD culture came as no surprise, as formal changes rarely lead to true improvements of organization if the culture stays intact [102]. And due to the change in thinking in doctoral education at that time, change of the PhD culture presented a logical step in any reform that wanted to achieve more than just cosmetic changes. The common characteristic of this change in the PhD culture on all observed universities included a shift toward more regulation of doctoral education (“...there is no more anarchy in doctoral education”, “Leticia”), introduction of higher quality criteria (“Well, I think that by and large we have managed to get...uhm...doctoral degree holders of much better quality”, “John”) and creating a common sense of belonging to the same university among the PhD students and staff (“it is clear that university identified that one of the needs, [was] the need for better perception of it as a whole, because we are so much spread into nine different faculties, even in different physical locations, we have nine physical locations, so one of the concerns of the university was really to work on the perception that each one of us, either staff or student, have about university itself, and I think doctoral school contributed very much for that”, “July”).

Different faculties and even departments had diverse traditions in doing and obtaining a doctorate. For example, the humanities and social sciences had one approach to doctoral education while medicine, natural sciences or technical sciences had another. Some disciplines were more “conservative” than the others:

Within some faculties within the university, like the science for example, they have started to go into the direction of the Salzburg principles. The humanities and law were very conservative, they did not really want to move. (“Douglas”)

Such different PhD cultures on the same institution were creating issues in the implementation of the reforms and were the cause of much debate and negotiations (“But the level of the article, is it SCI or not, the natural sciences, mathematical, medical sciences accepted with ease, because they publish this way anyway, the other side was very difficult to accept, for example the law, I do not know how law does it today... but they had in their heads different [criteria]...”, “Leticia”).

They even led to lack of understanding among the scientific disciplines, and in some cases to the dissent:

*There were not sufficiently measurable criteria in some areas of science, how you get your PhD, and criteria in some areas - for example in social sciences, and humanities - somehow seemed to these other people from technical and natural sciences, that doctorate [in social sciences and humanities] is easier to obtain.
("Frank")*

At UMN, the differences between the social sciences and humanities on the one side, and the technical and natural sciences on the other, were one of the sources of resistance to change. These differences were present long before the start of the reforms and in the case of UMN resulted in an inequality of available resources among the faculties. More importantly, they were a barrier to an attempt to introduce university-wide criteria in doctoral education:

Somehow you must acknowledge that this is our profession and we cannot adapt to you, rather you must adapt the system, not to be uniform You must somehow create that balance and acknowledge that not all disciplines are the same, and that you cannot all things look with one single criterion. ("Frank").

Moreover, the choice of change strategies and methods for circumventing the limitations and obstacles were influenced by the institutional culture of each university. Our examination of the change process has showed that in all cases, the institutional culture had a profound influence on the course, scope, pace, methods, and the results of the change process. The research also showed that all key players were - to a degree, at least - aware of this connection between the institutional culture and the change strategies and were planning their actions and strategies bearing in mind the specific culture of their institution. One exception to this is the case of UMN, where the change strategy was assessed as unsuitable for the university:

*Interviewer: Do you think that the approach that was applied by the university management was appropriate to the university?
"Igor": It was visionary... that it was appropriate, no, it was not appropriate.*

Of all the observed universities, the institutional cultures of NOVA and UMN were most deeply determined by the strong autonomy of their constituents, contributing to the phenomenon of distributed organization. This phenomenon was also present at UniVie and UniLj although to a smaller extent. But at NOVA and UMN, the decentralized character of universities resulted in a lack of a common university identity. The academic units had their own cultures, while the university was not perceived as a whole:

When we were evaluated by the EUA, several times, and once they asked us "what is the brand of NOVA", and nobody could say. So, for me it was a sign that yes, we were a university, but so decentralized that the main goals and the mission were of

*course the same for everybody, but faculties felt that they could work alone, Ok.
So, as I said, decentralized and not very aligned. (“July”)*

Such situation was one of the motivations for the key players at NOVA and UMN to try to use doctoral education as a tool for creating the common culture of the university:

For the institutions with multiple faculties, there is a need to go beyond traditional allegiance to individual faculties, and instead to reinforce a sense of institution-wide affiliation and envisage the future of the institution as a whole. [195, p. 8]

Additionally, common traits of professional bureaucracy were found during the analysis of the data, such are “Over discussing”, “Following rules”, “Lack of self-critique”, “Over formalization” and “Inertia”. One of the main characteristics of professional bureaucracies is the collegial nature of relationships among its members, highly qualified and trained professionals. The institutional culture of such institutions will be by default sensitive to any attempt to impose rules and changes from the top. The key players recognized the significance of institutional culture on the flow of the change process and were aware that they must adjust their strategies to match the culture. All interviewed key players understood this fact, and they tried to present the changes to members of the university as a bottom-up or at least a combination of bottom-up and top-down process. In all observed cases, the change agents tried to include other stakeholders in the process, to a varying degree. Any attempt to force the change from the top was viewed as a counter-productive and sentenced to failure:

It would have never worked like that in Vienna...I mean universities are conglomerates of eccentric people and highly gifted specialists and so on.... management of the university should be unheard, unseen but with lots of money, and so on. (“Douglas”).

Argumentation, discussion, and bargaining were used to a much greater extent than directives and regulations, although those methods were also employed. The exception is UMN where the argumentation and discussion, although it was extensively used, did not bring the results that were expected.

At NOVA, the team leading the change understood very well that their university was formed on the idea of decentralization and in opposition to the old, conservative universities in Lisbon and Portugal. As all key players at NOVA had an extensive experience of working at NOVA, they “knew the ground very well” (“Boris”) and were able to introduce the changes in such a way that other members of the university did not feel threatened by the changes. In other words, they respected the culture of the institution and were not trying to force solutions that would go against that culture.

On UniLj, the key players were aware of the obstacles for the implementation of change resulting from the specific institutional culture with strong faculties and the negative connotations of centralization. To avoid these obstacles, they employed a special change management strategy and were gradually introducing the changes, respecting the institutional culture:

I mean, there is no force, right, you can't, that kind of control.... we're not a factory, you can't do that in a factory, let alone a university, you just can't do that. So, I think... a lot of goodwill, good arguments, a lot of time, clearly written rules, not head through the wall where you cannot. ("Monika")

At UniVie, the institutional culture was described by the interviewees as “conservative”, and thus not inclined for changes. Despite this, the management and the change agents managed to gather enough momentum and were able to push the university into the new direction even if its culture was under the influence by the decentralization and huge differences between the faculties, same as on other observed universities. One explanation for this could be found in the “mentality of [the] professors, once something is the law there is certain readiness to grudgingly but silently accept that because it is the law” (“Bob”). Such mentality could again be contributed to the tradition of “typical Austrian top-down revolution which follows Maria Theresia and her son Joseph II and enlightened revolution from above, because, usually in our history the big changes do not happen bottom-up...” (“Bob”).

8.5. Involvement and participation

Table 13. Comparison of cases - Involvement and participation

Case	Category	Main codes/sub codes	Illustrative quotes
UniLj	Disseminate information	<ul style="list-style-type: none"> • Regular Discussions • Yearly consultations • Summer schools (EUA) 	<i>Every year we organize counselling at doctoral studies, at, university. And then we explained it all to them. And since that made sense, no one... They had objections, but there was no opportunism... it's hard to be against something because everything had a head and a tail. ("Leticia")</i>
	Utilizing university bodies in change	<ul style="list-style-type: none"> • Role of rector • Role of Senate • Role of deans • Doctoral committee 	<i>I think that on our university, the doctoral committee, the university committee, had the greatest power ("Leticia")</i>
UniVie	Utilizing university bodies in change	<ul style="list-style-type: none"> • Role of Senate • Role of deans • PhD admission committee 	<i>As I indicated, there were quite many deans who supported that. ("Fred")</i>
	Involve members	<ul style="list-style-type: none"> • Negotiate • Use critics • Recruit members • Build coalitions • Reward enthusiast 	<p><i>Well it needed a lot of negotiations basically, lots of talks, I would say that looking back it worked reasonably well, but it was sometimes, you know, when there was different opinions, it was sometimes difficult, because you had in fact, at some point you had to reach a compromise. ("Douglas")</i></p> <p><i>Bottom up was that we have involved people who are on one side, who had to implement the stuff. ("Tim")</i></p> <p><i>Give them an active role even if they are little bit fighting you, like the person who was in charge of the curriculum commission, he was always very critical. So, we gave him an active role so that he has to deal with it. ("Tim").</i></p>
NOVA	Involve members	<ul style="list-style-type: none"> • Negotiate • Recruit members • Include students • Create enthusiast • Regular discussions 	<p><i>It was sent to all the heads of the schools, and it took me one year to negotiate that with the schools. But then, it was really, it was agreed, and everything was OK. ("July").</i></p> <p><i>... but all of them have students that meet with us in more informal form, so they are nominated but nominated in informal way, not through any election process, and these students were of great help, because they help us, they tell us, "we think that we need this kind of activity, we like to this one" ("Jim")</i></p> <p><i>The only way to have a reform to be accepted is to involve people as relevant actors (academics, staff and students). Every time I was involved in this type of processes (2006 and 2013) my main role was to contribute for an atmosphere of enthusiasm about the new ideas and plans. Involving people as part of the process is the key issue. ("Jim")</i></p>

	Utilizing university bodies in change	<ul style="list-style-type: none"> • Role of deans • Role of rector • Disseminate information 	<p><i>Thing is that in that meeting, when he had that meeting in the rectorate with the deans, what I said that if you agree with this idea, I would like to have one delegate per faculty to seat in the council of doctoral school. And once they said yes, then I had them in my hand because when they said yes, I said now, if you delegate, if you have someone representing your school here, means you are in the project, you are not out of the project. ("Jim")</i></p>
UMN	Utilizing university bodies in change	<ul style="list-style-type: none"> • Role of senate • Role of rector • Doctoral studies committee • Centre for doctoral studies 	<p><i>I mean, we were, since it's taken us a whole year and a half to prepare the field of reform, we have been greatly encouraged by the talks in the Senate. ("Miranda")</i></p>
	Involve members	<ul style="list-style-type: none"> • Transparency • State analysis • Role of public • Regular discussions 	<p><i>An analysis of strengths, weaknesses, opportunities and threats (SWOT) that was carried out at the University showed a high level of agreement among participants of the working group, all of them being involved in doctoral education but having different roles and positions. [159, p. 24]</i></p>

The inclusion of other members of the university in the reform process, from the beginning, planning to the execution of the plan, is a key element of reform at the university. Members of the university want to be included in all elements of change, possibly because of a sense of belonging to the organization and the culture of the university in which the autonomy is a characteristic and any change seems like an encroachment of the values and the quality of the previous work.

The analysis of the data showed that all observed universities used similar methods and channels for involvement of its members in the change process and the spreading of information. The main way was to use the existing university bodies in disseminating the information on the goals and motivation for change. The senate was the place where the change agents could present their plans and receive the feedback from the other members of the university, primarily the deans. The deans would then spread the information on their faculties and to their members, delegating the responsibilities and the roles in the change process. For example, at UniLj, the responsibility of adjustment of the faculties were delegated to the vice-deans, who had the task to implement the goals set by the rectorate:

I remember it very clearly, it was 2007, we were invited here, from the doctoral school, I then did not know what the doctoral school is... I was invited by the head of the doctoral school, I thought it was the woman who was responsible for the doctoral studies. And then she explained to us what the rules were, what we had to do with the reaccreditation, what the national agency would be watching... the school assignment. The leadership of the faculty, who were responsible for the reaccreditation, have received clear rules, then we presented these rules on our Senate and to the doctoral commission at the university. ("Monika")

The change agents also used the newly created university bodies dealing specifically with doctoral education, for example the newly established doctoral school at UniLj or doctoral studies committee at UMN. These new bodies took the role of disseminating the information through regular meetings and discussions, organization of events like conferences and inviting external experts to present the recent developments in doctoral education.

Involvement and participation of the members of the university in the change process was achieved through the regular discussions, usually at the senate, but also during "tours" of the faculties. On all observed universities, the change agents visited various faculties and talked with the members, building coalitions and finding like-minded individuals who would then be involved in the implementation of the reform ("Having people from the different faculties in the advisory board, so they can express their fears", "Tim").

The involvement of the members of the university was high at UniVie, NOVA and UMN, while it was low at UniLj when compared to other observed universities. At UniVie, even though the overall nature of the change was a top-down approach, the leadership nevertheless managed to recruit a wide range of key persons on the university and to motivate them for supporting and accepting the change process. At UniVie, the change involved the deans of faculties and the directors of PhD programmes, and the various other stakeholders from students to supervisors. Those other stakeholders were engaged either in existing university bodies, or in new university bodies created specifically for supporting the new organization of doctoral education. The leadership of the university went so far to include the persons who were initially opposing the reforms and to give them a position in the newly created bodies, as a method for pacifying the resistance.

At NOVA, the high involvement and participation of the members of the university in the process could be contributed to the bottom up approach, and the leadership's overall change management approach to the change. As the interviews showed, it was particularly important for the key players to involve members of the university as the relevant actors in the change process, to create an atmosphere of enthusiasm and to share the goals of the reform. Such approach managed to raise the interest of the members of the university and to achieve an agreement on the goals and reasons for change. As the whole reform was done on the voluntary basis (meaning that it was not obligatory for the whole university), only those members who were highly motivated and supported the reform were partaking in the process and in the activities.

The case of UMN is similar to UniVie as it used the top down approach to change the university with an effort to disseminate information on the reasons and the goals of the reforms, and to make the process as transparent as possible. The process of change included wide array of stakeholders and the public, as the change leaders tried to create support for their goals. Since UMN was conducting a university-wide state analysis as part of the reform of the university, it was crucial for the change leaders to raise the awareness among the members on the issues and workable solutions. But the UMN is also a case where the efforts to increase participation and involvement backfired and were in fact contributing to the resistance to change.

The UniLj, on the other hand, presents a case where involvement and participation of the members of the university was relatively low when compared to other observed universities. Contrary to the UniVie, NOVA and UMN, where the reforms lasted shortly - several years at

most - the reform at UniLj was slowly implemented during the period of ten years. Furthermore, the change relied on the work of a handful of people, who used a set of change management methods specific for the UniLj and that were not used on other universities. These methods did not need a wide-spread support from the members of the university nor the broad involvement of many different stakeholders. For example, the Senate had a more passive role and was in fact often seen as a hurdle for the implementation of changes, while on other universities it had a more affirmative role and was a place for discussing and adopting the changes. In fact, the main change management tactic at UniLj was gradual approach which worked best when the reforms were not publicized and when they were incrementally implemented. The key players assessed that the members of the university would react negatively if the changes were attempted quickly and on a large scale, so they went for the approach which did not need or include wider support. Such approach in the end proved successful.

8.6. Institutional limitations and obstacles

Table 14. Comparison of cases - Institutional limitations and obstacles

Case	Category	Main codes/Sub codes	Illustrative quotes
UniLj	Distributed organization	<ul style="list-style-type: none"> • Differences between the faculties and fields • Decoupling • Resistance to integration • Role of senate 	<p><i>Listen, our university, like most universities, not most, most of the old universities, were created so that very strong faculties were joined together, and they became the members of the university. And this tells you about who has and who does not have power. ("Monika")</i></p> <p><i>Their reasons were...that [we want] to take them... the faculties... to take that position that they needed to maintain. ("Sophia")</i></p>
	Behavioural obstacles	<ul style="list-style-type: none"> • Increase of criteria (resistance) • Fear of change • Loss of individual power • Local language • Composition of PhD committee • Resistance toward external pressure 	<p><i>Some people still don't believe in common doctoral studies, to be clear, some people – I know it – are just waiting for everything to fail and to have what they had again. And these people mostly act in the same way as they did before. ("Monika").</i></p> <p><i>What's against it--inertia. I mean, people just don't like to change, one great fear that now we're going to tear something that was very good. ("Monika")</i></p> <p><i>It does not go without problems, we are a small country for which the language is very important. We had a very big debate and we still have it, how - in a country where the language is important, and you have to preserve it - and on the university which is the oldest and is responsible for that language, how to harmonize this. ("Monika")</i></p>
UniVie	Distributed organization	<ul style="list-style-type: none"> • Differences between the faculties and fields • Conglomerate • Avoiding rules 	<p><i>It would have never worked like that in Vienna...I mean universities are conglomerates of eccentric people and highly gifted specialized and so on.... management of the university should be unheard, unseen but with lots of money, and so on... ("Douglas")</i></p> <p><i>.... university is still too fragmented; the university still does not have unique culture... ("Fred")</i></p>
	Behavioural obstacles	<ul style="list-style-type: none"> • Fear of change • Loss of individual power • IKEA effect • Feudal relationships • Students opposing reforms 	<p><i>...you have to start thinking - ten years ago - about small group projects, or larger groups project etc. etc. as in some of the natural sciences where this is normal. And what is wrong for us to do the same? There is nothing wrong, it is just...you know...conservative element in your brain that keeps you from doing that. ("Bob")</i></p> <p><i>Not only the senior staff but also some of the young staff who were already eager to obtained similar feudal positions for themselves.... they were all against the reforms. ("Bob")</i></p> <p><i>You must not forget that we also had the students as part of the Senate...that probably was the hardest part because they were extremely opposed to the reforms... ("John")</i></p>

	Earlier reforms (negative)		<i>Another point was that given the experience they gained through bologna, the people were a little bit tired of the reform also, and they were (inaudible) so easily...was not so easy to convince them that this is to the essence to the good. ("Tim")</i>
NOVA	Distributed organization	<ul style="list-style-type: none"> • Geographic decentralization • Strong faculties • Closed system • Rectorate – formal role • Resistance to integration/centralization 	<p><i>It's a very decentralized university, with nine academic units in different parts of Lisbon, even on the other side of the river, so we are distant in term of geography and in terms of autonomy. ("July")</i></p> <p><i>Additionally, and due to the diversity of scientific fields and requirements, each unit defined its own internal regulations, such as the classification of general and specific scientific areas, the duration and management of the doctoral studies, scientific supervision and thesis committees and rules to be followed for the public defence of the thesis.</i></p> <p><i>I mean, in the beginning I was doing with the rector kind of a tour, between the different (inaudible), I think a little bit of reserved attitude, because people were a bit concern that doctoral school would like to somehow interfere with the scientific orientation or even administrative orientation of their PhD programme. ("Jim")</i></p>
	Behavioural obstacles	<ul style="list-style-type: none"> • Bologna sceptics • Loss of individual power 	<p><i>There were different reactions, and you easily find people that say that the Bologna process was a failure, and the...so you have many diverse opinions. ("Jim")</i></p> <p><i>The resistance that you could in a way forecast based on for example [the fact] that the supervisor is a little bit a controller of a PhD student, was a process that we had to discuss. ("Boris")</i></p>
UMN	Distributed organization	<ul style="list-style-type: none"> • Differences between faculties and fields • Different criteria • Levelling of criteria 	<p><i>This was at some faculties an impossible mission, especially for the social sciences. So, they looked for supervisors on other universities, and then named a second supervisor here, that was a big problem. ("Igor")</i></p> <p><i>There is little institutional consensus about the respective rights and responsibilities of the faculties and the central management, with the result that the governing board and the senate seem more like a gathering of individual faculties than the strategic bodies of a united institution [195, p. 6]</i></p>
	Behavioural obstacles	<ul style="list-style-type: none"> • Loss of individual power • Academic vanity • Lack of motivation 	<i>A layer of society that can be in some way protected in its sinecures, but still badly paid and still somewhat distrustful and insufficiently enthusiastic, insufficiently brave enough and insufficiently motivated to participate with a certain ideal to make some things change. ("Miranda")</i>
	External obstacles	<ul style="list-style-type: none"> • Role of public • Political differences • Finances 	<p><i>It is necessary that you have some support in the public, the public that creates the image of those reforms, the public that follows the results, or the public that valorises what the criteria are, and not what they are not. I mean, it's terribly important to achieve those results. ("Miranda")</i></p> <p><i>It is at this level of political, that is the difference in terms of political, party platforms, division of political, social, and struggle for goals that do not necessarily imply the dominant interests of the university. ("Miranda")</i></p>

When we analysed the concept of institutional limitations and obstacles, two common categories appeared on all four observed universities. First was the distributed character of those organizations, and, consequently, the uneven distribution of power on those institutions. The second were the psychological aspects of the change or the way the members of the university reacted to the changes.

The power of component unites (the faculties and the academic units) on all four observed universities was still considerable, leading to the dual power system. Even after the introduction of the neo-liberal laws on higher education, which strengthened the position of the rector and the external members in the management of the university, universities kept the authority in areas such as curriculum, quality assurance and control, enrolment of doctoral candidates and doctoral thesis award. Despite the formal changes in the governing of universities, the key players were still facing obstacles in the implementation of their plans for reforms. As the analysis showed, on several occasions those obstacles were the result of the strong faculties and the weak rectorate, or the distinctive institutional structure of universities.

In the Burke-Litwin model of organizational performance and change, the institutional structure refers to the “arrangement of functions and employees in specific areas and levels of responsibility, decision making authority and relationships” [111, p. 164]. In our first description of the concept “Institutional structure”, the distributed or loosely coupled nature of higher education institutions was used as the common trait of contemporary higher education institutions. In a distributed organizations, “higher ranks in the institution [do not] possess all the power of the ranks below them” [92]. Such organizations keep some loose hierarchical structure, but the decision making is shared through delegation and empowerment (ibid.). The fact that universities belong to a type of organization which is called “distributed organization” or loosely coupled is well known, so it was no surprise to see that this was one of the main institutional obstacles for reforms. The exact source of the distributed character varied from case to case. On UniLj and UMN, the distributed character of the university was the result of historical heritage, since those universities were formed by joining strong faculties. The faculties existed before the university, so they kept their power over time and had a considerable influence on the university politics. The NOVA was formed in comparable way to UniLj and UMN, although in a quite different historical context, and is the youngest off all four observed universities. At NOVA, the decentralization and distribution of power – which presents the main feature of distributed organization - was at the core of the institutional culture, and as such

presented a challenge to the change managers. The UniVie is probably the least decentralized university of all four observed, being the one with the longest history. However, according to the interviewees, it still did not have a unique, common university culture and has strong faculties with many differences. As we have seen, the lack of common organizational culture was also an issue at NOVA and UMN, where each academic unit had its own culture and there was no identification with the university which was perceived by its members as a separate entity.

The distributed nature of universities led to the resistance to integration, another theme which appeared during the analysis of the data. On multiple occasions, the interviewees said that their efforts to create unified doctoral education was perceived by the members of the university as an attack on their autonomy, and as an attempt to centralize the university. Again, this is a consequence of the shared government at universities, where the central university administration – in this case the change agents – often has an agenda of standardization and centralization of processes on university, while the faculties favour decentralization [8].

Second category of common obstacle for implementation of change was named the “behavioural obstacles”, as it refers to the personality and psychological aspects of the members of the university attitude toward the changes. In the case of doctoral education reform, behavioural obstacles were expressed as negative attitudes toward the change. Such attitudes commonly include conformity, unsuccessful experience with earlier changes, insecurity, loss of power, and are opposed to any reforms of the system as they are seen as a threat to the “old ways”. Such behaviour is a common occurrence during changes in organization [202].

In all cases, one of the components of the category “behavioural obstacles” was identified as fear of loss of individual power. The reforms brought many changes in the traditional ways of doing a doctorate, which some members of the university perceived as a loss of their power. The changes primarily affected the supervisors, so they were the group of people who expressed the most scepticism toward the changes. For example, at UMN, the changes brought much stricter and higher criteria for supervisors on the number of required SCI listed publication. As a result, many established professors lost the possibility to supervise doctoral candidates. In the case of UniLj, the “behavioural obstacles” were mostly expressed in the Senate, where the resistance to an idea of one unifying doctoral school was at the highest level (“They did not want to give their authority for a unified doctoral school, they just did not want to....”, “Sophia”). At UniVie, the loss of individual power for supervisors was even more pronounced

due to the long-established tradition of the “feudal relationships” among the doctoral students and the professors. The situation at NOVA was slightly different, as the NOVA is the youngest of all observed universities and it was created as the opposition to the conservative elements on the other, older universities in Portugal. Therefore, the culture of the university and the general attitude of its members was more adapted and prepared for accepting the changes and viewing them as beneficial. Nevertheless, even at NOVA the doctoral supervisors were expressing their concern over fear of losing part of control over the doctoral candidate.

The UMN had one specific category which did not appear during the analysis of other three universities, at least not to such extent. Save the two categories which were common for all universities, the UMN had another category of institutional limitations and obstacles to change, “External obstacles”. These obstacles were the public opinion of the reforms, the political influence on the change agents and the finances. Finances were in all cases identified as obstacles to the implementation of the changes, but the degree to which they were considered as an obstacle varied greatly. At UMN, finances had a much more pronounced role and were emphasized as crucial for success of the reforms (“It should be noted that these tasks are difficult to achieve without the financial stability of the University, i.e. the definition of a financial model in agreement with the founder”, [196, p. 9]). This is not surprising as the economic crisis and the lack of funding were among the identified sources of reforms at UMN. At UniVie, the finances were identified by one of the interviewees as a key factor in the reforms (“...so it was necessary for me to have the money available. Otherwise, the university would not move”, “Fred”). The other interviewee had a slightly different opinion:

Finances are secondary, I think, really. Of course, once you have a plan you have to see whether it can be financed but usually you think about that during the process you try to keep it at least cost neutral, or to compensate the cost that will emerge with one reform step by lowering the cost of another step etc. The budget has to be thought throughout the process but that is self-understood for anybody in management, “Douglas”.

These differences in opinions can be attributed to the distinct positions of the interviewees in the change process and the responsibilities that they had.

On the other hand, the role of finances at UniLj was much more emphasized, although again it was said that the finances are not crucial for the success of the reforms in doctoral education (“Money...now, for doctoral studies, maybe it is not so crucial for the change itself...” (Monika). The finances were the least important at NOVA due to the specific approach which

did not need hiring new staff or any other huge investment. And due to the chosen change approach, NOVA had to turn to outside sources for financing as internal sources were not an option. The finances were, however, stressed as a condition for quality doctoral education on all observed universities, whether it was for the training, research, or internationalization of doctoral education. It seems that for the change itself the finances do not represent such vital factor, but if the university wants to ensure that doctoral education is offered on the high level of quality, then the finances begin to act as a decisive factor (“We fight with what we have, but we don't have enough. I can't possibly compete with universities who have the money to pay people”, “Monika”).

The concept “Institutional limitations and obstacles” was under the influence of several other concepts from our conceptual framework. The category “behavioural obstacles” emerged as a complex code consisting of several sub-codes which at the same time were describing the features of institutional culture (e.g. “IKEA effect”, “Fear of change”, “Loss of individual power”), but were in many cases describing the psychological obstacles for the implementation of change (“The main obstacle is the conservative attitude of the professors, why they should change something. We live with the old system for so many years, is it really necessary to change it? So, this is the main obstacle”, “Mick”). For these reasons, we associated the concept “Institutional limitations and obstacles” with another element of the conceptual framework, the “institutional culture”. Furthermore, the category “Distributed organization” proved to be related to the concept “Institutional structure”, as the distributed character of universities is reflected in their structure and it has its source in the way the university is organised. Hence, we presume the connection between those two concepts in our conceptual framework and the feedback loops between them - change of institutional structure affects the institutional limitations and obstacles.

8.7. Readiness for change

Table 15. Comparison of cases - Readiness for change

Case	Category	Main codes/Sub codes	Illustrative quotes
UniLj	External pressure – positive	Bologna process Isomorphism Change of legislation (external)	<i>Since we got a new statute this year some issues related to doctoral studies came out of the statute, since the law changed, and some things changed in the law, so I had an alibi to do things in the university. (“Monika”)</i>
	Internal incentive	Change of legislation (internal) Regular discussions Lack of faith in change	<i>But then it was written for the first time in a strategic document to reorganize a doctoral study. That was the first such paper that we could say that the Senate had taken a decision on the reorganization of the doctoral study, the strategy, that it was the university strategy. (“Anita”)</i>
UniVie	External pressure – positive	Change of legislation (external) No choice Bologna process	<i>In 2002 it was the University Act, was changed, got into force in 2004. But there was another adaption of the law and this took place, I don't know, 2005, 2006, 2007, that obliged the university to change the doctoral curriculum latest by 2009. (“Tim”)</i> <i>I mean, what came completely from the outside I should say, was this Bologna structure, and I'm still not convinced that it was such a good idea. But, ok...there was not much choice. (“John”)</i>
	Internal incentive	Dissemination of information Dynamic atmosphere Time for change Change of legislation (internal)	<i>Because they went into each and every department - and I did that for the department I was responsible for at this faculty - to talk in one or two or three meetings to the not only the professors but to everybody with habilitation who is potentially in the future a member of PhD advisory committee. (“Bob”)</i> <i>So, at that time we were very important as a Senate, we approve this new legal framework for our doctoral programme. That was the main step. And to achieve it we have to discuss with many professors that this is a good reform, that it makes sense, and we are following international trends, and we can improve the quality of doctoral study programmes. (“Mick”)</i> <i>I would say that that there was no real resistance. Apparently, people.... thought that reforms for doctoral education are necessary. (“Douglas”)</i>
NOVA	External pressure – positive	No choice Bologna process Change of legislation (external) Synergy with national changes	<i>For the last two years, the university has been deeply engaged in the reform of its study programmes according to the Bologna process, which will have to be completed at the end of the current academic year.[187, p. 6] ...</i> <i>because somehow the fact that there was this law, aligned the process in a way that people know that there were a number of requests that should be answered, and so that created a framework, people knew they had to somehow adapted to. (“Jim”)</i>

	Internal incentive	<p>Legal methods Change of legislation (internal) Noninterfering Bottom up Create enthusiasm Dissemination of information</p>	<p><i>The new UNL statutes, which are effective since August 2008, comply with the law passed by the parliament in September 2007, but also reflect the coordination effort that has been taking place within the university in the last two years. (Ibid.)</i></p> <p><i>but the proposals were born at the departments, validated at the departments, and then discussed and approved at scientific councils at each faculty. (“Jim”)</i></p> <p><i>Every time I was involved in this type of processes (2006 and 2013) my main role was to contribute for an atmosphere of enthusiasm about the new ideas and plans. Involving people as part of the process is the key issue. (“Jim”)</i></p> <p><i>But I think really the secret was to bring people inside, to have responsibilities, and tell them we are going to build doctoral school, and this doctoral school is going to be the thing you would like to have. (“Jim”)</i></p>
UMN	External pressure – positive	<p>Bologna process Change of legislation (external)</p>	<p><i>Partially answer is somehow related to a system of education that did not completely follow Bologna process, not till this year, keeping some old formats (such as 'specialist study programmes'). This should be changed soon. University introduced the whole Bologna scheme 3+2+3, starting this year, and consequently, one can expect that this will also have an impact on doctoral studies as well. [197]</i></p> <p><i>University also developed and the Senate accepted Regulations for doctoral studies, the main document followed by both the Centre for Doctoral Studies and the Committee for Doctoral Studies. [197]</i></p>
	Internal incentive	<p>Resistance to integration Earlier reforms (negative) Regular discussions</p>	<p><i>The university is a conservative environment with great inertia, it is difficult to move it, everything that comes from the rector is perceived as an imposition and a strike against the freedom of the professor, and the reforms are difficult. (“Frank”)</i></p>

When we compared all four cases, two categories emerged which formed the concept “Readiness for change”. The difference between these two categories was the origin or the source which affected the readiness for change on each university. Based on this criterion, we can distinguish between the external pressures on the university which contributed to the positive readiness for change, and the internal, university incentives which were created by the change agents to create the readiness for change.

The most significant external factor of readiness for change on the observed universities was the ongoing transformation of higher education systems caused by the Bologna process. On all observed universities, the interviewees said that the members of their university were prepared for the change and were expecting the reforms of doctoral education in one form or another, as the change already affected the first two cycles of higher education. There was a certain sense of inevitability of the upcoming reforms, especially at UniVie, NOVA and UMN, where the Bologna process led to the change of the national higher education legislation. In those countries, the national legislative and the involvement of the ministries of higher education backed the reform of doctoral education. Those two factors – the ongoing adoption of Bologna and the change in legislation - made a difference in the state of preparedness on universities (“Once something is the law, there is a certain readiness to grudgingly but silently accept that because it is the law”, “Bob”).

At NOVA, the Ministry of Science and Higher Education defined the content of the reform as part of joining the Bologna process. The universities were needed to adapt and define their own doctoral programmes and procedures. The readiness for change at NOVA was further boosted by the evaluations of the university by the OECD, which pointed that the third cycle is the next logical goal of the reforms. Therefore, when the actual reform started, most of the members of the university - at least those on the top positions, like deans and vice-deans - were aware why the change was taking place and what is expected from them.

Comparable situation was seen at UMN. The university adopted the Bologna declaration in 2014 and was in the process of changing its educational system (“Consequently, the UMN must also affirm and implement higher education in line with the principles of the Bologna process and EHEA, stressing the importance of high standards in teaching and research”, [196, p. 131].

But the fact that members of universities knew that the reform was coming does not automatically translate into the positive attitude toward the change and the goals of the change.

It can also lead to the resistance toward the external pressure, as the members of the university can perceive it as an attack on the autonomy (“I’m not supporting this, and I don’t think that change is good for itself, and understand my colleagues...not only older, but my generation also, who resisted change as it was caused by the outside”, “Monika”).

The readiness for change among the members had to be augmented by the internal incentives, including constant dissemination of information on the goals and reasons for change. The argumentation and discussion were used to create a positive image about the reforms and as a tool to involve the members (“Looking back, I think the goals were well understood. Actually, I think that a significant fraction of academics was prepared to implement it”, “Jim”). Such efforts of the change agents is in line with the view that “a readiness effort involves convincing a collection of socially-interacting individuals to change their beliefs, attitudes, and intentions”[122, p. 3]. The key players invested a lot of time and energy into motivating the members of the university to not only accept the changes but to participate in the process and to get involved (“I think we focused on at least three main topics in our, I don’t know, 12-15 sessions that we had during several months. And worked our way through intense discussions, debates and consultations of available data through each of these three main goals”, Bob). On some universities, the change agents had a challenging task to overcome the scepticism arising from the unsuccess of earlier reforms, especially at UniLj and UMN. At UMN, leadership was convinced that reforms could succeed only if members of the university themselves were convinced (“We cannot start the necessary measures and their systematic and efficient realization without the personal belief in validity of the reasons and the correctness of the goals”, [196, p. 11]). Such persistence on the active participation in the change process is seen as a viable strategy among the researchers and is considered as one of the methods for rising the change readiness (Ibid, p. 4).

The institutional culture played a role in the overall level of readiness for change. NOVA had an institutional culture which was more open to the change, as it is relatively young university with the positive attitude toward changes in general. In such culture, it was easier for key players to create a sense of enthusiasm for planned change implementation. At UniVie, the national and international prestige played a role in accepting the changes and supporting the management. The members of the university were ready to accept the changes as they saw them as an opportunity to improve the position of their university (“And I would say by and large it was also the senate who was in favour of many of the reforms. Obviously, the senate was against all the reforms that would diminish its role, but as far as changing the curricula and

implementing the new structure, we tried our best.”, “John”). Interestingly, the students at UniVie were not so much in favour of the changes and were expressing their opinions very openly (“At that time, we had a lot of student protest this restructuring, not really rational protests, but more emotional protest, because there is a change, and the students were against it. Against any changes.”, “Mick”). One explanation for such attitude toward the modernization was that they were satisfied with the traditional type of doctoral education and were afraid of the new model (“Now, the difficulty in this direction was that PhD candidates, I mean, those who were there, actually liked to have this personalized relationship...”, “Fred”).

The situation was a bit different at UniLj and UMN. On UniLj doctoral education was not in the focus of national legislation, and international prestige was not the primary goal of the reforms. The UniLj was leading the change on their own initiative, while the legislation and the ministry followed what the university was doing. Thus, the readiness level was a bit lower when compared to the UniVie and NOVA. Most of the members of the UniLj did not take the reform very seriously, and they saw it yet another bureaucratic burden which could and should be avoided. The new criteria for re-evaluation of doctoral studies, developed by the leadership of the university, were initially disregarded, and considered as impossible to implement (“A lot of people didn't take that transition seriously, right, that was something to be done on paper.”, Monika). The explanation for this attitude could be looked for in the earlier numerous attempts to reform the higher education in Slovenia, which often failed or yielded poor results [203]. It could be that the members of the university were “fatigued” from the previous attempts to change, as the Bologna process was introduced at UniLj only several years before and was met with the stiff opposition “primarily on ideological grounds, based on the perception that Bologna is about “reducing the University to something that produces human capital” [17, p. 415]. Even more, the relationships between the faculties at UniLj were such that any attempt to start the interdisciplinary doctoral programmes (one of the goals of the reform) were met with stiff resistance and scepticism:

Let's say the big problem was sociology, then anthropology, then, one of the biggest stumbling stones, was religious science, so the religious science was part of that great interdisciplinary program that we somehow had to harmonize, not only very different faculties, faculty of Social Sciences and Philosophy, but also a theological faculty one of the three that they told me "you will not make it, it cannot be, we will never have a joint program. (“Monika”)

The case of UMN is somewhat like UniLj when we look at the level of readiness for change. The readiness for change was the lowest at UMN, when compared to other observed

universities. All interviewees at UMN expressed their opinion that the conservative elements on the university were strong and that the motivation for change was low (“But I was amazed by the actual quantity of conformism... there is conservatism on the university as an institution, a necessary, beautiful [conservatism], but [in this case] just a backward attitude, a benevolent attitude...”, “Monika”). As at UniLj, the negative experience with the past reforms contributed to the passivity and inertia of the members of the university who looked at the reforms with scepticism (“we have had so many remnants since the previous reform, as it failed, it was formal, it was only on paper, and brought the chaos, hyper-production, sustainability issue, financial crisis, whatnot...”, “Miranda”). Other factors added to the low readiness for change, for example the belief that the changes were imposed by the rectorate in an attempt to limit the autonomy and freedom of the faculties (“Everything that comes from the rector is perceived as imposition, and a blow to the freedom of the profession, and reforms are difficult”, “Frank”).

During the analysis of the data which fall under the concept “Readiness for change”, it became clear that this concept is closely related to another two elements of the conceptual framework. One of the related concepts is the “Institutional limitations and obstacles”, since the behavioural obstacles influenced the level of readiness for change resulting in low level of readiness for change. The concept is under the influence of the change management methods used by the change agents. Several codes were thus used in both concepts, for example the code “Create enthusiasm”, “Dissemination of information” and “Change of legislation”. The interconnectedness of these two concepts emanates from the fact that the change readiness can be defined as “organization’s ability to adapt to its environment with speed and skill” [69, p. 149]. Such ability is not a given thing which always exists in organization but must be created and stimulated by the change managers. In the case of doctoral education, the contextual factors and forces contributed to the creation of readiness (or unreadiness) for change.

8.8. Change agents

Table 16. Comparison of cases - Change agents

Case	Category	Main codes/Sub codes	Illustrative quotes
UniLj	Right choice of people	<ul style="list-style-type: none"> • Leadership's vision • Will for reforms • International experience • Role of luck • Personal motivation • Personal relationships 	<p><i>And then we made one type of group, pharmacy, medicine, chemistry, veterinary science, biotechnology, these were the people who had, who were not paranoid [Sic!], it is very important, and these people have concluded that one needs to connect in our brain and to make a [joint] program. ("Leticia")</i></p> <p><i>When they told me it was impossible, it was just a challenge... ("Monika")</i></p> <p><i>I know the North American universities, and I'm aware that the mentor is on the committee, I knew all that ("Leticia")</i></p> <p><i>We spent hours and hours, meetings and meetings, it was really a small war, yes, with a lot of good will, with this personal, somewhat friendly connections that were already established, because it seemed to be worth the effort. ("Monika").</i></p>
UniVie	Right choice of people	<ul style="list-style-type: none"> • Good academic reputation • Personal motivation • International experience 	<p><i>And then he would then find members of the senate who would be the same opinion as the rectorate, and so on. ("Douglas")</i></p> <p><i>And in particular in beginning we really managed that really distinguish researchers to go with the role of becoming the directors of study programmes, doctoral study programmes. Which helped us to have a key discussion about the quality for instance. So, these were the people who were not, whom you cannot argue against when it comes to quality. ("Tim")</i></p> <p><i>So, that motivated me, and I thought there was too little of that as I mentioned earlier in some parts of the university....and I thought that we should raise the level, do everything in order to do that. ("Tim")</i></p> <p><i>But of course, many of our researchers have been at abroad for a period of time. Many of them are somehow more or less familiar with the different systems, and many of the went to US, as previous rector for instance. ("Tim")</i></p>
NOVA	Right choice of people	<ul style="list-style-type: none"> • Good academic reputation • International experience • Personal motivation • Adapt to the culture • Leadership's vision 	<p><i>Vice-rector ["Jim"], he is more formal guy, but he is very well accepted, he is very good researcher, he has (inaudible) prestige. So, prestige runs the place here, too. ("July")</i></p> <p><i>Also, I was, you know, more involved in some international meetings, at the EUA and others, and I was also seeing how in other countries doctoral education was organized. ("Jim")</i></p>

			<p><i>Interviewer: So, it was you and [“July”] who were the main players in the creation of this doctoral school, or were other people involved?</i></p> <p><i>“Jim”:</i> Well, this was something that I proposed to the rector, the rector told me “yes”, I told him that I would need a person with the competence and the motivation to also help developing the project, and then we figured that “July” would be the perfect person for that, and then I started talking with “July”.</p> <p><i>And this people usually if they accepted that position were people with positive motivation, they were there to help and not to act as a counterforce (“Jim”)</i></p>
UMN	Right choice of people	<ul style="list-style-type: none"> • Leadership’s vision • International experience • Personal motivation 	<p><i>Since the beginning of the Bologna in 2000, I was an expert for the European Union in these problems ... first was Tempus ... we are among the first states of the former Yugoslavia ... so I was then in the EACEA I then worked on introducing the curriculum, I was a co-ordinator of five to six of these Tempus projects, so I know everyone in the region who dealing with reform and those thing. (“Igor”)</i></p> <p><i>I am otherwise inclined to the artistic-utopian movements and I believe that nothing can be moved without it. (“Miranda”)</i></p>

The main category which was created was the “Right choice of people”, as it encompasses the characteristics of the change agents. The analysis of the concept “Change agents” revealed some similarities between all examined cases when it came to these characteristics. The three characteristics were stressed during the interviewees and were common on all universities: the change agents had good international experience and international connections with the colleagues on foreign universities, personal motivation, and the vision on the goals of the reforms.

Those members of the university that were open toward the change and who were helping the key players had “the experience that somewhere, where we think they are doing the right things, they are doing the same things as we are”, “Monika”. This type of international experience helped to assure the notion that the reforms were not happening only at UniVie, NOVA, UMN or UniLj, but were instead a global trend in higher education (“I also had a chance to spent some time abroad, and, eventually, I was a professor in Germany...so I had more experience, I could see how important it is to be a part of international scene and so on”, “John”). The international experience of key players was also crucial factor in the successful transfer of good practices in doctoral education from the outside universities to the home institutions. Furthermore, the interviewed rectors from UniVie and NOVA were involved in the work of EUA-CDE and UNICA at the time of the reforms and were at the high positions in the leadership of those organizations. At UniLj, the key person (who was not the rector) was also very involved in the work of EUA-CDE. At UMN, the change agents had close connections with members of EUA and have included them in their team as external experts. Thus, all the key players had first-hand experience and knowledge about what was happening in doctoral education in the Europe and wider (“And I had the feeling that UniVie needs to be quick in order to be at...I would say, at the forefront of this kind of reforms, “Fred”). This finding is in line with the understanding that the cosmopolitanism is a factor related to whether innovations are adopted and continued or not [202].

The good academic reputation was mentioned at UniVie and NOVA as an additional characteristic of the change agents, which raised their credibility in front of other members of the university.

According to the interviewees, their general motivation for starting the reforms was to strengthen the university through modernization of doctoral education. The change agents then tried to adjust their personal motivation in line with the resources and the institutional culture

of their university. At UniLj, one of the motivations was to “To get well-educated researchers who are capable of thinking, to create knowledge in an inventive way and thereby help themselves and society... that's how I see doctoral studies, and I think we're working on it” (“Monika”). At NOVA, the reduction of university fragmentation and the “alignment” of doctoral education - which would lead to better performance and better research capabilities of the university - were stressed as the motivators for key players. On the UniVie, the improvement of international position of the university and its research strength motivated the key actors to start with the changes in doctoral education, but the reduction of fragmentation was also important aspect of the reforms. At UMN, the reforms of doctoral education were seen as a way to improve the research capacity of the university thus strengthening the national development:

Research and doctoral education are one of the focal points for the national Strategy. It clearly points out the national relevance of the University of Montenegro and its potential to perform a good quality research. [197]

The over-all idea on the observed universities was to keep up with the trends in doctoral education and to follow what the other, prestigious universities were doing in doctoral education:

Interviewer: What was your personal motivation to join this [reform]?
“Douglas”: *The international aspect. Well, I mean, all over the Europe changes were happening, and, I mean, I was at that time...no, I was no more UNICA president, but I was still in the steering committee of UNICA so I had a lot of contacts with other UNICA universities and...it was a, well, a good debate, and it was interesting.*

The core group of people starting and leading the change on all observed universities was small. The group usually consisted of the rector and two to three more persons, usually the vice-rectors. After this core group was formed, more members were then recruited in the extended group. The new members had similar views on the reforms, or, in some cases, even those who opposed the reforms were included in the group, so their opposition could be reversed. One curiosity was UMN, where the extended group of the change agents included international experts on doctoral education, due the fact that the reform was operationalized through internationally funded project. Although external experts were also included in the reform on for example UniLj, they did not have the leading role as at UMN and were not involved in the creation of strategic documents.

In all the observed cases, the support of the rector together with a dedicated vice-rector (usually for research) was highlighted as a crucial factor for the success of the reforms (“You see I did not mention that much the rector, but the rector was very important in the process. Because if I

did not have his full support from the very beginning, this would not have worked”, “Jim”). The rector was the starting point of the initiative for change, which is understandable due to the hierarchical organization and the power structure of the higher education institutions. But the exact role of the rector and his/her contribution differed from case to case. For example, the rector had a leading role at UniVie and UMN during the whole period of the reforms, but less so at NOVA and UniLj. On those two universities, other key players took the leading role once the reform was initiated, while the rector was assisting whenever needed (“I was not involved all the time, only when there was a problem, when there was something that I felt there was [a need to get involved]”, “Boris”). But in all cases, it was the rector who produced the idea to start the reforms that would include the whole university, even if some of the elements of the new doctoral model were already being implemented on specific faculties and were known to other members. They were the visionaries who managed to put together a team of motivated people, who would then proceed with the implementation of that vision:

With the coming of [rector], it's still is decentralized, but much more aligned because he created a new council called the Council of the deans, which is the heads, the nine heads of the nine academic units, and he head meetings I think every two weeks with them. So, he started in a formal way to align the programmes, the missions, and the activities of all the nine faculties. So, we are much more aligned today then we were before 2013. (“July”)

The plan to change doctoral education was often elaborated in the rector’s plans and programmes even before they were elected:

The Rector put special emphasis to support and further develop doctoral education at the University and within its faculties. In a Rector's programme it has been articulated a need to nurture postgraduate education as an important part of education itself, but also as an important impact factor for the society in whole
[197]

Personal relationships played a role in the reforms. As the core group of the change agents was fairly small on all observed universities, it is not surprising that some of the members were coming from the same scientific disciplines or faculties and knew each other, having collaborated even before the start of reform. For example, at UniLj two key players were from the same faculty, the Medical School. Those members who were recruited later and included in the process were in most cases selected as they were acquainted with the members of the core group:

I also had a personal affinity to [removed], because both he and I are members of the Austrian academy of Sciences. I had seen some of the reform work he had done

inside the Academy, so I knew that he is not only brilliant mathematician of high reputation, but also, I know that he is very good reform manager. (“Bob”)

As the time went by, personal relationships developed even among those members of the university who did not know each other but shared the same goals. Such personal connections brought more cohesion to the core group, better communication and assured that the members were on the same track when it came to the goals of the reforms.

Loyalty and commitment were listed as the two most desirable characteristics of the change agents, whether it was the leadership of the university (“you need a commitment at the top level of the university”, Douglas) or the team members involved in the reforms (“to have committed team, a competent team that understands this concept of multidisciplinary training at the doctoral level..”, Boris). In general, the interviewees stressed the importance of a right choice of people on key positions and in the key roles (“It is always this combination, that you have normal people in important places in the decision-making process, it is important... ”, “Monika”). The people were more crucial factor than the resources or the structure of the university (“I think it is not so much the structure or the organization, I think it is the people, its people that matter, “John”). Such reasoning is in line with the findings on the role of human resources in organizational change (see for example [186]).

8.9. Change management strategy and approach

Table 17. Comparison of cases - Change management strategy and approach

Case	Category	Main codes/Sub codes	Illustrative quotes
UniLj	Personal methods	<ul style="list-style-type: none"> • Regular discussions • Personal relationships • Negotiations • Argumentation as change strategy 	<i>We spent hours and hours, meetings and meetings, it was really a little war, right, with a lot of goodwill, I'm saying, with personal, somehow now even friendly established relationship. ("Monika")</i>
	Internal methods	<ul style="list-style-type: none"> • Gradual approach • Reducing the number of programmes • Using external examples • Using internal example • Top-down approach • Starting a doctoral school • Utilizing university bodies • Change of legislation (internal) 	<p><i>Things went from above... so there was no bottom up. ("Monika")</i></p> <p><i>But we worked so that the individual parts, individual decisions, were accepted by the Senate, and I had - until last year - I had rules on doctoral studies, the rules raised, and it was... I don't think people knew that we were going to get those rules and that the doctor school would do that, and what's going to happen to them. ("Anita")</i></p> <p><i>. ... since the law changed and in the law some things changed, so I had an alibi that matters at the universe. ("Monika")</i></p>
	External methods	<ul style="list-style-type: none"> • Role of EUA-CDE • Change of legislation (external) 	<i>EUA-CDE did give us good examples of good practice, there were meetings every year but not just that, they organized the so-called summer schools, or some meetings, conferences, small conferences, topics.... And these were the topics that were organized every year and we took part. ("Anita")</i>
UniVie	Personal method	<ul style="list-style-type: none"> • Argumentation as change strategy • Dissemination of information • Build coalitions • Negotiate • Reward enthusiasts • Unanimous decision • Use critics • Work in small groups 	<p><i>First of all, we worked in very small group, with the vice-rector for research vice-rector for education, I think the...director, general director of studies, I don't know what the English term is now for that...so it was a very small...and I think a head of curriculum committee of the senate...so it was a very small group of about five people which we called the "metronome group", because the idea was to give the beat...like, you know, from piano playing. ("Douglas")</i></p> <p><i>And if there is a possibility to reward early enthusiast, that would be wonderful but, very often it is not...does not exist. ("Douglas")</i></p>
	Internal methods	<ul style="list-style-type: none"> • Utilize existing university bodies • Create new university bodies • Top-down approach • Using internal examples 	<i>It was quite a big process in the wake of a new law that came into fact in 2002/2003 and one of the changes was the different structure of faculties as we called them. There used to be...long time ago there were only four as you probably might know, probably the same in your country, which was law, science.... uhm...and that there was this big change...so, from seven, number was increased to as far as I remember eighteen. ("John").</i>

		<ul style="list-style-type: none"> • Synergy with institutional changes • Change of legislation (internal) • Set general standards • Formalize plans and goals • Allow variations 	<p><i>So, presentation, the defence, the separation of reviewing, setting up the dissertation agreement, we had the progress reports, all this is stated in the statute and therefore valid for all doctoral programmes, which reduced a little bit the flexibility of the different disciplines. (“Tim”)</i></p> <p><i>Secondly, I think that university leadership should allow for different realizations according to different disciplinary traditions. There should, however, be some agreement on general standards, just general agreements on standards. Uhm....they can be realized a bit differently on different faculties. (“Douglas”)</i></p>
	External methods	<ul style="list-style-type: none"> • Political backup • Finances – stick and carrot 	<p><i>You need political let’s say backup, if you make reforms like [Removed] has done it, you need political backup, so...especially when there is a protest on the streets against you, that’s important. Talk about first, informally, with the political spheres, members of the parliament, members of the ministry, which ambitions you have, which plans you have, and try to get your back free of the resistance. (“Mick”)</i></p>
NOVA	Personal methods	<ul style="list-style-type: none"> • Argumentation as change strategy • Create enthusiasm • Include students • Negotiations • Work in small groups • Right choice of people • Dissemination of information • Adapt to the culture • Give and take • Create new PhD culture 	<p><i>Once the ideas are clear, as well as the mechanisms of participation, resistance is minimal. (“Jim”)</i></p> <p><i>...and I had been working here at the rectorate, creating the learning quality evaluation system. So, I knew everybody. And I have a good relationship with those who were in power at that time, I mean, who were in the sub-power, the vice-deans, the vice-heads of the schools, the heads of the quality system etc. (“July”)</i></p> <p><i>I think that you have to know the ground very well and to see how you can add value to what already exist. (“Boris”)</i></p>
	Internal methods	<ul style="list-style-type: none"> • Noninterfering • Create structure • Reduce fragmentation • Creating new university positions and bodies • Using internal examples • Administrative support 	<p><i>We said we need to have a doctoral school council, and in this council we need to have one person per faculty, a staff person, we need one person there, and then we also created a forum of students (“Jim”).</i></p> <p><i>Non-academic staff was part of the team and needed to feel involved as partners. Although there are different professional profiles within the non-academic team, the initial effort to operate in an apparently undifferentiated manner contributed to build the desired team spirit. (“July”)</i></p>
UMN	Personal methods	<ul style="list-style-type: none"> • Regular discussions • Negotiations • Transparency • Create new PhD culture 	<p><i>And then it went through with such a variety of mechanisms, pressures one by one, students, this faculty, that faculty, eventually only our faculty left. (“Frank”).</i></p>
	Internal methods	<ul style="list-style-type: none"> • Structural changes • State analysis • Use university bodies 	<p><i>We were structurally separating faculties, so we were merging some of the university units that emerged in that, let me say hyperproduction, which was once a moment, some kind of inertia, just an</i></p>

		<ul style="list-style-type: none"> • Top down approach • Reducing the number of PhD programmes • Change of legislation (internal) • Create strategy and action plan 	<i>inertia of development ... in the nineties, in the sense of a special kind of autonomy that resembles some developmental anarchy. ("Miranda")</i>
	External methods	<ul style="list-style-type: none"> • Role of EUA-CDE • Use of external authority • Links with external organizations • Change of legislation (external) 	<i>Through the Institutional Evaluation Program (IEP), the independent services of the European Association University (EUA) whose Report was focused on evaluation of the institution, not the organizational units individually, were evaluated in 2014 institutional structure, internal quality procedures, process decision making, the effectiveness of the strategic management, readiness to change and constructive work for quality improvement of higher education and research. [195]</i>

The concept “Change management methods” presents a main place in our research, as it describes how the process of change was applied on each of the observed university. This concept showed to be the most complex and rich with data, yielding largest number of codes of all other concepts. To simplify the presentation of detected change management methods, we decided to group them into three main categories which emerged during the analysis. These categories are personal methods, internal methods, and external methods. Criteria for deciding which of the change management methods falls into which category were the main target (what the methods wanted to change) and the source of these methods (who was performing these methods). The personal methods aimed at the members of universities and were used to gain their support for the change, or to reduce their resistance. The internal methods were aimed at changing the organization itself, whether in the form of structural changes, creating new organizational bodies and entities or using the existing ones. The third category of methods, the external methods, consist of those methods which did not originate at the observed university, but were used by the change agents in their attempts to change doctoral education on their home institution.

As we have already discussed in more details each change management method when we presented individual case, in this chapter we will focus on the cross-case similarities. During the analysis, we found that some themes and codes were common for all four examined cases. We will examine these similarities base on the four categories of change management methods.

8.9.1. Personal methods

The universities are types of organization where argumentation and discussions are used in everyday work, as it is the nature of academic work to constantly question and explore. Therefore, the key players understood that their goals and plans for reform need to be presented and explained to the academic community before any adoption and could take place. Hence, one common change management method was the argumentation and discussion. This method was used to clarify and explain the goals of the planned changes, to involve, and motivate the members of the university to join and support the reforms. Any other approach would prove to be ineffective and counterproductive. Such approach reaffirms the assumptions of cognitive dissonance theory according to which the members of an organization will start the change process only if they are motivated enough to do so and if they accept that the existing condition are such that they need to be changed. The members of the university will also adopt the changes if they believed that they had a choice to adopt or not [73].

There were several methods used to present the existing state at universities as non-satisfactory and thus needing the reforms. The comparison and benchmarking with the other universities was one of those methods, while the presentation of contemporary trends in European doctoral education, advocated by organizations like EUA or UNICA, was another preferred method for the change agents. The UMN used external authority to create an analysis of the university and to show that the reforms were needed. Such activities by the change agents assured that the introduction of changes had a backing from professional organizations and at the same time it assured the legitimacy to the change agents and their efforts.

Another group of personal change management methods used was named the “Negotiation”. The measures under this category relied on bargaining between the change agents and the members of the university, offering various kinds of rewards and incentive to those willing to support the changes. The negotiations also include the measures of subtle coercion for those who resisted and opposed them. Most used tool for negotiation at UniVie and NOVA was access to finances:

Interviewer: Do you know what kind of arguments did he use to convince them?
“July”: Money.
Interviewer: Money? Ok...so he was saying...
“July”: He was showing the sticks and the carrot.
Interviewer: But where did this money come from at that time?
“July”: It comes from the official budget, to the...because here at the university we receive the whole budget to be distributed for the schools. So, criteria were "are you having overlaps in your PhD programmes, so you won't receive the money"
Interviewer: OK, so the university receives the lump sum of money and then decides centrally where the money...
“July”: Who gets what, exactly

Comparable situation was observed at UniVie:

Interviewer: So, it was like, if you don't accept it, you don't get funded?
“John”: It was both. I mean, the budget might be cut if you don't comply with certain things, but at the same time we got the chance to get additional funds. It was the carrot-and-stick. And I think there isn't basic alternative to that, if you want things to change. (“John”)

Interestingly, the same method was not applied at UniLj due to the different mechanism of funding that was used on the university. At UniLj, the central administration on the university had a limited role in the distribution of the funds, while the faculties had much more influence than was the case at UniVie or NOVA. Thus, the rectorate at UniLj could not use the financing as a bargaining method for the implementation of changes in the same way as it was possible on those two other universities. At UMN, the bargaining based on the financial incentives could

not be used as the university did not have the access to finances which could be used as a leverage in negotiations.

8.9.2. Internal methods

The reduction of the number of existing doctoral programmes and the consolidation of doctoral education seems to have been a common agenda for all interviewed change agents. The state of play in doctoral education prior to the reforms allowed for hyperproduction and overlapping of doctoral programmes at universities, resulting in the situation where faculties were often offering similar doctoral education to their students with little or no diversification. The reduction of this fragmentation was high on the list of priorities on all observed universities, but the methods for achieving it were quite different.

Utilizing the university bodies for the implementation changes, either by using the existing ones (the e.g. the Senate, the deans, various committees etc.) or by creating new bodies, was used as change management method on all observed universities. The UniLj for example used the long-established commission for doctoral education but gave it more authority and power. The NOVA, UniVie and UM created new bodies dedicated specifically to doctoral education and put them in charge of doctoral education on the university level. By using the university bodies, the key players managed to achieve two things: firstly, they managed to present the change as a common interest for the university and not only as a personal agenda of few top-level members of the university. Secondly, by utilizing the formal university bodies, they managed to involve a wide range of people, even those who were at the beginning sceptical toward the change or who were openly resisting the change (“give them an active role even if they are little bit fighting you, like the person who was in charge of the curriculum commission, he was always very critical. So, we gave him an active role so that he has to deal with it.”, “Tim”). By using formal bodies, the members of the university were given a chance to take part and have a say in the decision making. Such strategy has also assured the longevity of the changes as the new standards and criteria were set up and backed by the dedicated university bodies and structures.

The new type of doctoral education needed new organizational units and structures and the doctoral school became one of those structures responsible for handling doctoral education. We must keep in mind that prior to the reforms, there were almost no organizational units at universities dealing specifically with doctoral education. On UniLj, the doctoral school was set as a first step in the change process, and it served as a main basis for later incremental changes.

While the doctoral school itself was a huge step in the direction of forming a new organizational type of doctoral education, it was little more than a framework when it started in 2009. During the following decade, that framework was slowly filling with more content, regulation, and interdisciplinary doctoral programmes.

The NOVA also implemented the doctoral school, and it was one of the main goals of the reforms. All the activities which offered “added value” for doctoral students were organized through the doctoral school. But the doctoral school was not the only newly developed organizational structure. The UniVie decided that the better approach is not to use an umbrella structure like doctoral school, but to offer the services for doctoral education organized in more traditional type of structure, the university centre. The UMN had plans for doctoral school but did not start one due to the limited time for the reform.

The change managers also relied on the existing good practices in doctoral education in their own institutions. It is important to note that at all observed universities, some changes were already taking place in doctoral education even before the start of the formal, university-wide reforms, although they were limited in scope (the UMN is the only case where interviewees did not mention any noticeable developments in doctoral education prior to the start of reforms). These changes were limited to the departments or, in best case, to the faculty level, and were specific for scientific field. For example, at UniLj, the doctoral programme in the field of biomedicine was introducing novel ideas and methods long before 2007:

We worked on an example of biomedicine, which was created long before doctoral reforms, we have had biomedicine for twenty years and we have seen it work. That's what we all saw. Actually, we had some model in hand, inside UniLj, and we concluded that, firstly, that it could be organized at university level, secondly, that we have the quality and that we just have to persevere, to spread it. (“Leticia”)

The comparable situation was seen at UniVie, where some departments were moving toward the new model of doctoral education before the university decided to start the reforms:

Of course, you could hint that there were some departments, for example the department of economics, that already had some kind of depersonalization. For example, we required all PhD candidates to participate in at least two PhD seminars, in order to make sure that there are some kind of common discussions. There were some developments in the sciences, and so on. (“Fred”)

At NOVA, changes were also happening during the period before the reforms, mostly focused on the skills development of doctoral candidates and internationalization of doctoral education.

For example, this experience of transferable skills development at her own department in the period before the reforms was very useful for the interviewee “July”, once the reform had started:

I did what I could with what I had and with the ideas I had on staff development. I mean, I have been doing that for my whole life, so really transferred what I was already doing at the medical school, because that is what I do at the medical school, I've been doing the transferable skills and transversal skills to doctoral for 20 years. (“July”).

Another common internal change management method used at all four universities was the change of internal regulations and legislation. The change of legislation included new university statutes, new regulations on doctoral education, and the change of national laws on higher education. Although they are not legally bounding, we included in this category of change management methods the creation of various university strategies and action plans since they did give leverage to the change agents. Furthermore, on all observed cases the plans to change doctoral education were included in the programmes of the rectors.

8.9.3. External methods

The experience and practices from the foreign universities were widely used and transferred during the process of conceptualizing and implementing the reforms on all universities that we examined. The earlier work experience, together with the key player’s personal and professional connections, allowed them to easily connect with their colleagues at favoured universities, getting advice and sharing best practices. Using external examples further strengthen the credibility of the change agents and their ideas on the reforms. It also informed the members of their universities on the trends in doctoral education. The international experience of key players affected the decision which university would be used for comparison and as a role model. The choice of universities which were used as external examples was deliberate, as only those models that were in line with the ideas of key players on observed universities were selected. The UniVie used the examples from other German-speaking universities, but also from United Kingdom and United States universities. The latter universities were used as models at UniLj also, while NOVA focused mostly on UK universities as the models from continental Europe did not fit into their vision of reform.

The case of UMN differs a bit from other three as UMN did not use a specific foreign university as a role model. Instead, they were using a general model of doctoral education advocated by the Salzburg principles and the EUA-CDE (“The UMN should be included in the EUA program

for doctoral studies and adopt the benchmark, criteria and good practice, according to the recommendations from the EUA document for doctoral studies”, [196, p. 141].

Although the change of national legislation was not under the direct responsibility of the change agents, it was nevertheless an important change management tool. The change of national legislation in all four countries was the result of the Bologna process and was used as a justification for changes of the university regulations. It was even used as an alibi for starting a doctoral school (“In NOVA Lisbon University, the implementation of the Bologna process has given rise to an awareness of the importance of doctoral education and the need to support both students and supervisors during the PhD. In this context, Doctoral School were founded in this institution” [192, p. 538]).

8.9.4. Summary of the change methods

We will now try to develop a simplified typology of all encountered change management approaches. The comparison of all cases revealed that each case had its own specific and distinctive approaches to the implementation of the reforms. This was expected as we knew that the key players in the reforms were working in a very different contextual settings and with different institutional cultures, having to adjust their change management strategies accordingly. The NOVA and UniLj took the path of somewhat slow and incremental changes, while the UniVie and UMN opted for a more radical change which included deep structural rearrangements and the change of the whole organization of the university.

The typology was made using three variables: 1. the scope in which the recruitment and involvement of members of the university took place, 2. the depth of the changes, and 3. the pace or duration of the reforms. Based on these three variables, we summarize four typologies based on these features in Table 18.

Case	Typology name	Scope	Goals of changes	Duration	Involvement and participation	Key features
UniLj	<i>Gradual</i>	Broad	<ul style="list-style-type: none"> • consolidation and alignment of programmes • Integration and centralization of doctoral education • Improvement of international position, interdisciplinarity and research excellence 	Very long	Limited	<ul style="list-style-type: none"> • incremental and minimal changes accumulating during the prolonged period • relying on legal and administrative framework and support (e.g. Senate) • high level of resistance
NOVA	<i>Non-interfering</i>	Limited	<ul style="list-style-type: none"> • consolidation and alignment of programmes, without the centralization • increase of skills of and improve the collaboration between academic units 	Long (two phases)	Broad	<ul style="list-style-type: none"> • added value to doctoral education • absence of formal and official reform, especially in the 2nd phase of reforms • limited normative and prescribed elements • not interfering with the internal matters of the academic units • relying on the “carrot and stick” methods of persuasion • low level of resistance
UniVie	<i>Avalanche</i>	Very broad	<ul style="list-style-type: none"> • consolidation and alignment of programmes • centralization and integration of doctoral education • improvement of international position of the university and its research excellence 	Short	Broad	<ul style="list-style-type: none"> • wide-spread mobilization of resources and personnel • deep structural changes going with the reform • top-down approach • political backing • medium level of resistance
UMN	<i>Step-by-step</i>	Very broad	<ul style="list-style-type: none"> • complete restructuring of doctoral education • Improvement of university and research excellence • strengthening the integration of the university 	Short	Broad	<ul style="list-style-type: none"> • wide-spread mobilization of resources and personnel • planned approach in several steps • deep structural changes which follow the reform • top-down approach • political backing of the reforms • relying on external authority • very high level of resistance

Table 18. Typologies of changes

8.10. Results of the change process

Table 19. Comparison of cases - Results of the change process

Case	Category	Main codes/Sub codes	Illustrative quotes
UniLj	Results - positive	<ul style="list-style-type: none"> • Quality (result) • Structuring of doctoral education • Reducing the number of doctoral programmes • Doctoral education as prime topic • Clear rules • Role of doctoral education in integration • Internationalization 	<p><i>The dean does not have to tell the professor, "you're not appropriate", but the university committee says so, this one's not appropriate. And nobody knows him/her, they just say you can't be a supervisor. And that's a little easier, and then the faculties already made an effort not to send something to the committee that is not ready. ("Leticia")</i></p> <p><i>We have from approximately 140 programs came to 21 programs, because we have connected them interdisciplinary. ("Leticia")</i></p> <p><i>The same study conditions for doctoral students of all disciplines accepted at institutional level were published as university document in 2008. ("Leticia")</i></p> <p><i>But this structure, that ECTS loans are given for organized form work with students, that there are lectures, that there are seminars, this is new. ("Monika")</i></p> <p><i>I think that what's good at UniLj is that it became a top theme, so I don't remember discussing the doctoral study at 90s very much. It was not a top theme, but not it. become and it is a nice legacy of several rectors who have put it high on the priority list, and it will surely lead to something. ("Monika")</i></p>
	Results - negative	<ul style="list-style-type: none"> • Bureaucratization 	<p><i>And I don't like it, I don't like wasting time on formalisms, I think it's not good, that it's not necessary, that it doesn't lead anywhere. ("Monika")</i></p>
UniVie	Results - positive	<ul style="list-style-type: none"> • Reduced drop-out • Reduced number of PhD students • Quality (result) • More responsibility • Create new structure • Doctoral education as prime topic • Create new PhD culture 	<p><i>Well, I think that by and large we have managed to get...uhm...doctoral degree holders of much better quality, with much more international or internationalized view.... on things. ("Douglas")</i></p> <p><i>Clear decision process, making decision making process much easier, much more transparent, because now you know who is responsible for what. ("Mick")</i></p> <p><i>To talk about doctoral education, to talk about the quality of supervision, but also to have a kind of transparent discussion about the data, success rate, completions rate, dropout rates, is now possible. ("Tim")</i></p>
		<p>Faculties – loss of power</p> <p>Full professors – rise of power</p>	<p><i>And, I'm sure Fred told you about that the application of that reform was only possible because we decided to (create) new foundation of the university. So, we are starting from the scratch. ("Mick")</i></p> <p><i>As far as the money goes, we tried to encourage the faculties to go for external money, European money or research fund money...unfortunately, there has developed certain degree of bureaucracy, that seems unavoidable to some extent, I'm not sure whether it's too much or not. ("Douglas")</i></p>

	Results – negative	<ul style="list-style-type: none"> • Over-formalization • Number of faculties • Low chance of academic career • Lack of supervisors • Bureaucratization 	<p><i>I think there is still not enough PhD advisors, particularly not in the quantitatively challenged fields such as the social sciences...there is still not enough PhD advisors who care about financing. (“Bob”)</i></p> <p><i>What is problematic is top opportunity for doctoral graduates. The....uhm...chances to stay at the university are not particularly high, and there is a lot of hire and fire, and I’m not sure if this is, in the long... if this is particularly good. (“Douglas”)</i></p>
NOVA	Results-positive	<ul style="list-style-type: none"> • Create new PhD culture • Develop new skills • Structuring of doctoral education • Reducing the number of PhD programmes 	<p><i>We have nine physical locations, so one of the concerns of the university was really to work on the perception that each one of us, either staff or student, have about university itself, and I think doctoral school contributed very much for that. (“Jim”)</i></p> <p><i>I think that the profile of the research, of the PhD students changed, we have data because we have yearly event where they present the results and its very interesting from their presentations how multidisciplinary they are thinking, (inaudible), so I think that it was, it is evaluated by them, it was a success. (“Boris”)</i></p> <p><i>Now, with the curricula every doctoral programme has curricula here, and same rules concerning the supervision. Things are more aligned. (“July”)</i></p> <p><i>There were a lot of overlaps, and it took him, to his project and to the meetings to the rectors, the overlaps between doctoral programmes within one faculty, and among them. So, people decided, no, this is to shut, I’ll transfer the students to these new programmes, and he reduced a lot, a lot the number the doctorates that we could offer (“July”)</i></p>
	Results - negative	<ul style="list-style-type: none"> • Limited Results 	<p><i>They are not at all controlled to tell you the true, because...I don’t know...I think you know that our doctoral school is not...it’s an umbrella school, but is has nothing, nothing to do with the programme. (“July”)</i></p>
UMN	Results - positive	<ul style="list-style-type: none"> • Structuring of doctoral education • Create new PhD culture Quality (result) • Clear rules • Language skills • Writing skills 	<p><i>Realizing the urgency for reforming its doctoral studies, in February 2015 the University of Montenegro adopted the new rules of doctoral studies which are clearly structured and have an emphasis on research. [197]</i></p> <p><i>And that something has been achieved here in just three years, that we have moved some atmosphere, on the university, because we did something that was not there, which was an alphabet, but simply did not exist as an atmosphere before. (“Miranda”)</i></p> <p><i>I am pleased as people began to write, they started searching for journals, they started to ... it was sometimes very rare, that they knew languages, started to speak languages, a competent generation was made. (“Igor”).</i></p>
	Results – negative	<ul style="list-style-type: none"> • Brain drain (result) • Bureaucratization • Increase of criteria (negative) 	<p><i>However, at the same time it has been repeatedly noticed by different members of the University, that the system did not prepare enough for change, sometimes is too rigid, without acknowledging discipline differences and it has tendency to become too bureaucratic. [197]</i></p>

In this part of our research, we will summarize the findings on the achieved results of the reforms. Not surprisingly, all interviewees that we talked with agreed that the results of the reforms were mostly positive and that the changes of doctoral education were successful. The actual measurement and assessment of the success or the failure of the reforms in quantifiable way was not possible due to the complexity of such measuring. Another reason was the lack of the comparable data, due to the brief period since the formal end of reforms – for example, the reform at UMN ended in 2017. Therefore, the evaluation whether the reforms succeeded or not is made solely on the interviewees' opinions and their belief of the success or failure.

Despite this limitation, we managed to create two categories of achieved results, based on the coded data – positive and negative. Several codes appeared during the analysis of the data which were common for all observed cases and presented the positive results of the changes. Primarily, the formal structure of doctoral education has been changed and strengthened by introducing various new organizational forms, for example the doctoral school (UniLj and NOVA) or structured doctoral programmes (UniVie, UMN). These new organizational forms resulted in increase of institutional responsibility, much clearer and transparent “rules of the game”, and have given better institutional support to the doctoral candidates overall:

The fact that the PhDs were organized in PhD programmes, first allowed the students to know exactly which rules were established, give also the supervisors the perception that this was not strict one-to-one process but others will be involved, also for the students in many cases it was the chance to contact with other students in the programme. (“Jim”).

All interviewees agreed that the overall quality of the doctoral candidates and the doctoral thesis was improved because of the reforms (“Well, I think that by and large we have managed to get...uhm...doctoral degree holders of much better quality, with much more international or internationalized view.... on things.”, “Douglas”). The exception here is NOVA, where due to the limited character of the reforms, changes did not affect the academic units and their doctoral programmes. Instead, the quality was improved in the domain of the generic and transferable skills of doctoral candidates, while the quality of doctoral programmes stayed out of reach for the university administration.

It seems that the reduction of the PhD programmes was one of the main goals of the reforms at the observed universities. The number of doctoral programmes was reduced at two observed universities (NOVA and UniLj). The interviewees from UniVie and UMN expressed their opinion that the reduction of doctoral programmes was less than what was desired or planned.

Overall, the consolidation and harmonization (or “alignment”) of existing capacities for doctoral education emerged as common and recurring theme in all cases. Such results are in line with the goals of the reform of doctoral education on the global level, where achieving the critical mass is set as one of the goals [33], [34]

At UniVie, UMN and UniLj, and to a less extent at NOVA, the universal rules and regulations on doctoral education were enforced through the change of internal legislation, and the minimal quality standards have been set up. Because of these changes at universities, the power relationships shifted, and some stakeholders increased while others lost their power. At UniVie for example, the power of faculties

was diminished considerable. At least at paper, it always depends a lot on the personalities, but their power was reduced. Also, inside the faculties, the institutes, their power was reduced, not by as much as rector would have liked, but there was a substantial reduction. (“John”).

Apart from the institutional loss of power, the change also brought re-distribution of power for the individuals, especially the doctoral supervisors. Until the reforms, the supervisor was the key person in the one-to-one relationship with the doctoral candidate. With the new organizational forms, rules, the new mediatory bodies and the introduction of multiple supervisory teams, this individual power of the supervisors was lost to an extent:

The other reason was of course that the role of individual professors became less important. It was more of a team effort. I mean, you still had the main mentor or supervisor, but you had to present your work to a full committee and defend it there. So, I think that was also some of the problems that...some of the very old school professors did not want to give away this privilege. They felt outdated, to some extent for a reason. (“John”).

The new, more strict criteria for supervision, which set higher threshold for PhD supervisors, created a sense of loss among those supervisors which were declared unfit:

“Leticia”: The second was the criterion for supervisors, you know what it is, supervisors had to have in a period so much and so much [publications]...

“Anita”: In five years

“Leticia”: Five years, it means that today, when I am retired, and in recent years I do not publish anything, and I would think of myself God knows what, I cannot [supervise] anymore. This is crucial... and this was for supervisors hard to accept, you know... that they are no longer worthy for...to is difficult to comprehend

“Anita”: These were regular professors in a position that had no conditions for a supervisor.

“Leticia”: And they could not appoint him a supervisor, it was difficult and painful.

Not all planned goals of the reforms were achieved, and some interviewees expressed their concerns as to how much did the things change. At NOVA for example, the lack of insight into what is happening on academic units on doctoral education stayed an issue for central administration. Furthermore, the overall impact and scope of the reforms was somewhat limited (“I think that we could have done more on building a more rich programme, not only the transferable skills courses, that is one thing”, “Jim”). At UniVie, the number of faculties - and consequently, the doctoral programmes - remained relatively high despite the efforts from the management to reduce and consolidate them. On UniLj, the faculties remained strong and the aim to set up more interdisciplinary doctoral programmes under the central university coordination was not achieved in fullness. Moreover, the scope of the reforms in doctoral education at UMN was considered limited, and the question was raised by one interviewee as to “how deep did we manage to go” (“Miranda”).

The reforms had some unexpected results for universities and the change agents, which were in most cases undesired and unplanned. One common theme emerged during the analysis of the data, which was named “bureaucratization” of doctoral education and the university. The theme depicts the effect of centralization of performance monitoring of doctoral education, whether the university is doing this monitoring itself or is done by some national quality assurance agency. In both cases, it includes over-formalization of procedures and rules at the expense of quality and research ability of the university. Bureaucratization can be related to strengthening of the external agencies in higher education. Such strengthening was most prominent in the case of UMN and UniLj, where newly established national QA agency oversaw the quality of doctoral education.

At UMN, the bureaucratization was the result of a new set of regulations, procedures, and steps in awarding the doctorate. Although they were introduced to increase the quality of doctoral education, these changes were considered by some as unnecessary burden and formalization (“My opinion is that this reform has been reduced to some kind of administration. Let’s improve the rulebook. OK, we will improve the rule book, let’s make it a little more bureaucratized, let’s make it more serious”, “Frank”). At UniVie, the bureaucratization was caused more by the internal reasons than the outside interference. The attempt to centralize and formalize doctoral education had a side-effect of strengthening the central university administration, which “has taken over more and more, you know, like, many courses and programmes outside the core programmes of the academic institution were still monitored and had to be accepted by the senate” (“John”). Another aspect of bureaucratization, which was especially visible at UniVie,

was linked to the overall goal of applying to European projects and receiving the external funding:

As far as the money goes, we tried to encourage the faculties to go for external money, European money or research fund money...unfortunately, there has developed certain degree of bureaucracy, that seems unavoidable to some extent, I'm not sure whether it's too much or not. ("Douglas")

Bureaucratization of universities is a well-known and explored phenomenon [181] which, despite all the efforts to avoid it, is still present and in this case a unwanted side-effect of the reforms of doctoral education. Unsurprisingly, the bureaucratization can be linked with the attempts to measure and quantify the outcomes of the Bologna process [9], which was noted by "Monika": "So, I think that's the worst part of the Bologna process. So, it's a system of bureaucratic force. It is very bad, it is bad on all levels, and certainly on the doctoral level".

8.11. Summary of the cross-case comparison

Based on the conducted cross-case comparison of acquired data in the previous chapter, we provide a summary of all examined concepts for each case in Table 20.

Table 20. Summary of concepts

Case	Concept								
	Sources of change	Involvement and participation of members of the university	Institutional limitations and obstacles	Institutional structure	Institutional culture	Readiness for change	Change agents	Change management strategy and approach	Results of change process
NOVA	<ul style="list-style-type: none"> The Bologna process caused changes in the PhD structure Strengthening of the autonomy of the university and stronger role of the rector The main ideas were developed bottom-up at the university and not transferred from professional organizations to the university. 	<ul style="list-style-type: none"> Prominent level of involvement and participation (academics, staff, students), due to the bottom up approach used Representatives from all academic units take part in the management of doctoral school 	<ul style="list-style-type: none"> Decentralized university with geographical dispersion Strong faculties with own internal regulations Organizational culture emphasizing autonomy Only formal role of the rectorate finances 	<ul style="list-style-type: none"> Emphasized distributed nature of the university Limited role of the rectorate Strong faculties 	<ul style="list-style-type: none"> Decentralized university Strong faculties with weak central control Strong emphasis on autonomy of constituents due to historical reasons Inclination toward change and novelty Open to the society and community 	<ul style="list-style-type: none"> Sense of inevitability of change due to legislation change Impact of the Bologna process Synergy with national changes 	<ul style="list-style-type: none"> Small team of key players Involvement in professional organizations Academic reputation Intrinsic motivation Personal relationships among key players 	<ul style="list-style-type: none"> “Non-interference” policy with minimal changes Argumentation and discussion Using external examples Added value as main argument Bottom up more than top down 	<ul style="list-style-type: none"> New skills developed Created new PhD culture The formal structure has been strengthened “Rules of the game” much clearer Increased multidisciplinary More responsibility Better alignment
UniLj	<ul style="list-style-type: none"> The creation of the doctoral school was happening parallel with the adoption of the Bologna process. Centralization of power at the expense of the faculties strengthened autonomy of the university The key persons were active members of professional organizations. 	<ul style="list-style-type: none"> Low level of involvement and participation of members of the university due to the top-down approach Limited to dedicated university bodies (Doctoral commission), and Senate (although passively) 	<ul style="list-style-type: none"> No university-wide mechanisms to effectively employ the change initiative Heavily distributed organization with independent faculties Senate holds the most power Conservative attitude Finances 	<ul style="list-style-type: none"> Emphasized decentralized nature of the university Strong faculties and strong Senate Limited role of the rectorate limited role of external stakeholders 	<ul style="list-style-type: none"> Flagship national university in Slovenia Comprehensive university Strong faculties Differences between faculties and scientific fields 	<ul style="list-style-type: none"> High scepticism toward change Lack of coordination and cooperation between the faculties Not taking the change seriously Fatigue from past reforms Synergy with international changes 	<ul style="list-style-type: none"> Small team of key players International experience Involvement in professional organizations Intrinsic motivation Personal relationships among key players 	<ul style="list-style-type: none"> Slow progress and incremental changes Argumentation and discussion Using external examples Doctoral school as main tool for change Limited participation of members of the university 	<ul style="list-style-type: none"> Doctoral education became a prime topic The formal structure has been strengthened The number of doctoral programmes has been reduced radically Minimal common standards for quality have been accepted “Rules of the game” much clearer Loss of individual power Bureaucratization

									<ul style="list-style-type: none"> • Created new PhD culture?
UniVie	<ul style="list-style-type: none"> • The Bologna process served as an external pressure to change doctoral education. • The position of the rector was strengthened • The university became more independent from the ministry • The key persons leading the change were at the same time also the leading persons in professional organizations 	<ul style="list-style-type: none"> • High level of involvement and participation from different levels and university bodies, including the students and even the critics • As the reform progressed, more people were involved 	<ul style="list-style-type: none"> • Fragmented university • Multiple centres of power (the Rector, the Senate, and the University Board) • No unique university culture • Conservative attitude • Finances 	<ul style="list-style-type: none"> • Centralized university • Multiple sources of power • External stakeholders have high importance (e.g. ministry and industry) • strong role of the rector 	<ul style="list-style-type: none"> • Flagship national university with long tradition • “Conservative” university • Differences between faculties and scientific fields 	<ul style="list-style-type: none"> • Sense of inevitability of change due to legislation change • Impact of the Bologna process • Role of culture of excellence (prestige) • Synergy with international changes 	<ul style="list-style-type: none"> • Small team of key players • International experience • Involvement in professional organizations • Excellent academic reputation • Intrinsic motivation • Personal relationships among key players 	<ul style="list-style-type: none"> • Dynamic, substantial, and fast change • Argumentation and discussion • Using external examples • Political backup of the reforms • University-wide recruitment and engagement • Top-down dominant 	<ul style="list-style-type: none"> • Loss of power for faculties • Bureaucratization • More responsibility • Increase of quality • Over-formalization • Doctoral education became a prime topic • The formal structure has been strengthened • Created new PhD culture • “Rules of the game” much clearer
UMN	<ul style="list-style-type: none"> • The Bologna process served as an external pressure to change doctoral education • External authorities were used as a catalyst for change • Economic crisis at the university • Country was joining the EU 	<ul style="list-style-type: none"> • Wide array of stakeholders was included • Dissemination of information played huge role • High emphasis on the awareness for change • Phenomenon of “False participation” 	<ul style="list-style-type: none"> • Heavily distributed organization with independent faculties • Senate holds the most power • Political differences • No unique university culture • Conservative attitude • Finances • Limited time 	<ul style="list-style-type: none"> • Emphasized distributed nature of the university • Limited role of the rectorate • Strong faculties • External stakeholders have high importance (e.g. government) 	<ul style="list-style-type: none"> • Flagship national university • Pronounced differences and inequalities between faculties and scientific fields • Strong emphasis on autonomy of constituents due to historical reasons • Fatigue from past reforms 	<ul style="list-style-type: none"> • Sense of inevitability of change due to legislation change • Impact of the Bologna process • Synergy with national changes • High scepticism toward change 	<ul style="list-style-type: none"> • Small team of key players • International experience • Key role of the rector 	<ul style="list-style-type: none"> • Detailed preparations with well-developed phases • Relying on external authority • Political backup of the reforms • University-wide recruitment and engagement • Top-down dominant 	<ul style="list-style-type: none"> • Strengthening of formal structure and legal background • Created new PhD culture • “Rules of the game” much clearer • Increase of quality • Over-formalization

9. Conclusion

9.1. Reflexion on the expectations of the study

In this section we will revisit the three expectations of the study postulated at the beginning of our research and see how the results of our research correspond to them. As a reminder, we will repeat the expectations of the study here:

1. We expect that the change process in doctoral education will be less successful if it was not backed by the changes in the mission, strategy, and the strategic goals of the university (Exp1).
2. We expect that the change process will be less likely to succeed if it was not aligned with the decentralized institutional structure and culture of HEIs (Exp2).
3. We expect that the change process will be more likely to succeed if the change agents created prominent level of change readiness among members of the university (Exp3).

1st expectation of the study

In the Burke-Litwin model for change management in organization, which was used as an inspiration for our own conceptual framework, organizational strategy is one of the four transformational variables. The other three transformational variables are the environment, leadership, and the culture of organization. The changes in the environment of organization affect the organizational mission and its strategy, together with the leadership and the culture of organization. These transformational variables then affect the translational variables in the model: management practices, system and the structure of organization. The transformational and transactional factors together impact motivation, which, in turn, affects performance of the organization [110, p. 78]. The transformational variables have more “weight”, which means that only communicating the goals of change or only embarking on the concrete change management methods, is not enough to change the organization. Fundamental or radical change can only be achieved if the mission and strategy of organization, together with the organization’s culture, are changed. To succeed in fundamental change of organization, change agents must therefore align the new culture of organization with its organizational strategy (and *vice versa*).

The first expectation of the study is thus linked to the practice of strategic planning and the strategic management of change at universities. The classic account of strategic management

by Miles and Snow [204] argues that organizations will perform better if their structure follows their strategy. It is necessary to adopt the appropriate internal structure and processes, achieving “a fit between the strategy being pursued and the internal characteristics of an organization” [205, p. 62]. Therefore, strategic planning in organization includes changes at the conceptual level, usually the change of the organization’s strategy, vision and mission [206]. Lack of strategic planning is one of the factors for failure of reforms, leading to demotivation and absenteeism [69]. But backing the changes with strategic planning does not mean that the implementation of change will be without difficulties – such strategic planning is by default broad and does not deal with the intricacies of the change management practices.

For the first expectations of our study, we found that at each observed university, the newly elected rectors included the change of doctoral education as a strategic goal in their programmes. Furthermore, the key university strategic documents mentioned doctoral education as a priority in the overall development of the university and in the development of research capacities. We also found that the strengthening of the research capacity was linked to better quality of doctoral education, and that all change agents at observed universities saw doctoral education as an important element in developing this capacity. On UniLj, doctoral education was recognized in the development strategy of the university as a valuable tool and “organizational form” for fully exploiting the research potential existing on various faculties. The complete reorganization and modernization of doctoral education was thus stated as a strategic goal of the university [170]. At UMN, the systematic development of doctoral education was set as a part of the university strategy based on the SWOT analysis and on the work of internal and external experts [196]. At UniVie, the leadership tried to include their new vision of doctoral education in the strategic documents of the university and in its development plan several years before the reforms started (“First of all, I think that...university needs a very clear strategy with goals for research development and in connection with that, doctoral education. That’s I think...you need a commitment at the top level of the university, and, in fact, implicitly suggested, this strategy should be fixed in some documents, and so on.”, “Douglas”). At NOVA, the creation of doctoral school in the second phase of reforms was stated in the strategic plan by the rector of the university (“...the rector even wrote in strategic plan, the creation of doctoral school, doctoral school was elected by him as such an important project that this was written in his strategic plan for the university”, “Jim”).

The reliance on the strategic documents in the change process, and the need to formalize plans and goals of reforms, can be explained by the need of change agents to legitimize their efforts

and the change itself. The university is the type of organization that relies primarily on the formalization of behaviour to achieve coordination and standardization of its work [31]. If the goals of change are stated in the key university documents, then it becomes much easier for the change agents to put their ideas into action. Such practice also helps creating better readiness for change among the members of the university. Their understanding and acceptance of the changes is increased if they are introduced to the changes and have reached the consensus on the goals, which happens for example during the adoption of the university strategy by the Senate or some other university body.

Although we did expect that the plans for change would be at least addressed or mentioned in the new visions and missions of some of the observed universities, we were surprised to see that all four universities included doctoral education as their priorities in strategic development plans and in the rectors' programmes. This inclusion of doctoral education in the strategic planning of universities is interesting as most universities are not set up with a strategic planning capacity [207, p. 470]. It is therefore surprising that in all four cases, the change leaders were able to recognize the changes in the environment which put new demands in front of universities and reacted accordingly by emphasizing the need to change doctoral education. It seems that the characteristics of the key players in change, for example their international experience and the involvement in the work of professional associations, played a role in this formalization of the goals of reforms. This of course does not mean that the results of the change would inevitably be better if they are formalized, but at least it shows that the reforms are taken seriously by the leadership of the university and that they were given due importance. It can also lead to better longevity of the reforms.

2nd expectation of the study

The relationship between the organizational culture, readiness for change, change implementation process and the results of the change process has been widely discussed in the literature [115]. In order to achieve a successful change effort, there is a "requirement to work systematically with the set of values, beliefs and behaviours that 'embody' organizational culture to enable change to occur" [208, p. 74]. Some postmodern approaches, for example the Culture-Excellence school, emphasize the importance of organizational culture by stating that, in order to create successful organization, managers in organizations must create strong, unified and appropriate culture for organization [73].

What type of culture is dominant in any organization depends on several factors, with structure of organization being one of the most important (ibid.). But that does not mean that there is only one type of culture in organizations. In fact, many academic cultures at universities exist at the same time, and – as we have seen in our research - they are primarily determined by the scientific fields and the tradition of universities. They are also determined by the decentralized structure of organization, since universities are made of distinctive constituent units, whether they are called academic units, faculties, or colleges. The organizational structure, culture and the organization itself should not be thought as independent variables, but rather interdependent [208, p. 80].

The second expectation of the study is built on the understanding of universities as highly decentralized structures with distinct cultures which coexist simultaneously, and which can create resistance if intention to centralize and formalize the university is applied from the top. The common approach of the university leadership to organizational change is the imposition of control by more standardization of the working process or the standardization of the university products. Recent events and trends in doctoral education, whether started by the state, professional associations or the university itself, represent such an attempt to standardisation of the final product of doctoral education process, which is the Doctor of Science. The intention to have the system of doctoral education as tightly regulated and monitored can be seen as a broader attempt to impose external control over individuals who form the university, aiming to centralize and formalise the structure of universities.

The question is, how well the change agents on observed universities realized the relationship between the structure, culture, and change, and how well they adapted their approach to the decentralized nature of the organizations they were planning to change. What we can say with certainty is that in the cases we examined, this awareness was well proven at NOVA, where it resulted in change approach which was limited due to the heightened decentralization of the university. At other observed universities, change agents were aware of the existence of diverse cultures in doctoral education and were proposing change measures and structures which respected these differences. The exception here is UMN, as it is a case in which the change agents tried to introduce new, mutual criteria for quality of doctoral education, not considering that some disciplines might react unfavourably if they were forced to follow the criteria which were common to other disciplines. In the case of UMN, the criteria which was used was more common to the technical and natural sciences, and not to the humanities and social sciences. The result was a rigid system which did not acknowledge the discipline differences and “had a

tendency to become too bureaucratic” [197]. The created inequalities were one of the sources of resistance to change, even though the first goal of the change agents was positive - to raise the quality of doctoral education.

On UniLj, NOVA and UniVie, the change agents were aware that the levelling of criteria would be a mistake, and that some differences between the disciplines must be kept. Thus, another approach was used. The minimum of criteria was set for the whole university, which still allowed that some faculties and doctoral programmes preserve their disciplinary specifics:

Secondly, I think that university leadership should allow for different realizations according to different disciplinary traditions. There should, however, be some agreement on general standards, just general agreements on standards. Uhm.....they can be realized a bit differently on different faculties. (“Douglas”)

At UniLj, the differences between the faculties and fields were pronounced, but the change agents decided to introduce the minimal criteria (similar to UniVie approach), thus reducing the possibility of resistance. At NOVA, the whole change process was characterised by being non-normative and relying on offering added value to the academic units instead of common criteria and regulations. Although the regulations for doctoral programmes were approved in 2007, due to the diversity of scientific fields and requirements, each unit defined its own internal regulations, such as the classification of general and specific scientific areas, the duration and management of the doctoral studies, scientific supervision and thesis committees and rules to be followed for the public defence of the thesis [187].

A key finding from our research is that change agents are more successful when they align their strategies with the institutional culture, and that in cases which this alignment is not achieved, or is achieved to a less degree, implementation of change can be met with great resistance.

3rd expectation of the study

When trying to answer the 3rd expectation of the study, it became clear to us that the concept of the change readiness was difficult to isolate from other observed concepts using the proposed methodology. In other words, it was difficult to assess the change readiness using interviews as main methodological tool. The change readiness of the members of the university in the change process showed not to be a static concept existing detached from the change process itself, as we presumed in the beginning. Instead, it showed to be a part of the change management methods and was intertwined with them.

According to the theory of organizational change readiness, readiness for change has been defined as an individual's "beliefs, attitudes, and intentions regarding the extent to which changes are needed and the organization's capacity to successfully undertake those" changes" [122, p. 681]. Common agreement is that the change agents should try to raise the level of change readiness before embarking on the task of changing the organization. According to Lewin, "key issue for successful change management is how change agents can unfreeze the current state or in other words, how employees' readiness for change can be increased" [93, p. 96]. The goal of unfreezing is to minimize the likelihood of resistance and non-co-operation [121]. Role of change agents is not only to plan and implement change, but to create conditions, including organizational structure, climate and workforce able to identify the need for change and ready to implement it [73]. But in three out of four cases that we examined, there was no substantial initial phase during which the creating readiness for change took place, or using the terminology of Kurt Lewin, the unfreezing phase in the change process was almost non-existent. In the case of universities which we examined, the unfreezing, or the preliminary phase of change during which the change agents inform other members of the university on the goals and reasons for change, was at the same time part of the second phase of change, which was moving to the new level.

One reason for this occurrence could be the collegial nature of universities, and the democratic approach to decision making. To introduce and start with the reforms, the key players had to consult the other members of the university through various university bodies, for example the senate or the boards of deans, discussing the plans and methods for change. Such approach is different than the approach used in, for example, companies, where the change agents – usually the CEO – try to mobilize collective support by building and shaping awareness across organizational members regarding the existence of, the sources of, and solutions to the organization's problems [122]. But the wide participation and involvement of members of the university in the creation of the main ideas and plans for the reform was not detected during the analysis of the data. Instead, only the core group of key players had a clear idea why and what they wanted to achieve and what could be the workable solutions. They then embarked on the process of change dealing with and building the readiness for change as they went.

Even more, a certain level of readiness for change existed at universities unrelated to the efforts of key players to create it. As we have seen, the Bologna process played a significant role in creating readiness for change, as did the new national regulations, prestige, or the understanding among the members that the existing doctoral education was just not on the

satisfactory level and that it was not following the contemporary developments in Europe and the world. Therefore, we can say that the overall organizational readiness for change was high on all observed universities, although on the level of individual or the work group (for example, the faculty on specific university), this readiness did not have to be on the same high level. Instead, the key players used various change management methods to circumvent the low level of readiness of some members of the university or units, whether by coercion, bargaining, “carrot and stick” methods, or relying on the standardization and formalization using regulations.

Specifically, in the case of UniLj, the key players did use the external experts as the conveyors of the novel ideas on doctoral education, explaining the benefits of new type of doctoral education to their colleagues. But this step came *after* the introduction of the main vehicle for change on the university, the doctoral school, which was set up by the decree of the rector as very first step in the reforms. The efforts of change agents to increase the change readiness, which came after, were in the service of easier acceptance of all other changes. Similar development was observed at UniVie, where the main goal was to push the university in the direction of the reforms as quickly as possible, and the wide involvement and participation of different stakeholders, and thus the increase of readiness for change, came after the initial events of restructuring the university.

The exception here is UMN. The leadership decided that the increase of the readiness for change should be the first step in the process and has devoted significant amount of time to explain their motivations and the goals of change. Of all observed universities, the UMN had the most developed “unfreezing” phase, due to the realization of the key players that the conditions on the university were such that a transition to a new type of doctoral education would be difficult. In other words, they realized that the level of readiness was low and tried to increase it through various methods, mostly by giving the information on the current trends in doctoral education and the benefits of the new type of organization. But even though the UMN invested a lot of effort into enhancing the readiness level, the results were not as planned. In fact, the effort backfired at the key players, and their effort to include the members of the university in the reforms were seen as false and done only to give an illusion of participation. Therefore, although the UMN presents the only case in which the change agents tried to create high level of change readiness before embarking on the reforms, this effort did not create the desired effect. On all other observed universities, the readiness for change was influenced by the forces originating outside of the university. Therefore, our 3rd expectation of the study

proved to be difficult to assess, as we cannot easily distinguish between the readiness for change created by these outside forces, and the readiness for change created only by the change agents. What is clear though, is that even in the case of carefully planned change like UMN, the change readiness cannot be easily created by the change agents if the capacity of the organization for change is not high enough. Organizational capacity for change is influenced by and related to factors and conditions like organizational policies, human infrastructure, institutional culture, structures, history and values [8]. If all these factors and conditions are not considered, there is a danger that even the best planned effort to raise the readiness for change can fail.

9.2. The Burke-Litwin model and the change of doctoral education

One of the goals of our research was to develop a conceptual framework for analysis of change in higher education inspired by Burke-Litwin model, using the example of reform of doctoral education. In this chapter, we will see how our findings relate to the Burke-Litwin model of organizational performance and change. Additionally, we will compare the provisional conceptual map conceived in the preliminary phase of our research with the findings from all four cases and see how the results affect the main concepts and their relationships in the conceptual framework.

In the Burke-Litwin model, the transformational factors are the external environment, leadership, culture, and the strategy of organization [64]. The authors suggest that interventions aimed at improving the transformational dimension of their model of organizational performance and change should first be tried before considering undertaking changes at the transactional level in order to bring about genuine change in the overall effectiveness of an organisation's performance.

Following the Burke-Litwin model, we presumed that the major factors in the changes in doctoral education were originating from the context of universities, or their environment. For private companies, the organizational external environment means outside conditions such as marketplace, financial conditions, competition, or customers. In the case of universities, these conditions are, as the results have showed, mostly the change of legislation or the political circumstances.

What we have found during our research supports the assumption from the Burke-Litwin model that the external environment has the most influence on change. The major factors for change of doctoral education were the Bologna process, changes in the national higher education

systems, national legislation change and the wider changes in doctoral education supported and carried by international professional organisations. The universities and the change agents saw an opportunity in Bologna process, to go with the changes and use the momentum created by the Bologna. The Bologna process played a vital role in creating the readiness for change, as the members of the university were expecting that the changes of doctoral education were next in line, especially since doctoral education was recognized as a third cycle of higher education in policy documents. Although the changes were developing on some faculties and departments, based on the results of the data analysis we could not assume that these isolated pockets of change would in the end resulted in the university-wide reforms of doctoral education.

All these external factors have contributed to changes in doctoral education systems, leading to harmonization of higher education systems in Europe through the establishment of the common field of higher education area (Bologna process). As a side note, concern exists about the efforts that occur at the political level, and that is the tendency to solve problems in doctoral education using a common, unified approach for all universities, without considering the differences between them. It is also clear that there is a high possibility of failure of reform if the reform has not been agreed among stakeholders and implemented in cooperation with the academic community and the professionals who make up the community. Instead, some authors propose a strategically oriented review of doctoral education [209], meaning that solutions cannot be imposed from outside of the academic community and the university, rather that all participants of the process of doctoral education should participate in finding the solutions.

Nevertheless, using the data acquired at all four universities, we can observe a gradual shift toward an increasingly more external approach in the management of universities, where different stakeholders have increased influence over the decisions being made in higher education. This is described in the literature as a “shift away from the traditional mode of academic self-government and toward new models of managerial self-governance” [15, p. 25]. The extreme example for such external approach is UMN, where even the task of evaluation of the university is given to the external, international accreditation agency. But universities are known for their institutional culture which is autonomous, and this characteristic is inseparable from the academic culture. Such culture resists the external pressures for change and sees them as a priory negative. The reason lies in the understanding of members of the university that those who are “outside” of the university cannot truly understand the essence of

the university, the way it functions, and are seen as a bureaucratic pressure (even though the people working in external organization can at the same time be employed at the university). Despite these negative connotations of external pressure for change, there are some upsides. For example, the organizational readiness for change can be improved if the requirement for change is backed by the change of national legislation.

According to the Burke-Litwin model, the external environment in turn affects the structure of the organizations, but also their vision, mission, strategy, culture, and leadership. Our results support this logic. At all four observed universities the new structures were introduced, and the old ones were either abandoned or changed. Examined universities went through a complete organizational change. For example, at UniVie, several new faculties were created as it was the time of the Bologna process and universities had to adapt. Even in the case of NOVA, the university was – in the first phase of the change – adapting to the structure of Bologna, with the three cycles of education - that prepared the ground for changes. Moreover, new university bodies were created dealing specifically with doctoral education, for example the UMN started the Centre for doctoral studies, NOVA and UniLj started the doctoral school – to offer institutional support to changes. New model of doctoral education, the one that started in the second half on 2000s and has its best expression in the policy documents like Salzburg I and II, relies on some type of centralization or integration of the university, whether it is curricular, financial, centralization of quality assurance, or structural centralization in the form of doctoral schools. The organizational structures of doctoral schools have been suggested to increase the quality, to raise the efficiency, and at the same time to stay accountable. In most cases, the creation of doctoral schools was one of several initiatives in universities for improving doctoral education. The demand for the centralization and the strengthening of the university's vertical organizational structure, together with the strengthening of the position of the rectors, is itself is a consequence of neo-liberal ideology and the quest for the accountability of universities, but to discuss this is out of the scope of this research. Furthermore, in all four cases, the changes were backed by the changes in national regulations, whether they changed the status of the rector, means of financing universities, quality assurance systems etc. That also prepared the ground for change – it gave the change agents an „alibi” for the changes.

The external environment affects the individual and organizational performance and effectiveness, but – as is the case with all relationships in the Burke-Litwin model – the relationship is bidirectional. The organizational changes affect the external environment, and the best example for this are the professional organizations. The professional organizations in

higher education rely on this exchange and sharing of best practices, so the initiatives and even the policy changes are created bottom-up, through the participation of the various stakeholders in higher education. In the case of doctoral education, the interplay between universities, change agents and the professional organizations was a constant exchange of information and practices, which were simultaneously created, shared, and modified in practice at universities. It is a way how the academic community functions. The key European policy documents on doctoral education, which influenced the reforms at universities, were created based on the information and the feedback from universities themselves. Thus, there is a constant interaction and a feedback loop between the external environment and the individual and organizational performance of universities, and sometimes it is difficult to clearly separate those two factors in the change process. Such finding is in line with the Burke-Litwin's understanding that the members of the organization can influence their organization's environment through "lobbying activities, forming or being involved in trade associations and coalitions" [64]

The organizational culture, another transformational factor in Burke-Litwin model, was also targeted for change in all four examined cases. Although we cannot say that the entire organizational culture of the university was changed (we lack the data for such claim), what is certain is that the change leaders wanted to change the PhD culture, a subculture on universities related to how doctoral education is being done. Since doctoral education is quite different type of education and is not comparable to the first two cycles of education, it has a distinctive culture characterised by independent research and relationship with the supervisor. As with the change of structure of doctoral education, the new model of doctoral education needs changes in the culture of doctoral education. Otherwise, new features of doctoral education that we identified in Chapter I, for example the achievement of critical mass, interdisciplinarity, team supervision or supportive institutional environment, would be impossible to implement. Different methods were used in creating a new culture of doctoral education. For example, at UniVie, the *Initiativkolleg*, a new type of structural doctoral program that served as an example of excellence, was introduced. Other methods included additional support services for doctoral education using a newly established centres for doctoral studies (including support in writing the doctoral thesis proposal, transferable and generic skills training, project writing, etc.). These methods contributed to the creation of an entirely new culture of doctoral education and a sense of belonging for the students.

The last transformational variable in the Burke-Litwin model, the leadership, is related to the leadership style, practices, and values. Again, in all four cases, the start of the reforms was

linked to the change of university's leadership. The new leaders had different views on doctoral education and its role in the research output of the university, but also on its role on the integration and prestige of the university. They were the *transformational* leaders, as they managed to influence employees' attitudes and gain the support for changes. They achieved this by simultaneously participating in the work of professional organizations and by implementing the new ideas on doctoral education on their home institution. That gave them the necessary knowledge and the credibility in the eyes of their colleagues.

To summarize, we can say that changes in doctoral education were *transformational* on all four observed universities, as the transformational variables were affected and changed. The transformational variables refer to those areas in which alteration is usually caused by interaction with environmental forces, and which therefore require entirely new behaviour sets on the part of organisational members [111]. One thing must be noted here: it was not possible for us to evaluate the improvement of the individual and organisational performance due to the changes (see "Limitations of research"). The goal of every change is of course to improve the performance of organization. In our case, we must rely on the opinion of interviewees that the performance has, in fact, changed for the better.

9.3. Conceptual framework for change management at universities – revisited

Hypothesized framework

According to Kezar [8], when researching change in higher education, researchers do not consider the distinct features of higher education institutions when comparing to other types of organisations. Instead, the models of change from other disciplines or those used within other organisational types are applied to higher education, without consideration of whether this transference is appropriate. The main reason why these models fail to accurately capture the essence of the change process in higher education institutions lies in the fact that higher education institutions belong to a different type of organisation. It is the distinct characteristics of higher education institutions that hinder the usefulness of standard change models in change management practices, making them unsuitable for practitioners of change, or, in a worst-case scenario, resulting in failed attempts at change and damage to the institution.

Following this reasoning, in the provisional conceptual framework, we used for analysing the change in doctoral education, we started with the nine concepts derived from the literature. Like the goal of Burke-Litwin model, our goal was to provide a framework including the key factors for successful change and how these concepts should be linked. The first or the top level

in our conceptual framework consisted of four concepts, the context of change, institutional structure, change agents and the institutional culture. Those four concepts follow the logic of Burke-Litwin model and represent the transformational factors influencing the whole organization and having the largest impact on the organizational performance. Although in the original Burke-Litwin model the concept of structure belongs to the transitional variables, based on the extensive research on the literature in organization theory and change in doctoral education, we decided to move the concept to the top level of our framework.

In the middle of our conceptual framework lies the change management strategy, representing a central point of our framework and connecting the upper half with the bottom half. The bottom half consisted of four concepts, the involvement and participation, readiness for change, institutional limitations and obstacles and the results of the change.

The presumed logic behind the framework was as follows: any change management strategy will depend on the institutional structure, culture and the type of leadership or the change agents. These will in turn be affected by the context of change, or the external environment of universities. The first four concepts are static – they are fixed in the moment of deciding on the change management strategy. Any selection of strategy must work with the context, structure and culture, and decide on how to best use them to achieve the results. The culture of organization depends on several factors, but one of the most important is the structure of organization [92]. Therefore, we inserted a two-way connection between those two concepts. The context of change, or the tradition, history, and the environment in which the university is embedded has an impact on all three top-most concepts in our framework. The structure of university is determined by its history, among other factors, while the culture of the university is also affected by the tradition and is expressed in the vision and mission of the institution. In turn, the structure of university affects the change agents. The power, role, and the ability to implement the changes are all determined by the structure of the university, or the formal position of the change agent in the hierarchy of the university. As we have seen, this position was strengthened by the neo-liberal tendencies in the higher education policies, so the role of the rector for example became more important than before. But this change came with the change of the structure of universities, with the new bodies being introduced and new responsibilities for the leadership.

The bottom half of the framework consist of dynamic concepts, which can be manipulated and influenced by the change management strategies. Although they are also to a degree fixed in a

specific moment, they can still be increased or decreased (Involvement and participation, Readiness for change) or avoided (Institutional limitations and obstacles), depending on the change management strategies. We presumed that the institutional culture will have impact on the institutional limitations and obstacles, as culture is seen by many authors as decisive factor in determining the collective responses to organization change [123]. The institutional limitations and the involvement and participation of members of the university were hypothesized to have a two-way relationship with the selection of the change management strategies. The reciprocity in this relationship comes from the fact that the change management strategies can and will affect the level of involvement in organization, and the change agents will have to deal with the institutional limitations, finding ways to circumvent them. In return, these factors will limit the availability and the effectiveness of change management strategies, or, if the wrong strategy is chosen, will have negative impact on the results.

In our hypothesized conceptual framework, the readiness for change has the most impact on the results of the change, as it “determines whether employees support the change project or not” [93, p. 97]. It is the most dynamic factor in the framework, since it is under the direct influence of the change agents. But all other concepts of our framework impact the results of the change, either directly or indirectly (for example, the culture of organization “works” through the institutional limitations and obstacles, creating resistance to change).

Modified conceptual framework

After we conducted the analysis of the data and the comparison of all cases, several new relationships between the concepts emerged.

The first modification to the framework comes from the role of structure in change – while we presumed that the culture of organization will have impact on the institutional limitations and obstacles, it became clear that the structure of universities was in fact presenting a far more influential factor. It was the specific departmentalised structure of universities, its segregation into semi-autonomous constituents, which was forcing change agents to choose specific change management strategies to circumvent the resistance arising from this organizational structure. Codes which appeared during the analysis and which belong to the overarching concept of “Organizational limitations and obstacles”, for example codes “Traditional elements”, “Differences between faculties and fields”, “Resistance to integration”, were the results of such structure of university. According to the Burke–Litwin model, there is a causal relationship between the variables with transformational variables having a stronger effect on the

transactional ones. Structure “may or may not affect the total system” (Ibid., p. 529), but in the cases that we explored, it was the fundamental part of the reforms and the change management strategy, clearing the path for implementation of other change elements. In our case, it could not be said that the change only affected the structure, but rather that the change in structure made the change possible, and even served as a warrant against a backlash from the conservative elements.

Secondly, and due to this impact of structure on organizational limitations and obstacles, the connection between the structure and the culture of universities was even more pronounced. Although the connection between these two factors is a well-known fact in organizational theory [102], we were surprised to see how deep this relationship was at universities. The most common form for the link between the structure and culture, and its impact on any change effort, can be seen in the differences between the various scientific disciplines and the PhD micro-cultures, or the different views on how the doctorate should be obtained and valorised. In all four cases, the change agents had to deal with these differences in PhD cultures and invest time and resources into finding university-wide solutions to harmonize different views on the matter.

The structure of university had another impact which was not hypothesized in the first iteration of the conceptual framework. Due to the hierarchical division of the organization, with multiple sources of power – which do not always correspond to the formal hierarchy – and due to the horizontal distribution of power determined by the structure of the university, the concept “Involvement and participation” was also influenced by the organizational structure. Some authors suggest that change in higher education should not be imposed from the outside, rather it should grow more organically from within [92], and that the involvement and participation of the members of the university should be high. Similar to that idea is the understanding that the change in higher education should be bottom-up or grassroots, since their organizational structure is not the same as those found in business or some other hierarchical organization (Ibid.). Our research did not find evidence to support this understanding. Although we agree that the organizational structure of universities is different from the structure of organizations in business sector, our results show that precisely due to this organizational structure the bottom-up change was not possible on examined universities. That is not to say that bottom-up change cannot happen at universities. As we have seen, some changes were taking place in departments and faculties before the start of official change. But for universities which share the same tradition in the development of organizational structure, in our case the continental

type of organization with several faculties and central service, it becomes difficult to spread the ideas of change among all the constituents, due to the earlier mentioned differences between the faculties and scientific fields. In such organization, a strong central figure is needed to initiate and lead the changes from the top.

Connected to this issue of structure and the type of possible change is the hypothesised “loose coupling” phenomenon. Essentially, it is the ability of organization to create a gap between its formal structure and its actual work activities. The concept of ‘loose coupling’ helps to understand why many organizations, including educational institutions such as universities, continue to work using familiar routines and practices despite waves of policy reforms and environmental pressures to change. Universities use this coping strategy to deal with the pressures from the environment – they adopt new formal structures as they are needed by the external factors but retain the established way of doing things because the formal authority structures do not accurately represent where power resides [8].

Going back to the issue of change at universities, loose coupling can lead to different intensities and results on individual components of the university. For example, at UniLj the reform had different impact depending on the scientific area and the faculty. Some faculties adopted the change more intensively than other faculties. Thus, the organizational structure of university is such that it can contribute to the uneven effect of reform, which does not have to be same for the entire university. Result is that change can be avoided, even though it is formally accepted and adopted at the university, but at the level of specific faculties and departments, there may still exist different modes of action and performance in doctoral education. The actual loosely coupled structure of the university can be a major obstacle to complete organization reform. The specifics of individual faculties, and even more the areas of science, present obstacles for uniform implementation of reforms. Change agents can change the organization of doctoral education, but the university can still keep the practices that existed before the new organization was introduced. At the same time, the change agents must consider these specifics during the reforms and modify the main goals of the reform (to alleviate the criteria, for example).

Another interesting issue which was not presumed in the preparation phase was observed during our research on the structure of universities and its role in change process. At universities, the change agents must follow the formal hierarchical structure of the organization when introducing and implementing their ideas on change, and this structure includes several decision-making bodies and levels. Therefore, the involvement and participation in any change

effort is determined by the existence of these bodies and levels. For example, at UniLj, the change agents had to follow the formal hierarchy which included the deans, vice-deans, faculty councils and doctoral programmes councils. All these bodies had to be involved and informed, and the clear directions had to be given to the members by the change agents. If any of the hierarchical instances were avoided, the resistance to change would surely increase, as members of the university would feel left out of the process.

In general, for any change in the university, it is necessary for the university bodies to take part if reform and change agents want to have legitimacy, and this is one of the uniqueness of the university. Thus, universities are odd organization – although the change can only come from the top, the academic community must be consulted and informed, and the change agents must achieve wide involvement and participation. In all four examined cases, the change agents were having extensive consultations with the academic community, and were “touring” the university, holding meetings with the representatives of faculties, departments, doctoral programmes and other relevant university bodies. Otherwise, members of the university can react if their opinion is not heard or considered.

Involvement of members of the university in the reform process, from the beginning, planning to execution, is a key element of reforms. University members want to be involved in all elements of change, due to their sense of belonging to the organization, but also due to the academic culture in which every change affects the sense of value and quality of the work done. University culture is fundamentally determined by the need to discuss all issues in detail at the various bodies of the university. This fact determines the methods on how to best implement the reform - by discussing, arguing, and through persuasion, which is the characteristic of the academic sector. Contrary, when the change is introduced by imposing the form and bureaucratizing the university, the resistance of members is more likely to happen. Likewise, if the change is to be introduced by the leadership but without enough and necessary argumentation, discussion and persuasion, resistance will arise. This finding is in line with the Mintzberg's [31] understanding that the true power of the university lies not with the rector and other members of the strategic top, but by the professionals who make up the professional working core of such organizations - and these are the university professors.

The second modification of our framework came from the increased importance that the context of change has on several factors in the conceptual framework. In the initial version, we presumed that the context of change or the environment would impact the structure, culture

and the change agents themselves. During the analysis of the data, it became clear that this impact is much more profound than what was anticipated. As an example, the context of change - in our case primarily the Bologna process - had an impact on the readiness for change as it created a certain sense of inevitability of change. The readiness for change was increased just by the fact that the members of the university were expecting that doctoral education is next in line for change, as they have experienced the changes on the bachelor and master's level. But in the same way that the context enhanced the readiness for change, it also impacted and even created several obstacles and limitations for change. As we have seen in the cases of UniLj and UMN, the members of those universities were exhausted from the previous reforms caused by the Bologna process and were expressing their scepticisms toward the planned change of doctoral education. Thus, the context of change played a double role, as the enhancer of readiness for change, but also as a limiting factor.

The context of change had an even bigger impact on the overall change process, through the mechanism of isomorphism, together with the normative and mimetic pressures exerted through the professional associations. We will use the example of UniLj here, although any of the four universities could be used. The isomorphism in the example of Ljubljana was applied by following the trends in the higher education, as a "self-explanatory" fact that doctoral education was changing in the world and that this change should be followed in the university as well. It was not questioned whether this change is necessary or not - it was "self-evident" that it is necessary. The reasons for the change were not discussed and debated (because there is no need for it). Instead, the talks with the members of the university were about the improvements which the change of doctoral education would bring to the university, and what will happen if the change does not take place (for example, lagging behind other universities, loss of prestige, marginalization, etc.). Mechanism by which isomorphism is realized in academic community is through arguments, because of the academic community's ability to function on arguments - if the change is well argued, then the reform is likely to be accepted. By following the trends, universities are siding up with a change that has started elsewhere and did not start at the university itself (in the case of examined universities, examples of US and UK universities were used). Consequently, the phenomenon of change at universities is largely characterized by mimicking what is happening "elsewhere", as long as this "elsewhere" is a more successful university or a more respectable university (a feature that depends on the quantifiable results of that university).

One consequence of such mimetic pressure is that universities “are now challenged by globalization process which tend to redefine them [their values and core features] on whole new basis and which are clashing (or may be clashing) with the traditional institutionalized values” [101]. Nonetheless, for our purposes it was more important that the impact of isomorphism in the context of change was on the change agents, and their change management strategies. The most obvious example presents the case of UMN, which used the services of EUA-CDE to carry out institutional evaluation of the university, thus effectively siding with the new form of doctoral education that was, to a large part, developed by the EUA-CDE as the dominant professional association in the field of doctoral education. Similar development is observed by some authors in whole higher education sector, where “individual institutions are urged to incorporate the new archetypes by the normative and mimetic pressures exerted on them via comparative- evaluative studies carried on, for example, OECD, and by coercive and mimetic pressures produced by IMF or World Bank requirements” (Ibid., p. 502).

We agree with Burke and Litwin’s statement that “finding exceptions to the causal implications of the model does not detract necessarily from its usefulness” [64]. We do not claim that there is one universal change model for higher education, since there are just too many variables in the process of change in this sector. Instead, we have attempted here to provide the conceptual framework for the conceptualisation of change in higher education in line with the premises of the Burke–Litwin model. The results of the analysis showed that the upper half of the conceptual framework, the four transformational variables, had the most profound effect in the process. The university’s mission and strategy were changed as part of and due to the reform process, and the goals of the reforms regarding doctoral education were formalised in the statutes of universities. The leadership of the university played a crucial role in the reform, both as initiators and practitioners of the reform. The culture of the university – at least those parts related to research and doctoral education – had to be changed, and the old ways of doing things therefore had to be abandoned or profoundly adjusted. The research also showed that the external environment influenced and determined the results of the reforms through the mechanisms of institutional isomorphism. The conveyors of isomorphism were the change agents, transferring the latest trends in doctoral education to their home institution, thus contributing to the homogenisation of the sector.

We present the modified version of our conceptual framework in Figure 6 below. We have marked the new relationships among the concepts in green colour.

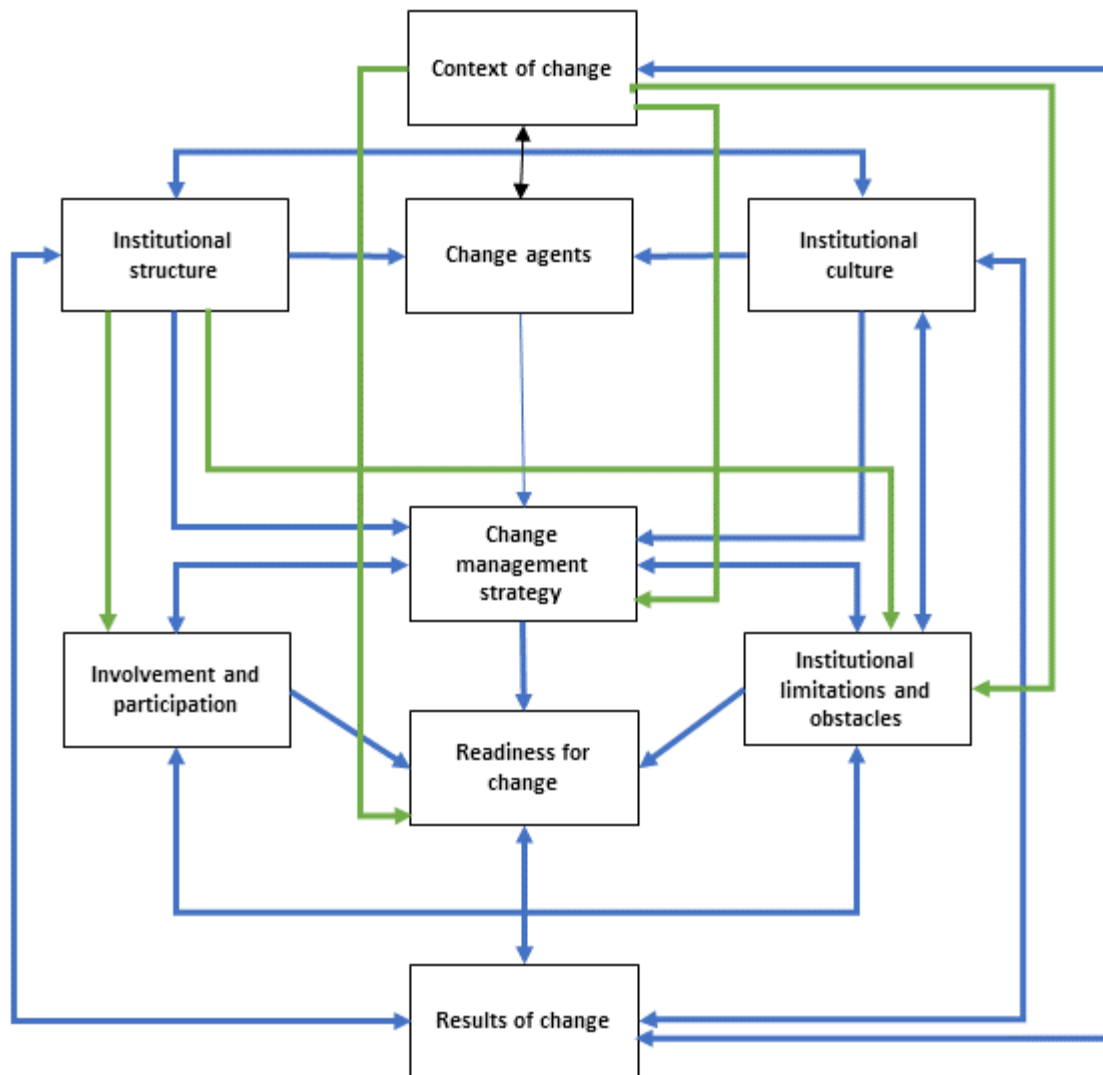


Figure 6. Modified conceptual framework

9.4. Change of doctoral education – avenues of thought

There are many types of universities with different traditions and cultures, from collegiate university in the Anglo-Saxon tradition, to the continental type of university with faculties and the rectorate which serves as a central service. Consequently, there are many types of organizational structures existing at universities, reflecting their traditions and cultures. The transition to Salzburg-based type of doctoral education, or any similar type of doctoral education which includes interdisciplinarity, central structure and close collaboration between different areas of science, can be difficult for universities which do not have the ability to quickly adapt to the changes in the environment and to create new organizational forms. Traditional systems and structures, with isolated academic units and low level of interaction, are not flexible enough for the new model of doctoral education introduced in the mid-2000s.

Question is, does such a model of doctoral education fits to all universities? If the university has not already managed to change its doctoral education (e.g. does not have a doctoral school or some similar form of structured doctoral education), usually there is a good reason for such situation. The reasons can be different, whether it is the tradition of the university which prefers one type of doctoral education, power relationships that limits the possibilities for change, lack of interest for change among the members of the university, lack of integration among the faculties at the university, or the lack of strong leadership that wants to embark on the process of change. Whatever the reasons, it means that the resistance to change is too high, and that the level of readiness is too low. Should the change agents push the change despite all this? The change can often be interpreted by the members of the university as a personal agenda of few change agents, usually the newly elected rector and his/her team. There are a lot of trends in academia, the so called „academic fads” [128], and the members of the university are especially sensitive to any change or reform which is done for the sake of itself. Forcing wrong structure on the base which cannot sustain such structure can lead to catastrophic results. It results in waste of energy and time, but more importantly, it can create negative perception of otherwise positive trends, and prevent any future changes.

Closely related to this question is another issue with change in doctoral education: is the change of doctoral education possible even if the whole university does not change? In all observed cases, universities went through a complete organizational change. For example, in UniVie, new faculties were created, and the old ones merged, as it was the period of Bologna process and universities had to adapt to its requirements. Even in the case of NOVA and its minimalistic approach to change, the university was – in the first phase of the change, at least – adapting to the structure of Bologna, with the introduction of the three cycles of education - that prepared the ground for changes. Moreover, new university bodies were created dealing specifically with doctoral education. The UMN started the Centre for doctoral studies, NOVA and UniLj started the doctoral school, while UniVie created a dedicated university service centre for institutional support.

These changes created a new culture at universities. Following Buller’s understanding that many change processes fail “because they start in the wrong place: by trying to change the organization without first trying to change the organizational culture” [92, p. 173], we have found that the culture of the university is a key part in change, whether it simplifies and aids the process, or it hinders the efforts of change agents. The institutional culture at NOVA and UniVie made a process of change simpler. The members accepted the changes more readily,

as at NOVA they were more open to changes due to the tradition of the university, while at UniVie, the institutional culture was defined by the national and international prestige, again making the transformation easier. But the institutional culture at UMN and UniLj, with strong autonomy of the constituent units and lack of trust in the leadership created many obstacles for reformists.

Another question that appeared during our analysis was whether the radical change of doctoral education can be successful even if the national higher education is not changed. Like in the earlier question of radical transformation of university, in all four cases that we examined, the changes at universities were backed by the change in national legislation, whether they changed the status of the rector, means of financing universities, quality assurance systems etc., adding to the change readiness. They gave the change agents an „alibi” for the changes („it is written in the law!”). To answer this question, we must distinguish between two types of change, the incremental and radical change. A good illustration of incremental change is the case of NOVA, in which the changes did not affect the deep structure of the university, but only added to the improvement of the quality.

UniVie is a good example of radical change in doctoral education. University had a strong rector with a clear vision of changes, good international connections, while the political and economic atmosphere at that time was such that it supported the „push” of university. The level or readiness was high – members of the university were aware that the existing situation was just not sustainable, and the „prestige” played a factor in readiness level. Overall, the conditions for change were ideal. Furthermore, the context of changes was in favour of changes - the changes in doctoral education that we examined in our research were happening since 2006 or 2007, the Salzburg declaration was drafted in 2005 and overall it was a period when very intensive theoretical and practical developments in doctoral education were being introduced. Therefore, the changes did not come only from the university. Furthermore, the country was becoming more competitive, as it was facing competition from other countries in Europe, so the government saw an opportunity in the reform of higher education.

Can this type of radical change be repeated in times and circumstances when the context is not so supportive? Aside for the change in national legislation, by „context” we also mean the ability of the country to absorb the new doctors of science, to give them an opportunity to find employment or self-employment. More precisely, we mean the economic capacity of the country to use the new doctoral of science. What happens if you invest a lot of resources into

training of doctoral candidates, offer them the best support, the best transferable skills training, collaborations, research conditions, and then those doctoral candidates leave the country? Are we producing new doctors of science only to export them to countries which are more able to utilize their knowledge and expertise?

The goal of every change is to secure the longevity of the changes that will withstand the test of time by securing a widespread support in the organization. What we have learned from our research is that the argumentation and the „carrot and stick” method works well but are not a guarantee for success. Despite the well-planned argumentation, there is still a chance that something will go wrong during the implementation, as was the case at UMN.

We will end this dissertation with two quotes, one is Buller’s understanding of the role of individual in change, and the other is a quote by one of the interviewees from UMN (the person in question was speaking about the competition in physics, and was not talking about the PhDs *per se*, but it still presents an interesting view on change):

Successful change leaders understand that change is produced by people. In order for change leadership to be effective, they have to help people come to grips with the idea of change, see the benefits in it, and embrace a culture of innovation, not just a culture that endures innovation. [92, p. 215]

And:

„The best students in the competition always come from a certain school, no matter what the curriculum is. They always come from a certain school. A certain professor. So, it all comes down to the professor. So, all our reforms, which we do, and we have the delusion that some things are going to go so much better, that they're going to change something. But essentially, no reform ever went to the individual, the professor. (“Frank”)

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Biography

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