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**STRIKING THE BALANCE:
AMBIDEXTERITY AND KEY PERFORMANCE INDICATORS AT
CORVINUS UNIVERSITY OF BUDAPEST**

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Abstract

This paper discusses ambidexterity in a university context and connects it with key performance indicators (KPIs) through the example of the transformation of Corvinus University of Budapest. A systematic literature review is conducted to refine ambidexterity in this context. Ambidexterity is defined as the university's capability to pursue two different kinds of activities and to find the balance (ratio) between how exploitative and explorative education and research activities are. The emergence of New Public Management contributed to the proliferation of business concepts in higher education institutions, such as ambidexterity, performance measurement and KPIs. Corvinus was also impacted in this process. Interviews with staff members were conducted and Institutional Development Plans were analyzed to understand ambidexterity and how KPIs can help to reach it at Corvinus. The results show that the balance for Corvinus in the future is reached with a shift towards research activity and a greater ratio of exploration in education and research compared to the situation before the university transformation. KPIs have a role in striking the balance. Currently, the university needs stabilization compared to the turbulent period of recent times and too much exploration, therefore, KPIs have to promote stability and incremental innovations in education (exploitation), while some KPIs should be modified to accommodate high-quality and research work (exploration). The study makes recommendations for Corvinus regarding key activities and KPIs that should be given more emphasis.

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1. Introduction

We are living in a fast-changing and turbulent world where companies need to build upon their existing competencies and create new ones in order to be successful. This dynamic process can be described as the interaction of exploitation and exploration; being efficient, adjusting current capabilities and processes, extending existing competences on the one hand, and seeking renewal, experimentation with new alternatives and skills on the other (March, 1991). These dimensions define ambidextrous organizations (Gibson & Birkinshaw, 2004a), which have been in the interests of academics and corporate leaders in the recent years, and maybe this is more relevant now than ever.

There is a trade-off between exploitation and exploration, or frequently referred as alignment and adaptability, which cannot be entirely eliminated, but organizations can reconcile them to a high extent. Finding the balance between exploration and exploitation is crucial for businesses, however really challenging. (Gibson & Birkinshaw, 2004a)

First, they need to pursue activities that are contradictory to each other. For example, exploitation requires stability, predictability and brings certainty, but exploration is more uncertain, and the consequences can be negative as well. Second, finding the right level is not easy and takes a lot of resources. Putting too much effort into refining exploitation at the expense of exploration might be advantageous in the short run but will be self-destructive in the long run. Vica versa, focusing only on experimentation will hinder any stability and effectiveness in the organization. (March, 1991)

The benefits of the balance, however, are considerable. There is a connection between being ambidextrous and being successful, as many companies that managed to strike a balance between exploitation and exploration were able to reach higher performance. (Gibson & Birkinshaw, 2004a, 2004b)

However, not only profit-oriented companies need to be ambidextrous. New challenges are awaiting for other organizations as well. For instance, there is a huge shift in the life of Hungarian universities which impacts their activities: in the recent years almost all of them transitioned from state-run to private institutions (Kováts, 2020). Among them, Corvinus University of Budapest was the first to take this step (Corvinus University of Budapest, 2017).

Corvinus put its operation on new foundations and transformed its structure. The university has become much more market-focused and similar to companies in the sense that it has to create

the resources necessary for its operation and cover its costs on its own. Furthermore, much more emphasis was placed on competitiveness, international recognition and brand value. (Corvinus University of Budapest, 2020a, 2020b)

As a result of its transformation, the university must build on its core competence (teaching) and focusing on renewal at the same time (research). Therefore, excelling at both dimensions of ambidexterity is inevitable to provide high-quality education, attract and retain students, and be successful eventually. The only question is how to measure success.

Several studies have been conducted in the field of ambidexterity, and even in relation with higher education and management control systems (MCS). MCSs can be seen as a package, including cultural, planning, cybernetic, reward and compensation and administrative controls (Malmi & Brown, 2008), and it was found that various forms of using those systems support ambidexterity (Gschwantner & Hiebl, 2016). Ambidexterity in academic environments and its management through control mechanisms is necessary, mainly as they become more entrepreneurial and considered to be a creator of new knowledge for society (García-Hurtado et al., 2022). Different techniques used for performance measurement such as key performance indicators (KPIs) are inevitable in business, however, their perception in education is two-folded. While studies (Chinta et al., 2016; García-Hurtado et al., 2022; Lewis et al., 2007) suggest that a practical framework for evaluating higher education institutions with metrics is beneficial to measure performance and meet internal organizational goals and external requirements from the public, another research (Kairuz et al., 2016) found that their usage is not appropriate in this context, because they undermine creative, reflective and critical thinking.

Ambidexterity in universities and its connection with performance measurement in the Hungarian context is still an uncovered research area. Thus, this topic is relevant from two perspectives. On one hand, it fits into a broader, more general field, ambidexterity. It is important because many organizations are struggling with being stable and adapting to the changing environment simultaneously. On the other hand, this topic stems from the recent restructuring of a higher education institution, therefore specific enough and has not been studied comprehensively yet. Furthermore, as a student here, I have personal motivation to understand the activities and goals of Corvinus, and I believe I can access reliable and relevant information during my research.

This thesis aims to find out what ambidexterity (the balance between exploitation and exploration) means for Corvinus University of Budapest, how the organization wants to reach

it, and how performance measurement can help with that. I investigate ambidexterity (balance between the dimensions of exploitation and exploration) at Corvinus and intend to develop a set of context-specific KPIs for the university based on existing frameworks, therefore providing a practical use for the university. Based on that, I formulated my research questions as the following: *(1) Where does the balance between exploitation and exploration lie for Corvinus University of Budapest?* and *(2) How have the key performance indicators been changing during the transformation in order to find the balance?*

I have two hypotheses. First, I assume that Corvinus is currently out of balance because it has undergone a major restructuring and research has been given a higher priority compared to previous operations. The equilibrium was the previous state, before the model change, and the university should be in that state in order to be in balance again. Second, I assume that indicators were not widely used before, and now with the introduction of them, the newly available data can help Corvinus to reconsolidate and find balance again.

The remaining structure of this thesis is the following. Chapter 2 gives a comprehensive literature review on ambidexterity, New Public Management (NPM), KPIs and their links to universities. Different types and characteristics of ambidexterity are discussed, and a specific subchapter is devoted to ambidexterity in higher education. Here, I conduct a systematic literature review to find the research gap and create a theoretical framework applicable to university-context. Regarding KPIs, since they do not exist independently but rather as a part of MCSs and are effective when used as a part of a package, I begin with introducing the general concepts of MCS, but the focus stays on KPI frameworks. Here, a subchapter argues the role of KPIs in higher education and the rise of NPM. In Chapter 3, research methodologies and methods are revealed as well as data collection and analysis methods. To answer the research questions, 8 semi-structured interviews were conducted with the staff at Corvinus. Workers from different levels and positions (management, teachers) answered my questions to provide a better understanding of what ambidexterity means for them and for the organizations and what KPIs are utilized to achieve the appropriate degree of exploration and exploitation. Additionally, I analyze two written documents, the Institutional Development Plans from 2016 and 2020 to gain more information on KPIs. In Chapter 4, I dedicate a subchapter to explain the transformation at Corvinus, and the results of the analysis are shown. The university made too much exploration, but it does not mean it should or could return to its previous state. The external and internal expectations towards the university have changed, therefore the university has to determine the balance somewhere else. Corvinus will be ambidextrous and reach a

balance if it shifts towards research and larger exploration in both education and research compared to 2016. Concerning the KPIs, the organization should focus more on promoting incremental innovations and stability (exploitation) in education, while should have better KPIs to fulfill the exploratory nature of research. Chapter 5 is about discussion, where I compare my results and previous studies and explain similarities and unexpected findings. In this chapter, I make recommendations about how the future balance would look for Corvinus on the level of concrete activities and what KPIs could support reaching this state. In the last Chapter, I state the limitations of my research and articulate possible areas for future research. Limitations arise due to the limited applicability of business concepts in a university context and possible bias in interviews. In this study, I do not aim to provide the university with a comprehensive management control system, provide concrete target value for indicators, or make comparisons to benchmark universities. However, these can be possible future directions for research.

2. Literature review

2.1. Defining the key concepts of ambidexterity

Ambidexterity is defined as an organization's ability to "*pursue two disparate things at the same time*" (Birkinshaw & Gibson, 2004a). The authors point out that an ambidextrous organization seeks alignment between its current operations while adapting to a dynamically changing environment. Alignment incarnates the coherence within business units, assuring that everyone works towards the same purposes, and adaptability refers to the ability to reconfigure activities in line with changing external demands. These contradictory factors, alignment and adaptation can be referred to as exploitation and exploration (March, 1991). Although the exploitation-exploration dimensions proposed by March (1991) are most frequently linked to ambidexterity, there are other opposing factors an organization has to manage, such as efficiency and flexibility (Adler et al., 1999), differentiation and low-cost strategy (Porter, 1980), and global integration and local responsiveness (Bartlett & Ghoshal, 1989).

Exploitation means constantly refining and extending current competencies, activities, and technologies to reach higher efficiency. Exploitation by nature is more predictable and certain with short-term returns. On the other hand, exploration is about search, variation, risk-taking, experimentation, flexibility, and innovation. It has longer time horizons, with diffuse effects and uncertain outcomes. Too much emphasis on exploitation at the expense of exploration might be beneficial in the short run but will be self-destructive in the long term. Conversely, focusing only on exploration will destroy any stability and effectiveness in the organization.

Consequently, finding a balance between these two opposing forces is crucial for survival and prosperity. (March, 1991)

Earlier studies stated that one always has to make a trade-off between these contradictory activities due to scarce resources. However, Birkinshaw and Gibson (2004a, 2004b) argue that organizations don't have to sacrifice one set of activities in favor of the other, by managing tensions, they can find the balance which leads to higher performance. According to Raisch et al. (2009), these tensions are captured as i) differentiation versus integration, ii) organization versus individual, iii) static versus dynamic, and iv) internal versus external. In the first case, differentiation means separating different activities into distinct units, while integration is a collection of mechanisms that enable the organization to handle exploitation and exploration within the same unit. Differentiation and integration are rather complementary than exclusive to reach ambidexterity. The second case is about the level where ambidexterity is present. Ambidexterity manifests itself at both organizational and individual levels. The third case is concerned with the matter if an organization should simultaneously (static) or sequentially (dynamic) pursue the two dimensions, and organizations must seek both to achieve ambidexterity. Regarding the fourth tension, which refers to the challenge of finding the balance between internal processes of exploitation and exploration and external sources of new knowledge for exploration, the purpose is to mediate them. Organizations have to consider these contradictory forces as each other's complements and manage them to become ambidextrous, shifting thinking from trade-offs (either/or) to paradoxical (both/and) thinking.

The discussion of ambidexterity requires understanding two significant concepts, structural and contextual ambidexterity (Birkinshaw & Gibson, 2004b), stemming from the first and second tensions. The authors elaborated on Duncan's (1976) definition of "dual structures" and Tushman and O'Reilly's (1996) suggestions on sequential ambidexterity, creating the idea of structural ambidexterity. According to Birkinshaw and Gibson (2004b) this means that exploitative and explorative activities are performed in separate units or teams and the split is defined by the organizational leaders. Their role is to define the structure and make the necessary trade-offs between the two dimensions. Employees have relatively clearly defined roles, but since they focus on one set of activities, specialized skills are required from them. There are two approaches to structural ambidexterity; either separate groups are established for different activities within the unit (task partitioning), or the entire unit is occupied with one set of activities on one day, and a different one on another (temporal separation). On the other hand, contextual ambidexterity is about enabling the individual to make their judgments about how

they allocate their time between different tasks. Instead of structural separation, leaders establish a supportive organizational context where they are eligible to make responsible choices and actions. The employees' roles are relatively flexible and more generalists due to the diversity of tasks they have to perform. It is important to note that structural and contextual ambidexterity are complementary to each other.

2.2. Ambidexterity in higher education institutions

2.2.1. Structural and contextual ambidexterity in universities

There are two ways to achieve ambidexterity in higher education institutions (HEIs): structural and contextual ambidexterity. Structural ambidexterity applied to the HEI context means that there is a need for a unit that simultaneously manages a lot of small, decentralized knowledge-creating subunits and a few large, centralized subunits focusing on stability, efficiency, common mission, strategy, and values. This can be implemented through the establishment of teaching or research-oriented, decentralized units ("front-offices" or faculties) complemented by strong leadership at the board level and by centralized units aiming at efficiency ("back-offices" or administration). The back-offices are responsible for providing support for teaching and research through technology platforms, infrastructure, resource allocation for different units, and general and administrative functions, like strategy-making, control, steering, and optimization. (Tahar et al., 2011)

However, Thomas et al. (2023) argue that in a university context, the different activities should not be separated into distinct units. Kolster (2020) describes structural ambidexterity as a division between regular teaching units (exploitation) and "excellence education" (exploration). According to the author, excellence education compromises study programs labeled by external organizations, such as accreditation or ranking agencies, and extracurricular activities that students undertake on top of their program. These units can function as a source of innovation through new educational concepts, content and tools, didactical methods, and assessment forms. However, the main source of innovation remains the initiatives taken by individual teachers, which suggests that contextual ambidexterity is also significant in universities. Based on Thomas et al. (2023) line of arguments, contextual ambidexterity is reached by establishing a system or culture that encourages individual creativity at the same time, enabling university workers to pursue disparate activities. According to Jackson (2019), contextual ambidexterity is prominent in small, learning communities.

After assessing the two approaches to ambidexterity, I have made two conclusions in connection with Corvinus University of Budapest. First, contextual ambidexterity makes sense in relation to the operative core (Mintzberg, 1981), because university professors (the experts) pursue different activities and deliver multiple tasks, and their expertise and control over their own work enables them to decide how they want to divide their working hours. Second, structural ambidexterity is also reasonable due to the presence of administrative units supporting the experts' daily work. Therefore, separating the administrative staff and operative core into different units is a logical step, and it is in line with Gibson and Birkinshaw's (2004b) argument that contextual and structural ambidexterity are complements to each other.

The concept of ambidexterity is frequently used in the business world, but it has not been widely applied in the context of universities, albeit the need for innovation is also present in this sector (Kolster, 2022). The available literature suggests that ambidexterity and the use of management indicators to achieve a balance between exploration and exploitation, particularly in higher education, have not been extensively studied (Centobelli, 2019; García-Hurtado et al., 2022; Peris-Ortiz et al., 2022).

2.2.2. *Discussion of the systematic literature review*

To understand how ambidexterity, exploration and exploitation can be applied to universities, I implemented a systematic literature review. A systematic research review is a methodical approach to identifying, analyzing, and synthesizing existing research by scholars and practitioners in a systematic, clear, and reproducible manner (Fink, 2005). The selected approach for this review utilizes prior studies to establish a solid foundation for advancing theory, addressing research gaps, and identifying research priorities, as well as issues and trends in research output (Kraus et al., 2022). In this review, I adopt a three-stage model based on García-Hurtado et al. (2022), Rabab et al. (2023), and Tranfield et al. (2003) to connect the existing literature to my research questions, i.e. (1) *Where does the balance between exploitation and exploration lie for Corvinus University of Budapest?* and (2) *How have the key performance indicators been changing during the transformation in order to find the balance?*

The stages and steps of the SLR process are shown in Table 1. Stage 1 is planning (defining the goal, keywords based on the research question (RQ1), inclusion and exclusion criteria, and quality assessment criteria). The review's search strategy aims to identify how prior studies used ambidexterity-related concepts in higher education settings. The keywords are connected to the concepts present in my research question (ambidexterity is linked to exploitation and exploration, and higher education and university are linked to Corvinus University of

Budapest). To identify relevant literature, I chose the Scopus database, as it is one of the most extensive and widely recognized sources for scientific papers from different areas (Αγαπίου and Lysandrou, 2015). To refine search results, I filter them by subject area, time frame, and topic relevance.

Stage 2 is the execution of the systematic literature review. As previously discussed, I used the Scopus database to search. In Step 1, I identified 94 relevant scientific articles and book chapters from 2008 to 2023 based on searching for the predefined keywords in title, abstracts and keywords. Since 2008, more research on the relationship between ambidexterity and higher education has been conducted, and a 15-year time span allows for thorough follow-up research and ensures relevance. In Step 2, I narrowed down the subject area to Business, Management, and Accounting and Social Sciences as these areas corresponded with the subject of the paper and my study domain. The excluded areas are Economics, Econometrics and Finance, Engineering, Decision Sciences, Environmental Science, Energy, Computer Science, Psychology, Arts and Humanities, Medicine, Earth and Planetary Sciences, and Agricultural and Biological Sciences. This step resulted in a smaller set of 69 papers. After this, in Step 3, I assessed the abstracts of the selected studies arriving at a total number of 14 papers. The articles I sorted out did not closely focus on universities and ambidexterity, and as a result, their key findings are not relevant to my research. The connection of these articles to the education system and ambidexterity was not present or loose, as they mostly focused on university students, high school principals, start-ups, small firms, or corporate universities. They did not focus on the university as a whole and its ambidextrous capabilities, which is the main focus of my research. Therefore, the level of education or the subject of the studies were not suitable from the perspective of my research work. Finally, in Step 4, I selected 8 articles based on reading them and understanding their fit to the topic. I assessed the quality of the selected articles, considering the quality of journals and their relevance to help me answer the research question. The omitted papers were not relevant to provide insights on how to categorize exploitative and explorative activities in universities, however, some of them were included in the research review in other subchapters. The fact that I was only able to identify 8 articles suggests that this topic is not well-researched, in line with the findings of Centobelli (2019), García-Hurtado et al. (2022) and Peris-Ortiz et al. (2022).

In Stage 3, I discuss the results of the systematic literature reviews, propose a framework suitable for universities in relation to ambidexterity and state some limitations.

Systematic literature review			
Stages	Steps	Selection criteria (inclusion and exclusion criteria)	Selection result (number of papers)
Stage 1: Planning	Step 0: Defining goals, keywords, criteria	-	-
Stage 2: Execution	Step 1: Initial search (Identification of relevant literature)	Database: Scopus Keywords: ambidexterity and higher education or university Years: 2008-2023 Subject area: All	94
	Step 2: Systematic screening (Preliminary list of papers)	Keywords: ambidexterity and higher education or university Years: 2008-2023 Subject area: Business, Management and Accounting	69
	Step 3: Systematic screening (Selection of the studies)	Relevance based on abstract	14
	Step 4: Literature analysis and quality assessment	Relevance based on abstract, text and contribution to answer the first research question (RQ1)	8
Stage 3: Analyzing	Step 5: Discussions and recommendations	Results are shown in Table 2	-

Table 1. Build-up of the systematic literature review. Source: own editing based on García-Hurtado et al. (2022), Rabab et al. (2023), and Tranfield et al (2003).

2.2.3. Results and recommendations

In the following chapter, I explain why the application of ambidexterity in a university context is challenging and also present the findings and shortcomings of the previous literature. Based on these, I try to build a theoretical framework.

Universities have to fulfill multiple social and economic purposes which make their operations more intricate than regular business organizations, and the implementation of ambidexterity faces limitations. HEIs function in stable environments, where their roles are diverse but have not altered significantly, and by nature, exploitative activities are more dominant. (Peris-Ortiz et al, 2022)

Furthermore, the clear definition and distinction between exploitation and exploration are problematic for two reasons. First, since these two sets of activities are usually intertwined, linking activities solely to exploration and exploitation is not that straightforward, especially in a university setting. As Krause-Söhner et al. (2022) point out, teaching, research and administration pursue both exploitative and explorative activities even though they inherently have their focus on one (teaching and administration are more exploitative, while research is more explorative). Therefore, it is very unlikely to connect different kinds of activities and areas

to only one dimension of ambidexterity. Second, although innovation and experimentation are commonly associated with research in universities, there is doubt regarding whether such activities fulfill the requirements of the exploration dimension, given that universities have always pursued this kind of activity.

The summary of the papers included in the systematic research review is shown in Table 2. Figure 1 illustrates the frequency of different activities identified as either exploration or exploitation. While categorizing the activities, I retained the original exploitation-exploration classification by the authors, but on top of that, grouped them into two core activities, namely education or research. It is important to note that some activities could fall under both education and research categories depending on the context, and I have included them in the "Education, Research" set.

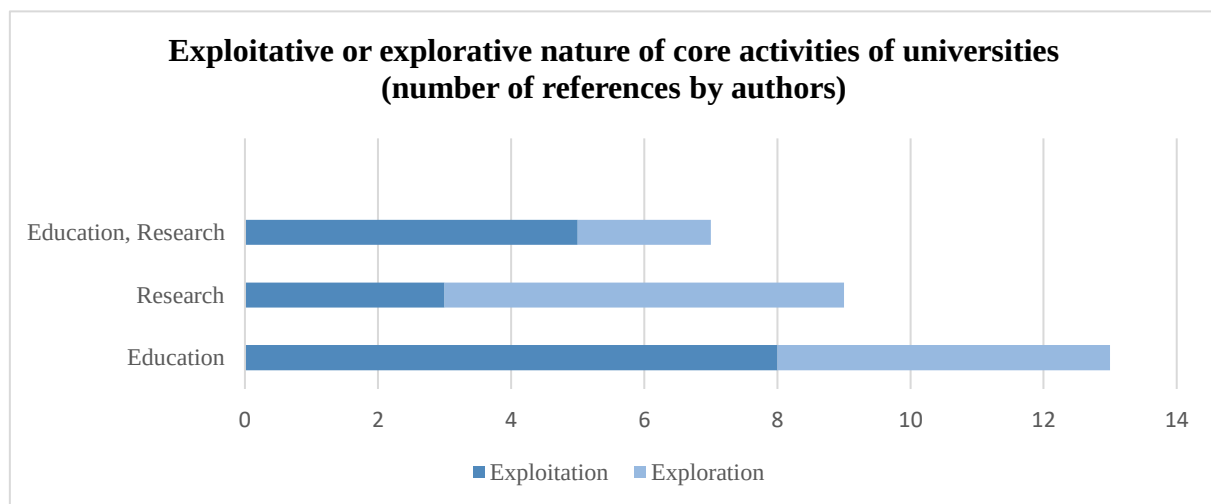


Figure 1. Exploitative or explorative nature of core activities of universities (number of references by authors). Source: own editing, based on Chang et al. (2016), García-Hurtado et al. (2022), Jackson (2019), Krause-Söhner et al. (2022), Kolster (2020), Peris-Ortiz et al. (2023), Sengupta & Ray (2017), and Thomas et al. (2023).

My assumption was that exploitation-type activities might be mostly related to education, while exploration-type activities might be mostly related to research. This hypothesis was confirmed, but it also revealed that the situation is not that clearly defined. On the one hand, as mentioned in the previous paragraph by Krause-Söhner et al. (2022), some activities can belong to both core activities. On the other hand, although the core activities have a natural focus – exploitation for education and exploration for research – the other dimension also emerges. For example, in the context of research, the authors considered the creation of new knowledge and basic research as exploration, but the more practical “Creation of innovations in industry” was considered exploration. Furthermore, “Regular education is considered exploitation”, but the application of innovative solutions is considered exploration. This points out that concrete

examples are needed for correct categorization. Thirdly, there was no absolute consensus among the authors, as they categorized very similar concepts in different ways, but it was not always clear from their papers what they meant by the concepts. For example, Chang et al. (2016) interpreted “Research publication as exploration”, while “Research commercialization as exploitation”.

One thing to emphasize is related to the confusion stemming from how innovation connects to ambidexterity. Many people mistakenly misunderstand the link between exploitation and exploration activities and innovation and believe that exploitation activities contain nothing novel at all. The key lies in the nature of innovation. The explorative dimension, by its creative nature, is closer to radical innovation, which is defined as the creation of significantly different products or services and a breakthrough in business practices. In contrast, incremental innovation focuses on optimization and efficiency gains, achieved by gradually improving and refining existing products and services. This type of innovation can be associated with exploitation. (Acemoglu et al., 2022)

According to Schilling (2019, p. 47.), radical innovation is “*an innovation that is very new and very different from prior solutions*”, while incremental innovation is “*an innovation that makes relatively minor change from (or adjustment to) existing practices*”. (Schilling, 2019, p. 47.) This is in line with Acemoglu et al.’s (2022) argument.

Therefore, what is regarded as innovative or groundbreaking is subjective and can vary depending on the individual and organization. For instance, the level of exploration involved in research is contingent on the particular activity. While research is typically considered to be explorative in nature, a gap-filling research project in social studies or a research topic defined by an institute with limited input from the researcher is less innovative and explorative than a large-scale R&D project with the potential for significant discoveries in the field of medical studies. Individual research is more explorative, but the explorative aspect is often sacrificed when others become involved, resulting in a more structured and organized research program. The same can be said in regard to education, which is primarily focused on exploitation, but it does not preclude the possibility of implementing revolutionary or innovative teaching methods in a university setting.

Based on the vague, or even contradictory classifications in Table 2, it is evident that exploitative and explorative activities are diverse, and there is a need for reconsideration when categorizing them.

Exploitation	Exploration	Key Finding	Source
Regular education	Innovations, such as educational concepts, didactic methods, assessment forms, educational content and tools, organizational settings	Excellence education (structural ambidexterity) is a testing ground for education innovations, however, the initiatives of teachers are the most important source of innovation (contextual ambidexterity)	Kolster (2020)
Commercialization and knowledge-transfer (teaching)	Research (creation of knowledge)	Little attention has been paid to indicators to establish a balance between exploration and exploitation, and there's no clear distinction between these dimensions in entrepreneurial universities	García-Hurtado et al. (2022)
Research commercialization	Research publication	The concept of research ambidexterity is developed and applied to universities	Chang et al. (2016)
Creation or implementation of innovations in industry, professional staff training	Knowledge acquisition, knowledge creation	Predominance of exploitation indicators in rankings	Peris-Ortiz et al. (2023)
Research commercialization	Academic engagement, fundamental research	Contract research routes provide the maximum benefit for universities to achieve ambidexterity	Sengupta & Ray (2017)
Teaching	Research	Teaching, research, (and civic engagement) should not be separated. The concept of multidexterity is developed and applied to universities	Thomas et al. (2023)
Basic requirements and core curricula monitoring to meet accreditation basics, undergraduate programs	Research projects, higher degree programs	Frameworks to resolve pitfalls during digital transformation in education	Jackson (2019)
Strategic change initiatives, efficiency improvements in research, teaching and administration, expert forum to promote networking and exchange of knowledge, innovation forum for development of innovative teaching methods, innovation centers, working groups to promote networking	Innovation in research, teaching and administration, innovation centers and programs, innovation forum for development of innovative teaching methods	Teaching, research and administration have their inherent focus, but they include both exploration and exploitation activities. Implications about how to manage dynamics of ambidexterity in public sector	Krause-Söhner et al. (2022)

Table 2. Summary of selected papers in the systematic literature review. Source: own editing.

The result of the reconsideration is shown in Figure 2, as I decided that a matrix could help me to resolve the discrepancies and to clarify the situation. In this matrix, I placed activities related to university operations mentioned by the authors in Table 2. The two core activities of universities are education and research, and therefore, in addition to the exploitation and exploration dimensions, this categorization is the base of my analysis. The vertical axis of the matrix represents the two dimensions of ambidexterity, exploration and exploitation. On this axis, I have categorized the activities based entirely on the research of previous authors. On the horizontal axis are the areas of education and research, along which, in the absence of guidelines from authors, I have placed the elements at my own discretion. I have chosen this matrix design because I believe it is able to depict and visualize the presence of both basic dimensions (exploitation and exploration) in both core activities (education and research).

	EDUCATION	RESEARCH
EXPLOITATION	• Regular education • Commercialization • Knowledge-transfer (teaching) • Implementation of innovations in industry • Professional staff training • Teaching • Basic requirements and core curricula monitoring to meet accreditation basics • Undergraduate programs • Strategic change initiatives • Efficiency improvements • Expert forum to promote networking and exchange of knowledge • Innovation forum for development of innovative teaching methods • Working groups to promote networking	• Commercialization • Research commercialization • Creation of innovations in industry • Strategic change initiatives • Efficiency improvements • Expert forum to promote networking and exchange of knowledge • Innovation centers • Working groups to promote networking
EXPLORATION	• Innovative educational concepts • Innovative didactic methods • Innovative assessment forms • Innovative organizational settings • Knowledge acquisition and creation • Higher degree programs	• Innovative organizational settings • Research (creation of knowledge) • Research publication • Knowledge acquisition and creation • Academic engagement • Fundamental research • Research • Research projects

Figure 2. Ambidexterity matrix for higher education institutions. Source: own editing, based on Chang et al. (2016), García-Hurtado et al. (2022), Jackson (2019), Krause-Söhner et al. (2022), Kolster (2020), Peris-Ortiz et al. (2023), Sengupta & Ray (2017), and Thomas et al. (2023).

To create the matrix in Figure 2, I examined which activities each author associated with exploitation and exploration, and then I categorized these activities into two larger sets, education and research (I already conducted this to arrive to Figure 1). There were some activities for which it was not possible to clearly decide which core activity they belonged to,

as they could be linked to both. Accordingly, I linked them to both (“Innovative organizational settings”, “Commercialization”, “Knowledge acquisition and creation”, “Strategic change initiatives”, “Efficiency improvements”, and “Expert forum to promote networking and exchange of knowledge”). This is in line with the findings of Krause-Söhner et al. (2022), namely that both education and research have their inherent focus but include exploratory and exploitative dimensions too, suggesting that the way activities are classified is highly dependent on the context. Furthermore, many of the activities are linked to both dimensions, however in different ratios. A third category, support activities or administrative activities, also appears as a set of university activities. However, this category did not appear predominantly in the literature and I have therefore chosen not to include it.

This framework gives a general picture and I think it can serve as a good starting point for mapping ambidexterity in relation to Corvinus University of Budapest. Based on the literature, I conclude that a state of equilibrium can be achieved if education largely embodies the exploitation dimension, while exploration will dominate in research. However, just as education needs to be innovative, adaptive and flexible, so too does research need to be efficient.

After a thorough and detailed examination of the literature, I conclude that the number of sources on the common intersection of ambidexterity and higher education systems is limited and a highly under-researched area, despite the fact that several authors highlight the importance of the field and call for the need for further research.

After conducting research, I find there are several factors that contribute to the under-researched nature of this area:

- Concepts used in business have limited transferability to universities. Although many higher education institutions have become market-focused in response to new trends, their operations and scope are more complex than those of companies, as they have to satisfy a wider range of stakeholders. They aim to operate effectively and efficiently, and performance measurement is a key element, but they are not profit-driven and have a much greater social responsibility role. The practices used in business have relevance, but without rethinking and adapting them, their use would be misleading.
- Ambidexterity is an abstract concept that is difficult to grasp at a practical level. As it varies from industry to industry and from organization to organization, where it is located and exactly what set of activities leads to an equilibrium between exploitation and exploration, it is difficult to define a generalizable, narrative theoretical framework

and even more difficult to translate it into a university context. Moreover, what counts as experimentation or even optimization for one organization may not be so for another. Some capabilities and activities tend to contribute to both dimensions in a mixed way, so in most cases, resources and capabilities need to be linked to both dimensions. For example, in the case of universities, education is a more exploitative field, but there are also elements of innovation and experimentation, so there are also traces of the exploration dimension. In the case of higher education institutions in particular, it is not possible to separate the two dimensions. The literature also mentions the need to link ambidexterity to performance indicators. However, I found little guidance on this in the research to date.

Overall, the reason for the area to be under-researched is that business concepts are difficult to apply to other spheres, and this is particularly true for the concept of ambidexterity, which is already difficult to concretize and is not narrative in nature. However, I believe that after rethinking the framework, ambidexterity can be illustrated well through a concrete example (the transformation of Corvinus University of Budapest). The matrix is appropriate to capture the complexities, and the fact that it is difficult to generalize does not mean that it cannot serve as a guideline for a specific institution. I referred to this earlier in this chapter when I concluded that a full understanding of specific activities is needed to accurately categorize them.

To summarize, after carefully reviewing the literature, I propose that exploitation dominantly pertains to education and exploration dominantly pertains to research activity. Education is more structured, organized and stable, and covers commercialization and implementation of previous research activity, professional staff training and monitoring activities to meet accreditation requirements. On the other hand, research is more flexible and innovative, and includes the creation and acquisition of new knowledge, innovations, and collaborations in the academic field. It is important to stress that in reality, a university's activities are more complex than that, however, this matrix was the only way I found sufficient to capture the complexity and use it as a theoretical framework in this research.

Birkinshaw and Gibson's (2004a) conceptualized ambidexterity as the organization's ability to *"pursue two disparate things at the same time"*. In universities, these two different things are research and education: research is mainly explorative in nature, while education is exploitative. However, this simple, over-generalized definition is misleading, as both core activities have explorative and exploitative elements. I define ambidexterity in this context as the ability of the

university to find the right balance (ratio) between how exploitative and explorative education and research activities should be.

2.3. New Public Management and the rise of performance measurement

Malmi and Brown (2008) define management control as systems, rules, practices values and other activities used by management to monitor and control the employee's behavior. These are systems and devices deployed by managers to make sure that the individuals' and the organization's goals are aligned. And if these are complete systems, we should call them management control systems (MCS). MCS should be seen as a package of systems and is a combination of tools and concepts that do not operate in isolation. MCS as a package consists of five domains: cultural controls (clans, values, symbols), planning (long range planning, action planning), cybernetic controls (budgets, financial, non-financial and hybrid measurement systems), reward and compensation, and administrative controls (governance structure, organization structure, policies and procedures). Financial and non-financial measurement systems, therefore the key performance indicators (KPI) belong to the cybernetic controls.

An alternative approach to management control could be Ouchi's (1980) well-known framework of market, bureaucratic and clan control. Still, Gschwantner and Hiebl (2016) found Malmi and Brown's (2008) categorization more suitable for ambidexterity as it was a more precise framework.

MCSs can be essential to develop and maintain the balance between exploitation and exploration (Gschwantner & Hiebl, 2016; McCarthy & Gordon, 2011; Strauß & Zecher, 2012).

Gschwantner and Hiebl (2016) explain that even though MCSs are usually associated with supporting exploitation, they can facilitate exploration too. Specifically, cultural controls can serve exploitation through informal controls such as social norms. Planning controls that are concerned with informing employees can support exploration because they provide opportunities for open communication and discourses. On the other hand, planning controls focusing on action planning help exploitation because they help the organization to accomplish its goals. Cybernetic controls, such as setting targets, measuring activities and identifying accountability also help both dimensions as they – if they are appropriately established – stabilize the organization and give enough space for employees to be creative and find new ways to solve a problem. Reward and compensation controls also influence the balance of exploration and exploitation, however, if not used properly, they can endanger organizational ambidexterity (if they do not motivate employees in a way to meet organizational objectives).

Administrative controls, concerning organizational structures and monitoring employee behavior, guide exploitation through tight processes and standardization, and exploration with organizational structures that enable flexibility. Therefore, to reach organizational ambidexterity with the help of MCS, opposing control tools and systems have to be balanced.

As part of MCSs, KPIs can also help organizations to become ambidextrous. However, in the past, governments provided categorical subsidies without accountability requirements, and institutions lacked performance objectives. These conditions have started to change, leading to the emergence of performance measurement. (Lewis et al., 2007)

The proliferation of KPIs in the higher education sector stems from the rise of the New Public Management (Lewis et al., 2007). As NPM as a philosophy to run government and public institutions has been on the rise HEIs are prompted to become more efficient, accountable, and transparent, and this highlights the importance of implementing management practices in universities, despite difficulties that may arise (Tahar et al., 2011). Kairuz et al. (2016) also point out that higher education became more managerialist and surveillance, measurement and documentation became prevailing, driving academics to meet targets and performance indicators (Kairuz et al., 2016).

Kováts (2020) discusses the underlying reasons behind the emergence of NPM and increasing managerialism among HEIs. The main reason for the transformation of higher education is the expansion of higher education. Student numbers have increased, demand has diversified and so has supply, with the emergence of new public and private institutions and a more diverse training structure. Student heterogeneity has increased, new levels and programs have emerged and there is a need to develop different pedagogical methodologies. As the domestic base for expansion dried up, universities began to turn their attention to the foreign student base – higher education became more globalized and student mobility increased. However, with expansion also came increased demands on higher education resources, which could not necessarily be adequately met by the public sector. Increased resource demands have led to higher tuition fees and increased concerns about transparency, accountability and efficiency. (The same trends and factors were present and contributed to the transformation of Corvinus, as it will be discussed later in the paper.)

Performance measurement can be qualitative and quantitative, its purposes vary by country, system or institution, and its two major contributions are to facilitate institutional changes and provide stakeholders with benchmarks and accountability (Lewis et al., 2007). Chinta et al.

(2016) propose a model that differentiates between inputs (students, faculty, staff, resources), processes (curricular programs, extra-curricular programs, research programs, service programs) and outputs (graduates, research, alumni, community), and these data can be used for different kind of metrics. They outline internal or self-referencing metrics focusing on historical benchmarks, external-referencing metrics focusing on relative benchmarks that are outside of the organization, and aspirational-referencing metrics that cover performance evaluation relative to ideal achievement levels. Similarly, Lewis et al. (2007) argue that measures provide information about inputs (resources), characteristics of the educational production (processes), and outputs or outcomes at various levels of the higher education system (e.g. system-wide, institutional, or faculty), and enable institutions to compare their performance to their own past performance, peers or external standards. As the authors point out, KPIs are suitable for monitoring and evaluating performance, guiding management and policy decisions, they assist decisions about promotion and resource allocation, and help informing internal and external stakeholders.

However, the role of KPIs in higher education is debated. Lewis et al. (2007) suggest that even though KPIs when used wisely can improve quality and can serve as a catalyst of change, their reliability and validity are questionable, as they measure what can be collected and not necessarily what is important for the institution. The authors also claim that legislators and governmental bodies focus on quantifiable data (e.g. number of students, degrees granted, retention, completion rates, per student expenditures), while institutions are more interested in factors that are harder to measure (e.g. student experience, accomplishments, recognition). Kairuz (2016) points out that even though research productivity, which is the main driver of university rankings, and other indicators may limit creative, reflective and critical thinking that would be crucial for academics to generate new knowledge, therefore KPIs are counterproductive in this sector. This argument is in concert with Kovács's (2020) observations. The author points out that while in the life of a company, there is a well-defined goal set by the management, the situation is much more complex in the case of universities. The community does not necessarily have a goal or may have several, even conflicting goals, and as a result, there is a lack of ambition. The new governance model reinforces the organizational nature of universities, while the community function is marginalized. Thus, managerialism is leading to a crisis of legitimacy and motivation, anomie, alienation and loss of meaning in the university atmosphere.

It is inevitable that managerialism with its excessive control, centralized and top-down approach goes against the basic principle of professional bureaucracy which is the usual the usual governance structure of universities (Mintzberg, 1981). According to Mintzberg (1981), a professional bureaucracy is a decentralized, democratic model, where the experts are guaranteed with freedom and autonomy in their own work and decisions.

3. Research methodology

Based on the findings of the literature review, there is a need for the use of business concepts in higher education, even though difficulties may arise (Tahar et al., 2011). Ambidexterity can help boost organizational performance (Birkinshaw and Gibson, 2004a, 2004b), and management control systems with specific regard to key performance indicators can facilitate organizations to become ambidextrous (Malmi & Brown, 2008). However, after conducting a systematic literature review (Table 1), I found that the connection between universities, ambidexterity and KPIs is an under-researched area, and the boundaries between exploration and exploitation are blurred (Table 2). Thus, to understand how ambidexterity can be interpreted and applied in a university setting, I created a matrix grasping the dimensions and two core activities of universities.

The matrix has a significant advantage. It enables me to illustrate which activities fall under exploitation and exploration in education and research. By repositioning and using appropriate examples, it becomes easier to determine the blurry boundary between exploitation and exploration in education and research activities, which can contribute to the development of theory. This matrix will serve as a guideline for examining Corvinus University of Budapest, and how exploitation and exploration have changed during the transformation of the organization.

Based on this, I formulate my research questions: (1) *Where does the balance between exploitation and exploration lie for Corvinus University of Budapest?* and (2) *How have the key performance indicators been changing during the transformation in order to find the balance?*

My hypotheses are that first, the balance for Corvinus University of Budapest would be going back to the previous state, so allocating the majority of resources and focusing on education and pursuing exploitation dominantly – as the university had always been doing this, and second, I assumed that earlier the university barely had indicators, performance measurement and KPIs were missing or at least downplayed, and therefore the current, more managerial system with more control and data would be appropriate to support that balance.

To answer the research questions, I conducted 8 interviews with staff members and analyzed and compared Institutional Development Plans from 2016 and 2020.

The aim of this chapter is to lead the reader through the components of my research, following a common order of presentation: research design and research methods, data collection, selection of participants and data analysis (Crowe & Cash, 2023; EQUATOR Network, 2024).

3.1. Research design and methods

Research design is a strategy how you answer your research question (Mligo, 2016a). According to Mligo (2016a), there are three possible approaches to conduct research: qualitative, quantitative and mixed methods. The selection of suitable method depends on the research subject. The author stated that qualitative method is recommended if the purpose of the research is (i) to provide a description of a situation in order to reveal its multifaceted nature, (ii) to provide interpretation of a situation in order to develop theoretical perspective, (iii) to verify and test the validity of assumptions, explanations (theories) or generalizations, and (iv) to provide evaluation or judgment of policies and practices. Quantitative research design is more appropriate in case of testing a theory and understanding cause and effect relations indicated by variables and hypotheses. Last but not least, mixed approach is a combination of qualitative and quantitative elements.

The purposes of qualitative research design are aligned with the aim of my research, therefore I choose that approach to answer my question.

Research methods describe tools, techniques and processes used to answer a research question (Hitchman & Chetter, 2023). According to Mligo (2016b) there are three main categories of research methods. Observation is used to collect data through making sense of what you see with your own eyes. Interview is a method of collecting data through conversation with participants. And finally, if questionnaire method is used, a set of questions is sent out to participants so they can provide answers.

Hitchman and Chetter (2023) state that interviews, focus group research and observations on small sample, and the output is applicable only to his sample.

Doody and Noonan (2013) claim that interviews are one the most common methods of data collection in qualitative analysis because interviews allow the researcher to uncover stories behind experiences that otherwise would remain hidden, gain better understanding of the phenomenon and further explore responses or findings with follow-up and clarification

questions. Furthermore, Thille et al. (2021) suggest that interview data is co-constructed, therefore interviews are the best method to create data based on interactions.

In my case, observations and focus groups could not provide the same contribution to the research as interviews. I can gain more information and better understanding of the situation through individual conversations because the participants have bigger room to share their view opinion. Observation could be a valuable source of information only if I could follow the entire university transformation with my own eyes. Focus groups could be useful if I sought and focused more on discussions and interactions of participants.

Interviews have three types. In structured interviews, the researcher asks the same, rather closed questions using the same wording from all participants in order to gain very similar data. Unstructured interviews are the exact opposite, as they are non-directive and flexible. The researcher does follow an interview guide, but it consists of topics instead of concrete questions, therefore the outcomes can be different. Semi-structured interviews are the most common type of interview. In this case, the researcher arrives with predetermined questions, but the interview can be flexible, with open-ended questions to explore emerging matters. The interviewer can change the wording and ask additional questions depending on the context. (Mligo, 2016)

Structured interviews are the best to use to collect demographic data, unstructured interviews are commonly used to gain deep understanding of a wider, uncovered topic, and semi-structured interviews are suitable in case of a well-defined and narrow topic, but when a deep understanding is still needed (Doody & Noonan, 2013). Based on this, I find semi-structured the most fitting to my subject.

The primary method I use is semi-structured interviews, however, I also analyze Institutional Development Plans from 2016 and 2020. These documents can provide me with a more holistic picture of the transformation process and the KPIs, complementing the insights gained from the interviews.

However, concerns also arise when selecting semi-structured interviews as a method. As Doody and Noonan (2013) point out, novice researchers cannot always identify when to probe responses or ask prompt questions, thus some relevant data may not be gathered. Furthermore, interviews are time-consuming in terms of conducting them and then structuring and analyzing data, and results can be influenced by different biases. For instance, the participant's desire to please the researcher, or they may give official positions instead of personal views, or they want to create a good impression and therefore are not completely honest. Sometimes interviewees

say something rather than nothing even though they cannot properly address the question due to the lack of knowledge. Last but not least, the researcher's person, view and reactions during the interview can influence the participants. The EQUATOR Network (2024) report also stresses that the researcher's characteristics (personal attributes, qualifications/experience, relationship with participants, assumptions, and/or presuppositions) and reflexivity (interactions) influence the research. Best (2012) discusses researcher or interviewer bias: the questions can be leading, the researcher misreads response and assigns meaning incorrectly, misdirect probing and prompting and gets the participant saying something that is not a true reflection, and the researcher may select only those parts of the transcripts that support her argument.

In order to improve the quality of my research, I utilized both interviews and publicly available written sources. Interviews were helpful in gathering in-depth and subjective information, while written sources aided me in obtaining a broader and more objective view of the topic under consideration. This combination enabled me to construct a comprehensive picture of the subject matter. The interviews were particularly useful in addressing the first research question (RQ1), which was to identify where the balance lies in the case of Corvinus University, according to the participants. They also assisted in identifying key performance indicators (KPIs). However, the written documents were more appropriate for answering the second research question (RQ2), which was to determine how KPIs are currently being utilized to achieve the balance.

3.2. Selection of participants and data collection

To choose the participants for the interview, I employed purposeful sampling as a sampling strategy. Purposeful sampling means that individuals, documents, or events are selected based on their relevance to the research question, guided by theory or the researchers' experiences and assumptions (EQUATOR Network, 2024).

Regarding the written document analysis, I found the most relevant ones to be the Institutional Development Plans of 2016 and 2020. These plans provide a snapshot of the university right before and after the transformation.

For the interviews, I selected individuals who have worked at the university and possess relevant knowledge in the field of research, education, and the university itself. The list of interviewees includes heads of institutions, program managers, professors, and university leaders, as shown in Table 3.

I used a consistent interview guide for each participant, tailoring it slightly to fit the specific context and flow of conversation. Appendix 1 contains a comprehensive list of interview questions. The interviews were conducted in Hungarian language.

Employing additional elicitation techniques during semi-structured interviews can promote deeper expression from participants, aiding the researcher's comprehension of the topic. Visual methodologies can be particularly effective in conveying complex ideas that may be challenging to articulate solely through words (Thille et al., 2021).

In my experience, implementing visual aids proved beneficial in guiding participants through their experiences and perspectives on the changes at Corvinus, using tangible examples to enrich their storytelling. The visual chart I used can be found in Appendix 2. The charts after each participant filled them out can be found in Appendix 3.

Code	University Position	Gender, age	Interview type	Interview length
#1	Dean, Member of Senate, Member of Presidential Committee	Male, 40-50 years	Offline	1:01:11
#2	Dean, Member of Senate, Member of Presidential Committee	Male, 40-50 years	Offline	1:03:06
#3	Head of Institute	Male, 40-50 years	Offline	1:02:26
#4	Head of Institute	Male, 40-50 years	Offline	1:49:38
#5	Associate Professor	Male, 50-60 years	Online	0:57:21
#6	Associate Professor, Member of Senate	Male, 60-70 years	Offline	1:22:05
#7	Associate Professor, Member of Presidential Committee	Male, 40-50 years	Offline	0:57:41
#8	Member of Presidential Committee	Male, 30-40 years	Offline	0:25:21

Table 3. List of interview subjects with personal data. Source: own editing.

3.3. Data analysis

I used two programs to analyze interviews. Firstly, I utilized a transcript creating program to create transcripts of the interviews. Secondly, I employed a coding program to discover patterns by linking codes to the interviews. This second software allowed me to create data visualizations. To analyze the Institutional Development Plans, I collected and categorized KPIs using Excel sheets.

4. Results

In this section, I will be discussing the most important elements gathered from eight interviews conducted with university staff. I will also be sharing key takeaways from the Institutional

Development reports from 2016 and 2020. In the first subchapter, I will provide an introduction to the context and key initiatives of the university's transformation based on written documents. In the second and third subchapters, I will elaborate on the results of the interviews and the written document analysis, respectively. The interviews will help me address the first and second research questions while the document analysis will broaden my answer for the second research question – therefore, the interviews focus on the following exploring key themes as Ambidexterity, Catalysts of change, Education, Other activities, Research, Performance measurement and KPIs (Figure 3), while Institutional Development highlight the changes in KPIs. Altogether, 52 codes were identified and then categorized into the aforementioned themes (Appendix 6). The identified codes and the used code structure are derived from the theoretical background, Corvinus's strategy and topics that were most frequently discussed by participants.

4.1. The transformation of Corvinus University of Budapest

The recent changes in Hungarian higher education can be linked to the rise of managerialism. The introduction of the chancellorship system, the introduction of foundation management and the transformation into a private institution have all been driven by the need to professionalize operations, efficiency, performance and competitiveness. These processes have taken place in Western Europe and now in Hungary. (Kováts, 2020)

As the result of the Hungarian Government's decision Corvinus University of Budapest (BCE) became a private university run by a foundation from a state university, being the leading example for other universities in transformation. (Legally, the model change came into effect on 1 July, 2019, but the transformation of the university is a longer process, consisting of subsequent steps. This is what I mean by model change.) The underlying reasons behind this decision were providing loosened regulations and enabling the university to radically improve its performance to become more competitive internationally. (Corvinus University of Budapest, 2020a)

Corvinus's vision is to become the leading university in Central Europe in the domain of business studies and social sciences. Its mission is to raise a responsible economic and social elite of the 21st century for Hungary and Central Europe. (Corvinus University of Budapest, 2020b)

The foci of the strategic action to accomplish goals are the following (Corvinus University of Budapest, 2020a):

- Regionally outstanding educational programs,

- Internationally recognized research achievements,
- World-class, dedicated teachers and researchers,
- Enthusiastic and talented students and alumni, committed to Corvinus,
- Innovative knowledge-projects with highly prestigious partners,
- World-class student experience,
- Interdisciplinary intellectual renewal,
- Continuously increasing institutional reputation and brand,
- Exceptional internal services, digitalization.

As stated in the report by Corvinus University of Budapest (2020a), the strategic actions are grounded on five areas, such as organizational development, cultural development, developing teaching and research staff, internationalization and financial resources. Organizational development is a key element of renewal, which involves restructuring the institutional structure, developing processes to support more efficient operations, and improving the management and governance system. Cultural development aims to strengthen the cohesion of the university community, to create a positive working environment and to encourage innovation and creativity. Cultural development must be continuous and conscious throughout the university. Faculty development is essential to raise academic standards. This includes attracting internationally recognized experts, improving income and benefit conditions, and developing a differentiated academic career system. Internationalization is an important element in increasing the competitiveness of Corvinus. Regarding the financial resources, it is important for the university to diversify its sources of income, to increase funding for research and teaching projects and to manage available resources efficiently.

It's important to highlight that the university's strategy does not differ from the one outlined in 2016: back then Corvinus also aimed to be the best university in Central-Europe and focused on prestige and internationalization (Corvinus University of Budapest, 2017). However, the institutional fundamentals were radically transformed, concerning the structure, financial resources and performance measurement, and the means how the university is trying to achieve goals are also different (Corvinus University of Budapest, 2020b). These alterations to the basic operations might throw the university out of balance and innovations pushed it towards excessive exploration.

In the previous governance model, the state set the main framework for the operation of higher education institutions, leaving a narrow margin of manoeuvre for institutional leaders. The point

of confrontation was between the state and the institutional leaders, but in the new governance model this conflict has been transferred to the institutional leaders and staff (academic oligarchs). The basis of the new model was the NPM, in which the role of the state changed from that of direct manager to that of client and controller. The need for the university to 'fight' for resources and accountability to the state requires greater efficiency. Linked to this is improved site measurement - maintaining higher standards at lower costs. Quality of service needs to be measured and monitored continuously. (Kováts, 2020)

The key performance indicators have to be aligned with strategic purposes, therefore these are appropriate means to understand organizational preferences and can be used to incentivize specific forms of behavior – in this case, to strike a balance between exploration and exploitation in order to achieve a higher level of performance.

4.2. Interviews

I analyzed the interviews based on the following key themes, as pictured in Figure 3: Ambidexterity, Catalysts of change, Education, Research, Other activities, Performance measurement and KPIs. These codes consist of several subcodes and are grouped around the two research questions they help to address. The detailed description of codes is available in Appendix 6.

4.2.1. Catalysts of change

Before diving into details, I find it important to elaborate on what factors the participants highlighted besides the university transformation that enabled the entire institution to rethink the university and launch several changes in their basic structure and fundamental activities. Therefore, I present the Catalysts of change, namely COVID, Digitalization and University transformation – so the factors, *why* the changes happen.

The term 'university transformation' refers to the process by which a state-run university became a private university maintained by a non-profit organization, along with all the changes that occurred as a result. This transformation occurred in two major internal steps: the elimination of faculties, followed by the transformation of departmental structure and the creation of a matrix organization.

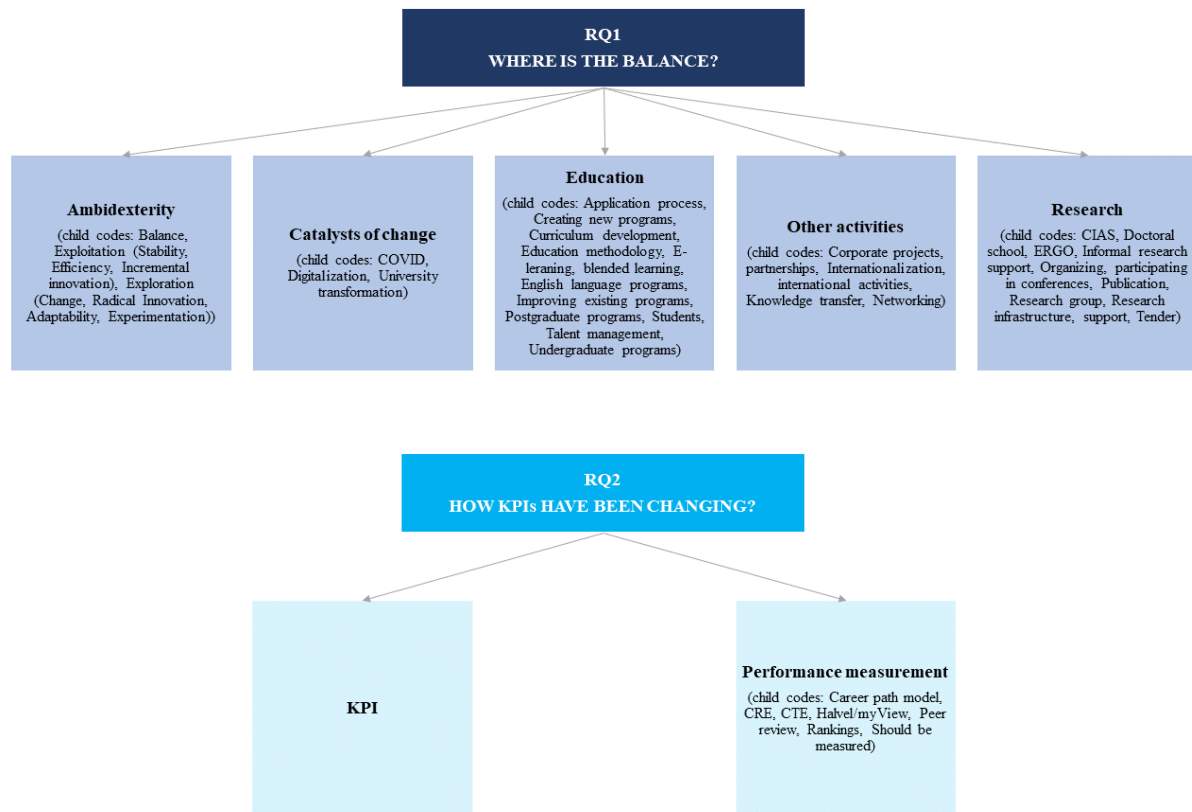


Figure 3. Code structure. Source: own editing.

The most frequently mentioned changes related to the model change are explained below. University employees have been transferred to the Labor Code. The university is still subject to the Higher Education Acts, but there is more flexibility on many issues. On the financial side, the issue of funding has also changed, partly because of the way the fund is managed and partly because of the diversification of financial sources. Previously, the university had one main indicator (2% growth in student numbers) by which funding was determined. Now a more sophisticated system of targets is used, furthermore it is not the number of students that counts, but the number of students who study on a self-financed basis. The basic functioning of Corvinus has changed in that more independence from the state has led to greater autonomy for the university (e.g. the establishment of a study program used to be a long, bureaucratic process that had to be approved by an accreditation commission and a ministry, and this has been relaxed since the model change), but a more centralized functioning within the institution has emerged (some interviewees criticized this at the expense of individual autonomy). During the transformation, some of the individual initiatives were incorporated into the innovations, but some initiatives were imposed in a top-down way. The change of model also enabled and implemented many things that were unconventional for the university community.

As well as the organizational structure, the activities of the university were also innovated. It transformed teaching, research and other activities – but I will concentrate on teaching and research, in line with the theoretical framework. There was a greater emphasis placed on research, but this was not just a management narrative, but a structural feature of the whole Hungarian education system. Universities are now funded according to publications because the Hungarian state wants to increase the international recognition of Hungarian universities, in response to a regional problem that universities here are not competitive enough with Western universities and that it is becoming increasingly difficult to attract students in an internationalized education market, not least because of demographic decline. The goal and benchmark for increasing competitiveness is to move up on the international university rankings. In the rankings, the number of publications (research activity) and the proportion of foreign students (teaching activity) are of particular importance – in the latter, Hungarian higher education and Corvinus in particular perform well, as the interviewees pointed out. (According to KSH data (2021), the number of foreign students studying in Hungarian higher education doubled between 2010/11 and 2020/21, and their ratio increased from 6.9% to 17%.) The driving force of university resources is therefore no longer (only) the number of students, but also the number of publications. It is important to stress that the greater emphasis on research has currently overshadowed the importance of teaching.

However, COVID coupled with and enhancing digitalization also played a role in exploiting new initiatives. For example, blended learning and e-learning innovative practices, and other forms of online education are more related to COVID than to the model change. COVID has not only made staff meetings more efficient by bringing them online and accelerating change, but it has also greatly accelerated the centralized dissemination of educational methodologies.

I will come back to the individual activities and performance measures; these were important to provide context. In the next subchapter, I will explain how the participants see and evaluate educational and research activities and other activities in the ambidexterity framework, reflecting upon the two dimensions, exploration and exploitation. As the interviewees pointed out, many of these changes in the life of Corvinus probably would have taken place without the university transformation, but this event accelerated and smoothened the process of change. With that said, university transformation was an “enabler” to change. Besides the university transformation, the role of COVID and the digitalization that was entailed are also factors that contributed to change.

4.2.2. Education, Research and Other activities

The Catalysts of change, so University transformation, Digitalization and COVID altogether paved the way for upcoming changes and opened new opportunities in Corvinus' activities. In this subchapter, I will focus on *what and how* has been changed.

In the context of universities, education and research have been identified as the main activities that form the framework for understanding ambidexterity. Based on the literature review, research is mainly identified as exploration, while teaching is seen as exploitation. In interviews, the focus was on education and research while excluding administrative and supporting departments. Participants were asked to visualize how specific activities have been modified to better capture the exploitative (understood as stability) and explorative (understood as innovation) nature of education and research (Appendix 2). However, other activities that do not explicitly belong to either education or research also emerged and were found to be worthy of mention. The detailed list of codes that belong to these themes is shown in Figure 3, and their descriptions are available in Appendix 6, while the graph showing the number of mentions of each main code category by participants is shown in Appendix 4. Ambidexterity-related topics were the most prevailing ones during interviews with the highest number of related codes.

Participants were given a coordinate system in which the horizontal axis represented the period from 2016 to 2024, with particular reference to the model change (2020), while the vertical axis represented the nature of the activity in terms of how innovative or stable it was considered to be. Innovation and stability are mutually exclusive, neutral concepts with no negative or positive connotations. I wanted to capture the exploitation dimension through stability and the

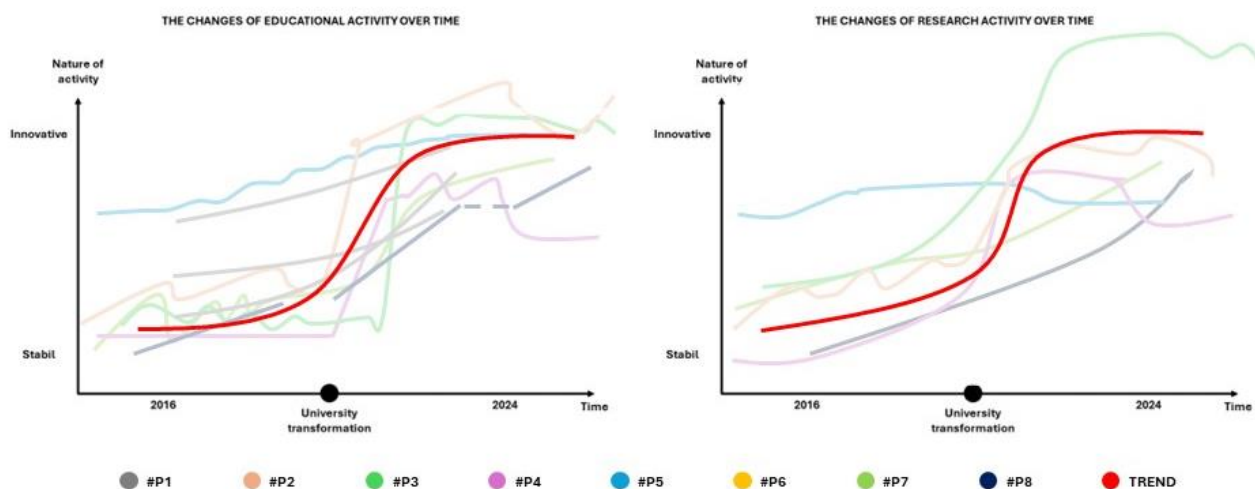


Figure 4. Aggregation of drawings by participants and trend line. Source: own editing based on Appendix 3.

exploration dimension through innovativeness. I asked participants to place research and education activities and, where possible, their sub-activities on the coordinate system. They were asked to explain what, why and how changes happened and whether they perceived the given stability or innovativeness as positive or negative. The following sections are based on the aggregated drawings of the interviewees, as shown in Figure 4. For more detailed analysis see Appendix 3.

Prior to undergoing a transformation, Corvinus University was mainly focused on providing high-quality education with less emphasis on research. The university was known for its strong interconnectivity between social sciences, economics, and management studies, which set it apart from other universities in Hungary. The students were offered various educational methodologies such as methodological education, case studies, real-life cases, interactive seminars instead of frontal lectures, and high-quality teaching materials, especially in Business, as emphasized by Participant #1 and #5. The teachers were encouraged to experiment with new educational methodologies and incentivized to innovate, resulting in the use of digital tools such as Kahoot and Slido, as highlighted by Participant #5. However, according to Participant #8, education always has to seek renewal, and these changes were minor ones and exploitative in nature.

First, these practices were completely new to the local context, for Corvinus. During the process of model change, many of these practices and grassroot initiatives became institutionalized and were established throughout the entire university. Participant #7 emphasizes the benefits of the new university campus (Gellért Campus), particularly for interactive seminars that allow teachers to utilize the space instead of relying solely on frontal lectures. Furthermore, COVID also accommodated the diffusion of digital educational tools. New educational tools became omnipresent in the institution, however, over time, the university began to prioritize research performance over incentivizing innovative educational activities – therefore, education is consolidating again now. It is important to note that Participant #2 stated that while new educational tools and program developments were likely attributed to bottom-up initiatives, they happened top-down during the model change.

The university implemented innovations in the undergraduate programs by creating two completely new programs, Data Science in Business and Philosophy, Politics and Economics which were first launched in 2023. These programs are deemed unique as they were very first introduced by Corvinus in the region. Numerous program and curriculum developments took place recently, but what is different from the time before the model change, that the university

was able to launch completely new programs on top of altering, improving existing ones (for example, creating one big, aggregated program with specializations called Business and Management instead of launching smaller undergraduate programs), thanks to greater autonomy and independence from regulators. Furthermore, most of the Hungarian language programs were eliminated at postgraduate level. Currently, the university almost entirely finished transforming the postgraduate programs by creating a stabilized portfolio (at least on the middle run) and still experimenting with postgraduate programs. The experimentation is still ongoing with English language programs, one and two years programs. The system of micro-credentials also came up as a possible direction in the future. This system means that in the future students will apply to smaller blocks to acquire specific skills instead of complete programs, and they will receive certificates instead of diplomas.

The introduction of English programs and the reconsidered Business and Administration undergraduate program were initially met with skepticism. The university was taking a risk, as there was a chance that they could lose good students (and market share) if these changes were not well-received by the Hungarian students. However, as noted by Participant #7, these concerns turned out to be unfounded.

In connection with the postgraduate programs the transformation of the application process is also worth highlighting. The earlier used system comprised application processes tailored to particular master programs with written and oral exams. It is going to be soon replaced with a test evaluating fundamental competencies and a standardized test (GMAT or MMAT). Oral exams will not be a part of the application process, only in case of lower test scores, as the university will give an opportunity for lower achieving candidates to persuade the interviewers in person of their skills. This change was seen as an improvement because it reduces subjective evaluation and is a better fit for international students, while others consider it a not adequate method for application, and not an innovative element.

The university is implementing several initiatives to increase the ratio of foreign students and promote internationalization. This includes the renewal of the application process for master's programs and offering English programs. However, the university faces a challenge in attracting and retaining talented Hungarian students after they complete their bachelor's program as they tend to pursue their studies abroad. To address this, Corvinus aims to provide high-quality, international-like, and good value-for-money alternatives to Hungarian students. International students who pay tuition fees are also crucial from a financial perspective. To improve student

retention, the university is focusing on English level programs, mainly at the master's level, and improving talent management.

Talent management has always been a standout feature at Corvinus, as pointed out by Participant #8. This includes the college system, teaching assistant program, and special programs that complement regular studies, such as the Special Finance and Mathematics program, and the Scientific Student Conference. However, there is still more innovation to come. The university aims to establish a more comprehensive system that gives greater recognition to extracurricular activities and makes them more comparable among students. For example, extra points may be awarded that count towards scholarships and these activities may be included in the diploma. Furthermore, the university plans to broaden the scale of special programs to include new areas, such as digitalization or entrepreneurship. This area was indicated as a field of experimentation and exploration.

Respondents have also evaluated research activity at Corvinus. In the past, there has been an expectation for research activity, but there was no conscious approach to measuring the volume and significance of publications before the university transformation. As a result, researchers have taken their previous ideas and developed them further, with a shift in emphasis from national to international publication. Researchers have a great deal of freedom in what they write about. Since the change of model, research infrastructure and support have improved and become uniformly good at university level. This was not the case before, the university did not have the resources for it, it was not a priority, and recently senior management started to emphasize research. For example, Subject #1 highlighted that *"the university supports participation in international conferences, the possibility of publishing in paid journals, and provides research support for questionnaires"*. But as Subject #2 pointed out, proposals, running libraries, searching and preparing research projects are also covered. Participant #4 pointed out research weeks and forums where professors share their work, and Participant #6 talked about the workshops to improve academic writing skills. The university encourages the formation of research groups, which are important for efficiency gains and knowledge sharing through discourse.

The university has set up a central research support unit, the European Research Grant Office (ERGO), which seeks out grant opportunities and manages the projects that are awarded, mostly with an international focus. So, this is the formal research funding, but there are also informal initiatives, for example Subject #6 has raised seed money for researchers whose ideas have not been funded by the central budget.

In addition to the creation of ERGO, a change and innovation is the Corvinus Institute for Advanced Studies (CIAS), which aims to attract good researchers from abroad and to highlight the most talented ones within the institution.

It is important to emphasize a systemic difficulty that Corvinus is currently facing. Hungary is excluded from most European Union tenders, which obviously affects Corvinus, and the success rate of Hungarian researchers in international competitions has recently deteriorated, although this should be part of the university's strategy. This was also pointed out by Participants 5# and 7#.

Thus, there is a strong emphasis on research, and with that came the metrics. As Participant #4 points out, *“the metrics for research are simple and clear: they determine how much and where you publish”*. Interviewee #3, who was otherwise sceptical, said that *“this at least had the advantage of being objective and gaming and cheating are less likely to happen”*. Respondents #4 and #6 raised the issue of quantity over quality, i.e. publishing more but not necessarily producing more innovative, creative output. For example, Respondent #4 said: *“I'm afraid this expectation of Q1 and Q2 publications is going in the opposite direction, so colleagues are choosing less innovative topics. They prefer something that's stable to write about, but not as exciting”*. Participants #4 and #6 also highlighted the fact that academics are not publishing in the right journals. The range of Q1 and Q2 journals is wide, with large differences in quality. Publishing has become a large business. For instance, MDPI and PLOS publishers publish a large number of peer-reviewed articles that are freely available online in exchange for payment from the author. Publishing in these journals might satisfy the expectations of universities, as the academic standards for publication are not yet strict enough. Furthermore, these publications are not recognized by Western benchmark universities. Altogether, participants believe that it will take a long time and a cultural change for the current system to work well.

Some activities were identified as falling outside the categories of education or research and were grouped as "Other activities". It was suggested that professors are encouraged to actively seek partnerships and collaborations with companies, and the university tries to create a culture of cooperation that fosters the exchange of ideas and knowledge. Such collaborations could have a positive impact on research and education. In terms of international initiatives, there was a push to increase the number of foreign professors and lecturers, as well as to raise the quality of courses to meet international standards. The importance of networking and knowledge transfer between researchers was emphasized, with suggestions for internal knowledge-sharing mechanisms such as faculty meetings, attending each other's classes, and

workshops. For example, a recent workshop was held on the topic of applying artificial intelligence. In terms of knowledge transfer, Corvinus lecturers have a long-standing tradition of visiting foreign universities to gain new insights into teaching methods, topics, and practices, and then bringing this knowledge back to share with their colleagues. Such activities have a positive impact on both teaching and research.

The most frequently discussed activities were educational methodology, undergraduate and postgraduate programs concerning educational activities, and publication and research infrastructure/support concerning research. Altogether, the model change brought about great changes in both education and research, and now the leaders of the university are seeking consolidation and a new balance between the two activities.

4.2.3. Ambidexterity

In this subchapter, I will explain the relationship between Corvinus's activities and the concepts of exploration and exploitation. Although the terms "explorative" and "exploitative" were not commonly used by the participants, I identified activities that corresponded to these concepts by looking for keywords such as "adaptability", "change", "experimentation", "radical innovation" (exploration) "stability", "incremental innovation" and "efficiency" (exploitation). Participants discussed innovations differently, and I identified a pattern: on one hand, they talked about minor refinements to existing activities and processes, and on the other hand, they talked about major changes. Accordingly, I introduced the concepts of incremental and radical innovations here. As already explained in the theoretical part, radical innovation is "*an innovation that is very new and very different from prior solutions*", while incremental innovation is "*an innovation that makes relatively minor change from (or adjustment to) existing practices*". (Schilling, 2019, p. 47.)

Figure 5 shows how the explorative and exploitative dimensions of education and research have been categorized based on the attributes that the participants have linked to these activities. The results have been presented in three different time dimensions: before the university transformation (up to 2016), during and after the university transformation (2019-2023) and at present (2024).

To understand how participants discussed the changes, please refer to the previous subchapter and Appendix 3. Additionally, Appendix 5 provides a clear table indicating which subactivities belong to exploration and exploitation.

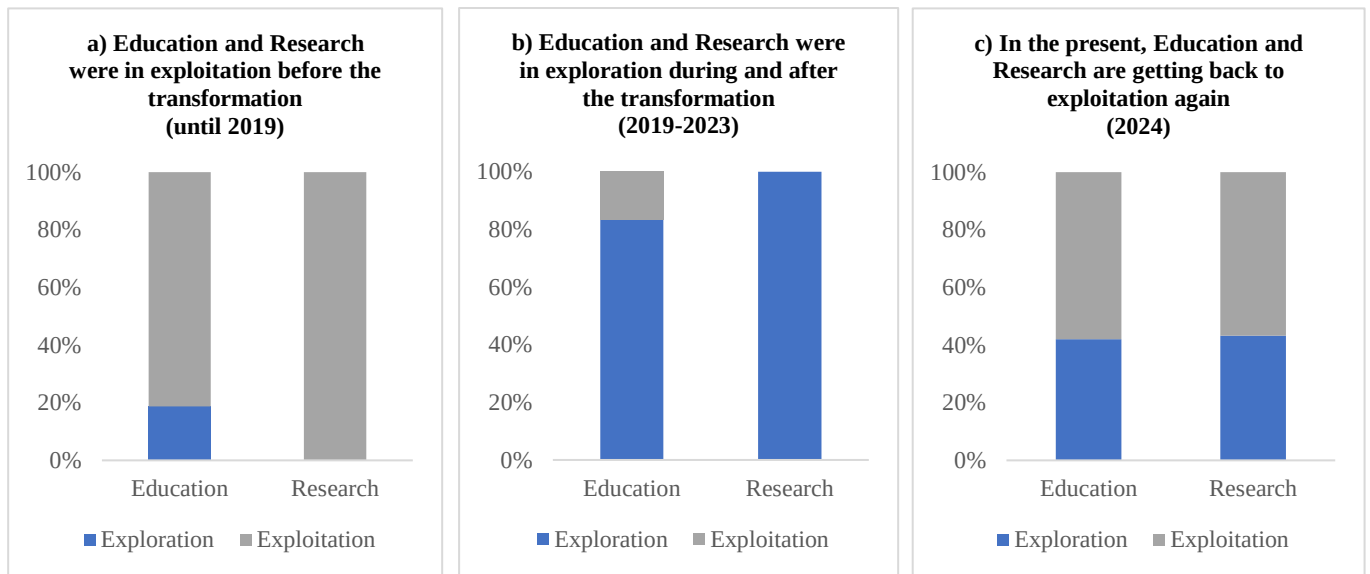


Figure 5. Exploitation and exploration before and during/after the Corvinus transformation, and in the present. Source: own editing.

Prior to the model change, the university had a stable educational portfolio and placed less emphasis on research, it was barely done (Figure 5a). The educational activity was shaped through minor innovations within existing programs (e.g. new specialization, launching correspondence trainings), curriculum developments and educational methodologies (e.g. new, digital tools, case studies).

However, after the model change, the university underwent a significant transformation which led to a complete restructuring of the university's maintenance and structure, impacting key activities too (Figure 5b). Participant #8 referred to this period as an "*era of structural changes*." This change created new opportunities for experimentation with educational programs and placed a greater emphasis on research. Participants considered this to be a turbulent time. New programs, such as PPE and Data in Business Science, were created and launched, and core programs were also radically reshaped, with similar undergraduate programs being combined into one big program, the Business Administration and Management program. The focus was placed on internationalization, including international research work, lecturers and students, and English language programs, resulting in the almost complete elimination of Hungarian language programs at the master's level. To meet the requirements of the new management and Hungarian policy narratives, a larger emphasis was put on research activity and more financial resources were allocated. CIAS was established to attract talented researchers from abroad, while ERGO was created to identify, support, or manage research projects. This centralized and organized approach to research was unprecedented earlier at Corvinus.

All participants agreed that the university is currently out of balance, but their opinions differed on whether the university has started to stabilize (Figure 5c). For instance, Participant #3 claimed that *"everything is malleable"*, indicating that there has been too much exploration, especially in education, and now the emphasis on research has become too significant. However, other participants, such as Participant #7 and #8, argued that the significant changes have ended, and the university is now making small improvements.

Every participant acknowledged the importance of small innovations and improvements as well as the necessity of adapting to the external environment now and in the future. In reference to Participant #1, he says *"I don't really think that in the life of an organization, (...) it's conceivable that there is no need for innovation, because the needs of the students, the world, the environment around us, fully shows that there is a need for adaptation."*

It's interesting to note that research activity is typically viewed as more exploratory, yet Figure 5c shows that it is more exploitative. This is because more participants expressed the opinion that most publications lack creativity and that researchers simply do the publications. Additionally, the desire to concentrate on forming research groups in order to increase efficiency is another factor that contributes to the exploitation of research. In education, newly introduced programs will have a lead time that keeps them in the exploration phase; nonetheless, the objective is to progressively develop them, putting them in the exploitation phase. With the master's programs, experimentation is still going on.

The participants stated that where the university has reached international standards they finished innovations (for now). However, if there is still a gap, more has to be done. For example, Participant #2 stated that *"where we have managed to meet international standards in processes, institutions, education, research, stability can begin"*, but he also said that *"we have not reached international quality everywhere, there is going to be still a little bit of program development, but we have done the really great things. And the rest of it can be scheduled and should be scheduled, at a slower pace."*, suggesting the need for stability too.

Even while the new structure is complete, there is still a lot of work to be done in terms of content: refining the undergraduate programs, reforming the postgraduate programs, improving the talent management, and improving publication activity, especially in mainstream areas. However, Participant #7 has pointed out that even though there is a need for innovations, the organization and people would react slowly, or not at all, as they are exhausted. After this period of radical changes, there is a need to put more focus on stabilization and exploitation.

4.2.3. Performance management and KPIs

The transformation of Corvinus' structure, activities, and the new, more financially conscious management, some of them coming from the corporate sphere, placed a larger emphasis on performance measurement and KPIs in the light of better resource allocation, higher efficiency and higher performance. In this section, performance measurement and KPIs are discussed according to the interviews. For the complete list of KPIs mentioned by the participants see Appendix 7.

I go into further detail on institutional level KPIs as well as individual level KPIs for lecturers and researchers in this subchapter. I asked the participants to describe which KPIs they thought were most essential for their work and for the university, before and after the model change. In addition, I went through input and output metrics, and also the processes. This division of inputs, processes and outputs was used by Chinta et al. (2015), and I found it a comprehensive approach to be recreated based on the information from the interviews (Figure 6).

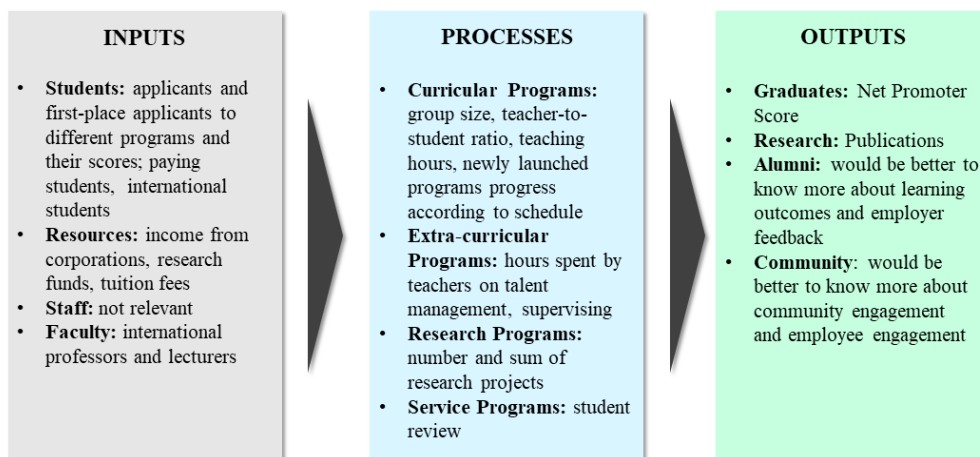


Figure 6. Highlighted KPIs by participants in terms of inputs, processes and outputs. Source: own editing based on Chinta et al. (2015).

It is worth to note that the institution created benchmarking and investigated what benchmark universities do in education and research to arrive at the new set of KPIs, however, I do not cover other universities in my analysis.

Before the university transformation, various education-related activities were measured in terms of hours, as highlighted by Participant #6. This included tracking every hour dedicated to educational activities such as oral exams during the application process, final exams, teaching hours exceeding the limit, seminars, preparation for seminars, lectures. The student review system, commonly known as the "*HalVel*" system, was frequently mentioned by participants.

Although it was designed to collect feedback from students on classes, methodology, study material, exams, teachers, and the overall subject, it was not flawless. Students may not be candid or provide fair input, and not all students fill it out. Furthermore, there is a correlation between negative feedback and bad grades, and teachers who teach easier subjects or tend to give good grades may receive better evaluations from their students. This can ultimately lead to grade inflation. Although student reviews are filled with bias, they are still necessary to measure what students think. In terms of research activity, all publications and conference participation were measured, but research activity was not a focus. As Participant #1 pointed out, *“it was not a central issue, obviously, people were doing research, and there were some very good publications, and there were research programs, and we had leading researchers, but it was not so much looked at where, how much someone published with these research publications, one of these quasi-measures, and now there is much more emphasis on that”*.

In addition to education and research activities, Corvinus measures its students based on several criteria. On the input side, they measure the number of applicants, the number of first-place applicants to different study programs, and application scores. On the output side, they measure student satisfaction, which determines how satisfied they are with the university, the study programs, and how applicable they find the knowledge on the job market (net promoter score, NPS). In between, the quality of education students receive is also measured through student reviews. The student-lecturer ratio is also an important KPI, and the group size of seminars is significant as there is a minimum requirement to enhance efficiency in economic terms. A too-large group size could be counterproductive in terms of the effectiveness of the study process.

Another KPI to highlight is related to the financing of the university. In the previous system, there was only one main indicator: to increase the number of students by 2% annually. The financing came from the state. However, this KPI became more challenging to achieve over time, due to the internationalization of higher education and demographic decline. In the new system, the number of students who pay tuition fees and the ratio/number of international students matter. On the other hand, the number of publications is also important as it is linked to international rankings where the university wants to achieve a higher rank. Climbing up the rankings is also the narrative of Hungarian educational policy. The university is financed by a non-profit organization where the state and corporations are also present as shareholders.

After the university transformed, the career path model and the measures established within the given career path became the most important tool in performance assessment for employees. One of the participants, Participant #7, pointed out that the system was innovative in creating

clear and sufficient career requirements, and it was helpful for many colleagues as it gave them guidelines. There are three career path models: research-oriented, education-oriented, and integrated (both education and research), and the performance goals and KPIs are determined accordingly (e.g. teaching hours or number of publications). The position that the person is filling also plays a crucial role. These career paths are chosen by individuals, and they requires a three-year-long commitment to the chosen path.

In this new model, the approach to educational activity is different compared to the earlier system, as the teaching hours and hours spent with supervising (thesis and PhD consulting, Students' Scientific Association paper sessions) are limited, and in case of excess, it is not compensated in monetary terms. Regarding the research-oriented path, not all of the publications are measured: internationally, the Q1 and Q2 publications matter, and locally, the A level defined by the Hungarian Academy of Sciences. However, the focus shift towards international publications is evident. One more indicator that shows the internationalization intentions is that the number of lecturers from abroad and the number of international co-authors became an indicator.

The Corvinus Research Excellence (CRE) was established to recognize exceptional research activity. Besides remuneration, it serves as a tool for performance measurement, where the journal where the articles were published and references matter, the latter is to evaluate scientific impact. As a counterpart to CRE, the Corvinus Teaching Excellence (CTE) was created to recognize the best teachers and their outstanding performance. Both CTE and CRE offer recognition and monetary prizes to the best teachers and researchers in the university, but they have to apply to be considered. Such as CRE, CTE is not only about remuneration, it is also a performance measurement tool. The CTE consists of MyView, a new student review system, peer review, and feedback coming from the supervisors (head of department, program coordinators). The old "*HalVel*" system was replaced by the MyView, which is more user-friendly and has some improvements. MyView allows students to rate lessons, instructors, and methods numerically, on a scale, or in text for both mid-year and end-of-semester evaluations. However, the number of respondents to these surveys has been extremely low. Peer review means that colleagues participate in each other's classes as observers and give feedback on pedagogical, methodological, and content perspectives. These teacher visits happen in a more organized, structured way, and more frequently than earlier. Altogether, CTE is an innovative solution that provides a comprehensive, 360-degree evaluation of educational activity that is incomparable to the previous system.

It is important to highlight that some measures were implemented to monitor the success of the new and reshaped programs and ensure that they adhere to schedules and timelines.

During the interview, the participants discussed some areas that need development regarding KPIs on both institutional and individual levels, as well as input and output data. However, they also mentioned that these areas can be challenging to measure, and sometimes they were not even sure how it would be possible to do so.

On an institutional level and as input data, an important indicator would be to measure the number of first-place applications (for the institution as a whole, by the level of training and by program), which *“has been falling quite a bit recently, but this does not seem to be a priority, even though the marketing activity and costs have increased enormously compared to before the model change”*, as Participants #6 claims. The university is tracking the highest entry-level scores for students, while also focusing on corporate revenue as an important indicator.

To ensure a more comprehensive approach, the university should also consider impact in terms of national publications and presence in non-academic forums such as conferences, internet portals, TV, and radio. Instead of additional individual indicators, it would be better to monitor the performance of small or large communities such as research project teams. Additionally, activities that build community or enhance the reputation of the university, even if they are voluntary, should be recognized.

It would be helpful to collect feedback from employers to gauge the effectiveness of the university's programs in preparing students for the workforce. However, this is a challenging task since students fill different roles in various companies. The university has a minimum requirement for employer feedback, but it is not enough. The Diploma Career Tracking System (*“Diplomás Pályakövetési Rendszer or DPR”*) provides some insight into the labor market situation of recent graduates, including how quickly they secure jobs and what their starting salaries are. However, it would also be useful to know the long-term impact of a university education, such as students' earning potential 5-10 years after graduation and how they can use their knowledge in practice. Additionally, it would be beneficial to understand students' perceptions of the university and if they feel the education they received is valuable. On the other hand, knowing the commitment and engagement of the community is also important. Understanding where the creative energies lie within the university staff and how information flows within the organization is crucial but difficult to capture.

Regarding the KPIs and performance measurement, some other concerns were also highlighted besides the validity, feasibility and reliability of the data that come from the MyView. As a result of the greater emphasis on research, extra or additional educational activities, like mentoring, or just helping a student in their research are not recognized as much as they were earlier. In Q1-Q2 publications the university is outperforming, but this is draining resources from everything else, including education, however, the authors barely channel them into their own classes. Furthermore, even though Q1 and Q2 publications are measured, and there is a tendency to sophisticate it even more and now D1 (top 10%) journals are becoming the goals, the researchers still have great autonomy in what and where they publish – and there is a large gap between quality even within the range of Q1 journals. So, in terms of quality requirements, it is not strict enough, and the researchers' approach is more about the volume, as claimed by Participant #4, #5 and #6.

There is a tension that the number and amount of international grants continue to be a KPI while Corvinus is excluded from research projects funded by the European Union (e.g. Horizon). In addition, although many publications are being written, there are currently no new study books being produced. In the past, producing these books was an important aspect of the university's focus on local issues and understanding the community. Additionally, there is a drawback to the current career path model at Corvinus. Advancement in the career trajectory and climbing the career ladder is dependent on publishing, which is not necessarily a requirement for colleagues focused on education.

It is difficult to measure the quality of education, and this dimension is limitedly represented in international rankings. Research activity is easier to quantify objectively. Participants #5 and #6 also highlighted the problematic side of rankings: they are measuring university performance by very different criteria and with different weights, therefore a lot depends on which ranking the university is aiming to improve its position.

During the review, it was noted that there is a general issue with the transparency and reasoning behind the calculation of targets. The KPIs often are more like aspirations rather than specific goals that can be used to determine remuneration. It was recommended that more clarity be needed in setting and communicating targets.

4.3. Institutional Development Plans

To elaborate on the KPIs discussed by the participants, I analyzed the Institutional Development Plans (IDP) of Corvinus from 2016 and 2020.

When analyzing the IDPs, I focused on the KPIs that were mentioned concerning strategic plans and are connected to education and research. I also used the insights I gained from the interview participants to narrow down my analysis to the relevant KPIs. Figure 6 and 7 show the results of the analysis on highlighted KPIs. The KPIs are from particular areas of the IDPs: International embeddedness, Education, Economic efficiency of programs, Improving effectiveness and engagement of students through internal services, Research and publication, Increasing the international embeddedness of the faculty and Trainings in IDP 2016 (Corvinus University of Budapest, 2017) and Educational programs, Research, Doctoral School, International relations, Corporate partnerships, Communication and Faculty development in IDP 2020 (Corvinus University of Budapest, 2020b). I chose these areas because they bring strategic significance for the university, as they are highlighted in the strategic plan.

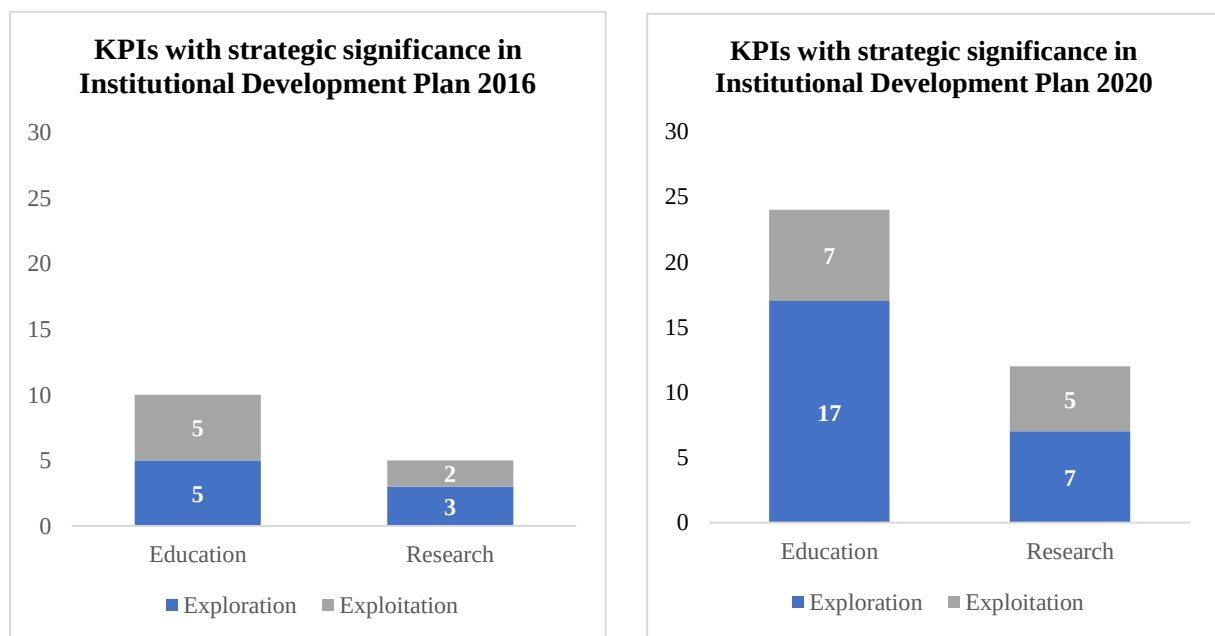


Figure 6. Comparing the number of KPIs of each area before and after the university transformation. Source: own editing based on Appendix 11.

Those KPIs that aim at efficiency improvements and stability are linked to exploitation, and the ones that foster experimentation and innovation are connected to exploration. These categorizations were made as a combination of inputs from the interviews, IDPs, and Peris-Ortiz et al. (2023) categorization. The detailed list is in Appendix 11.

For example, seminar group size, number of teachers, number of students with less than 20 students participating in training, student satisfaction and number and sum of research projects are related to exploitation, while the number of new and transformed programs launched,

number of blended learning study materials and number of corporate partnerships are explorative in nature.

According to Figure 6, the transformation process more than doubled the number of indicators in the strategic plans. The new KPIs are mostly related to exploration when it comes to educational activities and to exploitation and exploration when it comes to research. Figure 7 shows the change of KPIs in percent. KPIs to measure education shifted from exploitation to exploration, while indicators in connection with research activity did not change in this term. This is in line with the findings of Figure 5b: the university wanted to implement great changes between 2019 and 2023, and this is represented in the KPIs that are present in the IDP from 2020. However, these KPIs cannot (and should not) result in long-term exploration focus, as the organization became less reactive to change and processes started to stabilize, as shown in Figure 5.

The largest differences in the KPIs are attributable to the shift in general approach towards publications, and the transformation of educational portfolio and experimentation with research methodologies. Indicators of surging internationalization of the student community and student numbers are present in both IDPs, however, measures linked to staff training and talent management are shortcomings of the new version, while launching new and transformed programs, digital educational methodologies, publications, international faculty and corporate partnerships are more emphasized compared to the IDP from 2016. I will elaborate on these results and explain them later in the discussion.

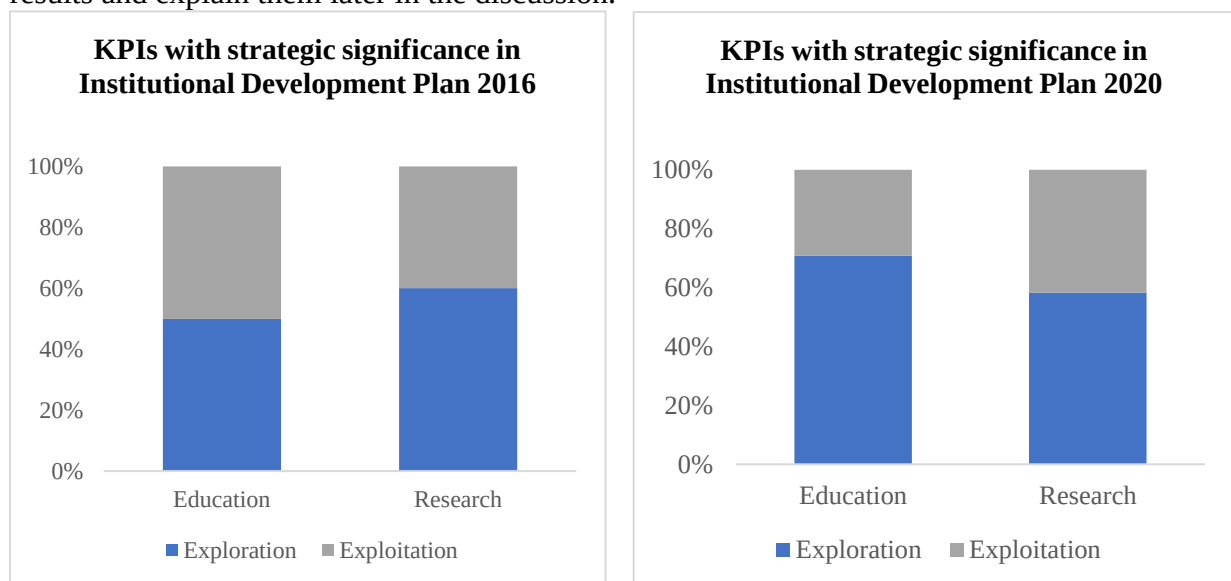


Figure 7. Change in nature of the KPIs of each area before and after the university transformation. Source: own editing based on Appendix 11.

5. Discussion

The transformation of Corvinus University of Budapest which officially took place on July 1, 2019, radically reshaped the organization in many aspects. However, it was not the root cause of the changes: it was an enabler that opened the door for great changes and provided the organization with greater freedom and autonomy to reform its operations according to its own preferences. Thus, the official model change was just a moment and a procedural step in a longer process. The transformation created a new organizational structure without faculties, reorganized institutions, changed the funding, and people from the corporate world were invited to manage the university. With them, stricter control and indicators came along.

The university transformation was a catalyst of change, but so were the COVID pandemic and the digitalization accelerated by COVID.

I conducted 8 interviews with faculty members filling in different positions (Table 3) to grasp the most remarkable changes that have taken place in recent years. I focused on educational and research activity and dived into subactivities that belong to these categories for better understanding. As I concluded from Table 2, research and education are difficult and downright incorrect to be connected with exclusively exploration or exploitation, respectively, as these activities compromise various, very different processes. For this reason, I highly relied on the interviews to understand what belong to exploitation and exploration specifically in the case of Corvinus.

Participants brought up particular examples to explain the changes, and as shown in Figure 4, their descriptions of education and research align. Education used to be stable, with minor, incremental changes within the programs, teachers were motivated to make adjustments in the curriculum and their teaching methodologies, but nothing radical happened. Research activity was ongoing, but it was not the focus, and the research infrastructure and research support were fragmented in the university. However, the model change brought about great changes, accelerated by COVID and digitalization. The university became more autonomous, therefore it could finally launch new undergraduate programs that had been long cherished before, namely the PPE and Data Science in Business. Numerous smaller undergraduate programs were eliminated, or at least merged into one comprehensive program, Business and Management. The number of English language programs has been on the rise too, and almost all of the postgraduate courses were eliminated to surge internationalization and attract international students, lecturers and researchers. The application process to the university also went through

a reform, as the earlier system with several different exams tailored to particular programs was replaced with standardized written tests. Meanwhile, research was given greater attention, especially Q1 and Q2 publications, and the research support was significantly improved. A greater budget was dedicated to research, and a new department, the ERGO was established to facilitate research projects. The internationalization goals of the university became ubiquitous: international students, international collaboration, international lecturers and professors, CIAS, and so on.

This period between 2019 and 2023 was extremely turbulent as the entire organization and the earlier very stable and unchanged education and research went through radical changes, and to make these changes happen, the model change was inevitable. However, the organization and the individuals became exhausted and less reactive to the upcoming innovations even though they would be smaller in scale. The question is, where does Corvinus stand now?

As shown in Figure 5, before the university transformation, both education and research activities were exploitative in nature, then they became very explorative during the transformation. As Participant #8 stated, the *“era of great changes has come to an end”*, but there is still a need for improvement. As Participant #2 mentioned, *“we have not reached international quality everywhere, there is going to be still a little bit of program development, but we have done the really great things. And the rest of it can be scheduled and should be scheduled at a slower pace.”*

Accordingly, the university has embarked on its journey towards stability. Some experimentation still will take place, especially with the talent management and postgraduate programs, but the majority of modifications will be incremental innovation.

And now, the question could be whether this “new” stability, or this direction towards to new balance with a much greater emphasis on research is sustainable or sought-after at all. However, this is out of the scope of my research. Based on the directives of the new management and new Corvinus strategy (Corvinus University of Budapest, 2020a) they consciously want to make a shift towards research, which they have already made, and now the goal is the stabilize the university to strike the balance.

Corvinus is a business school, and a *“business school is about teaching”*, as Participant #7 highlighted. Where the balance lies between exploitation and exploration is different for each single organization (Birkinshaw and Gibson, 2004a, 2004b). For Corvinus, the balance used to be a state where exploitation was dominant in education and exclusive in research (Figure 5a).

During the transformation, the university was completely out of balance. All of the participants agreed that too much radical innovation, and too much exploration took place (Figure 5b), and they expressed a need for stabilization and further incremental innovations.

However, the new equilibrium will be different from the one in the past. It has one main reason: internationalization and globalization of HEIs.

Firstly, decreasing demographics and low domestic student base started the internationalization process of HEIs (De Wit & Altbach, 2020; Hungarian Ministry of Education and Culture, 2009; Kovács, 2020). This is both a challenge and an opportunity to which Central European universities have to react. They have to be part of the international competition to get the most talented students, however, the best students aim to get into prestigious Western European (or North American) schools. This pressure to internationalize also comes from national policymakers. Furthermore, to be internationally recognized, a university has to possess an acknowledged position on different rankings, for which research activity is crucial. (Hungarian Ministry of Education and Culture, 2009)

However, being embedded in the international environment and responding to local needs is an obvious challenge among regional universities (Thomas et al., 2023), and so is it for Corvinus. Thomas et al. (2023) introduce the concept of multidexterity, as a next step or a more appropriate framework for ambidextrous universities, meaning that a university needs a social mission and social activities on top of the economic ones when interpreting performance. A university like this puts more attention on regional problems, can quickly react to needs, and is actively involved in shaping its environment.

Internationalization increased the demand for resources. This led to an increase in tuition fees and a higher necessity for accountability, transparency and control. These were unprecedented before and gave rise to the New Public Management (Kovács, 2020). This is the process that Corvinus also went through, and a new management came along. Consequently, there is pressure from both the outside and the within that prevents the university from returning to its former state.

I relied on the pre-existing literature to understand how much universities and their core activities can be described as explorative or exploitative (Figure 1). In the absence of other concrete case studies, the theory is an appropriate proxy for determining what usually ambidexterity looks like for universities: more activities are deemed to have a connection with education, and research is dominantly explorative, while education is dominantly exploitative.

Interestingly, none of the outlined states of Corvinus resemble this (Figure 5). This is not completely unexpected, as the ratio of exploration and exploitation is very idiosyncratic (Birkinshaw and Gibson, 2004a, 2004b), however considering the premises this still should be a direction where Corvinus shifts closer to.

The activities' descriptions and the reasons they were classified as either exploratory or exploitative or belonging to education or research (or both) were less adequate in the literature review, and I had to rely more on the authors. This is one logical difference to highlight between the literature (Figure 1) and Corvinus (Figure 5). Because of this, I added a third category, "Education, research," to Figure 1 in addition to "Education" and "Research," for these not-well-defined activities. Since I could better grasp the essence of the actions through specific examples presented during the interviews, I chose not to apply this third category in the case of Corvinus.

Figure 8 shows a visual representation of the future balance, where Corvinus is an ambidextrous organization. This figure is based on the interviews, current strategic directives of the university (Corvinus University of Budapest, 2020a, 2020b) to meet the expectations of policymakers and the management, and findings from the literature review (Figure 1).

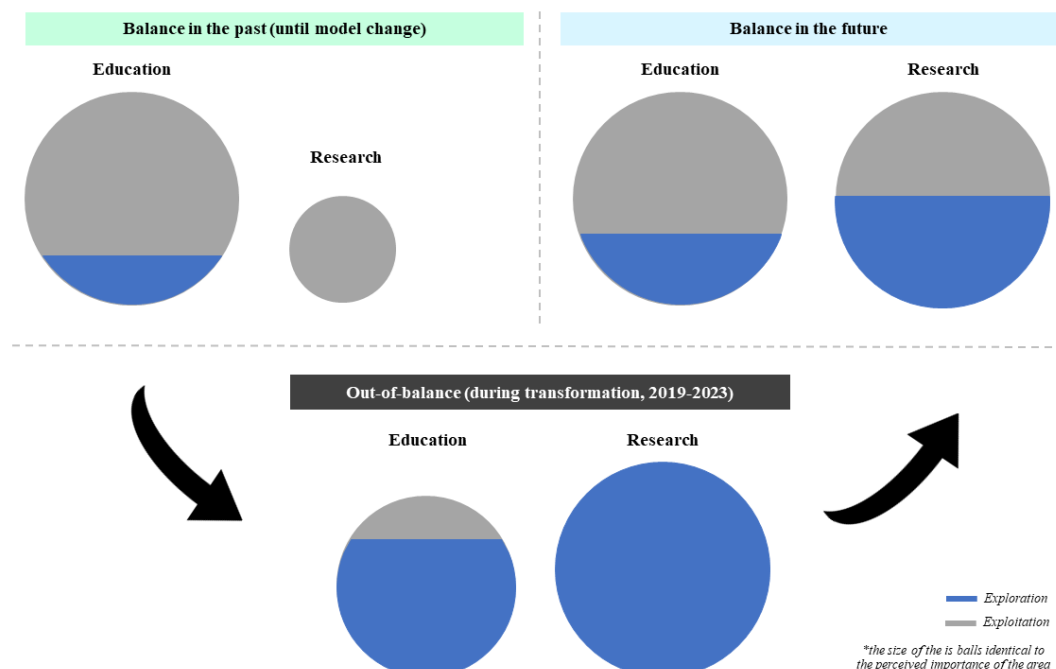


Figure 8. Balance for Corvinus University of Budapest in the past and in the future. Source: own editing.

Therefore, to answer my first research question (RQ1) “*Where does the balance between exploitation and exploration lie for Corvinus University of Budapest?*”, the balance for Corvinus is reached with a shift towards research and larger exploration in both education and research compared to the state the university had in the past (until the model change) (Figure 8). It is important to highlight that Corvinus is now trying to move closer to this balance, as it went through too much exploration recently.

The rationale is that universities are pursuing exploitative activities, but there is a push for exploration, which is mostly done through research, and this is what the rankings are appreciating. More exploration will be needed in education than in the past (but the current state in 2024 will have to be scaled back a bit), while in research more exploration will be needed than in the past and in the present.

The NPM gave importance to more comprehensive management control systems and KPIs in a university setting (Kairuz et al., 2016). Lewis et al. (2007) point out that these management tools can help find the balance between exploitation and exploration. Considering the new balance for Corvinus, the question is, how KPIs can be utilized to find this balance, and how they have been changing recently?

The model change and a more financially conscious management placed larger emphasis on control and hastened to reform the performance measurement. The university has been tracking its performance earlier too, however, it had fewer strategically significant indicators (Figure 6). As the need for accountability, transparency and higher productivity grew, the number of strategic indicators also multiplied, in line with the key concepts of NPM (Lewis et al., 2007). As Participant #8 also pointed out, this university “*was not used to being measured earlier*”.

University rankings were given a central focus. These rankings usually value and take exploration more into consideration (Peris-Ortiz et al., 2023), which is not a coincidence, as exploration correlates with research, and research activity is easily quantifiable and more objective compared to education. As Participant #3 highlighted, “*at least it [publication] has the advantage of being objective and gaming and cheating are relatively harder to happen here.*”

Peris-Ortiz et al. (2023, p. 8.) examined five university rankings based on what the weighting of exploration and exploitation is, and found, that the weight of exploration was between 41% and 90% with an average of 68%. (The list of explorative and exploitative KPIs is shown in Appendix 8, and I linked them to educational and research activities in Appendix 9.) On the

contrary, even though the new management gave strategic importance to these rankings and improved research activity, these actions are not represented in the new IDP. More research-related KPIs were introduced, however, their number is still half of the KPIs used to assess education (Figure 6). In fact, the ratio of explorative-type KPIs for strategically important research did not rise; rather, it remained the same (60%) prior to the model change (Figure 7). This is comparable to the level of the rankings, where the average weight was 68%. Based on this argumentation, the weight of exploration-type KPIs is sufficient to support the university in reaching a better position on the international rankings. Concerning education, currently, numerous KPIs are linked to new programs resulting in a larger weight for exploration. This will not be sustainable in the long run, as the university staff has already stated that there were too many changes. Therefore, KPIs have to support stability more in the future in the field of education.

One more aspect to highlight is that the newly introduced research indicators (e.g. Q1-Q2 publications) were intended to accommodate innovation and are considered exploration indicators by Peris-Ortiz et al. (2023). However, in the case of Corvinus, indicators linked to Q1-Q2 publication increased efficiency as the staff published more, but it did not lead to more creative and high-impact articles. While international researchers and international research projects can, this indicator cannot foster innovative research properly. The majority of the interview subjects expressed skepticism too.

To sum up and answer my second research question (RQ2), *“How have the key performance indicators been changing during the transformation in order to find the balance?”*, is that the university needs to introduce fewer exploration-type indicators in education to promote incremental innovations, and should modify the exploration-type indicators in research to reach full potential. As university rankings weigh exploration (research), it is crucial to introduce appropriate KPIs in this field if Corvinus seeks a better position.

In Figure 9, I visualized how the new balance would look like for Corvinus, translated into concrete activities, using the theoretical framework I created earlier (Figure 1). I also added the corresponding KPIs. For further explanation of the connection between activities and KPI see Appendix 10.

	EDUCATION	RESEARCH
EXPLOITATION	Activity: - Professional staff training, workshops - Improving existing programs - Improving education methodologies - Curriculum development - Undergraduate programs Performance measurement: - Student reviews (MyView), CTE KPI: - Student group size, number of students, number of first-place applications, ratio of paying students, number of lecturers/researchers participating in training, number of produced study materials (e.g. books, case studies), student satisfaction, content relevance	Activity: - Research groups for efficiency improvements - Research infrastructure and support (ERGO) - Participation and organizing local conferences Performance measurement: - CRE KPI: - Number of successful research projects and publications per group, number and sum of research projects, number of participations, number of organized conferences, number of participants
EXPLORATION	Activity: - Talent management - Postgraduate programs - Engaging the alumni network - Partnerships with corporations and local communities - Internationalization KPI: - Number of student participating in talent management, number of transformed postgraduate programs launched, number of new programs launched, number of microcredential courses provided, number of corporate partners/projects, income growth (%), number of local projects, ratio of international students (with high application scores)	Activity: - High-quality publications - International research collaborations - International researchers - Participation and organizing international conferences - CIAS - Partnerships with corporations and local communities KPI: - SJR score, references, number of international collaborations growth (%), number of international researchers growth (%), number of international researchers coming from top universities,

Figure 9. Balance for Corvinus University of Budapest in the future, translated into specific activities and linked to KPIs. Source: own editing.

The key points of the matrix and how these activities and KPIs support Corvinus as an ambidextrous organization are the following:

- Education & Exploitation.** Professional staff training and workshops are essential for skill development and knowledge transfer among staff members, therefore this is the baseline of better education. The recent turbulence would be well counterbalanced if the university invested more time and energy in providing all staff with the tools to catch up with their peers in terms of teaching materials and methodologies. Improving existing programs, education methodologies and curriculum development should be continuously renewed based on current trends. But the renewal should be incremental with the purpose of keeping the content up-to-date and also bringing in more local/regional focus in education, so Corvinus could keep up to its mission to educate the best professional for the region (Corvinus University of Budapest, 2020a). Regional embeddedness gives the university a competitive advantage over its Western European competitors in the region. The activities listed here are in line with Figure 1. The

undergraduate programs went through major changes, therefore, they should be consolidated. The KPIs that can support these activities are focused on education, stability and efficiency.

- **Education & Exploration.** The university is going to further reform the master programs which in general are good for experimentation (e.g. microcredentials), while the undergraduate programs are more stable, as also highlighted in the original matrix (Figure 1). The other activities were identified through the discussions with the interviewees. Talent management, reaching out to the alumni, enhancing corporate relationships and relationships with local communities and taking further steps towards internationalization are also experimental areas for Corvinus. The role of local communities, local organizations and talent management is a currently unexploited area that allows the university to make an impact and pursue its social mission. The KPIs to accommodate these activities encourage experimentation and novelty.
- **Research & Exploitation.** In the original matrix, research groups and efficiency improvement initiatives were listed in this field. In the case of Corvinus, research infrastructure and support (ERGO), organizing and participating in conferences (with a local focus) are presented here beside research groups. These activities foster networking, knowledge transfers and therefore efficiency besides effectiveness. Relevant KPIs make research activity and processes smoother and more efficient.
- **Research & Exploration.** International initiatives, collaborations with local communities and companies and high-quality publications are presented here. To succeed in this category a very different approach, and also a change in the organizational culture are necessary. The problem with current Q1-Q2 publication metrics is that they encourage people to produce more articles, not necessarily better ones. This is because this KPI is not a good proxy for quality. Instead, the SJR score is a better proxy. The KPIs that belong in this category promote high value-added research and internationalization, which are represented in university rankings.

To summarize, Corvinus was in balance until the model change, with a strong focus on education and exploitation in both education and research. However, the model change caused radical changes that kicked Corvinus out of this balance. The university should not seek its return to the earlier state, as external and internal expectations have changed. It should embrace stability and continue with mostly incremental changes and eventually arrive to the new balance, where education and research activity are equally emphasized, and both have

exploration-type activities in a larger proportion compared to the times before the model change. KPIs have a role and power to make the organization shift in the right direction. In education, they should promote efficiency, stability and incremental innovation, while in research the indicators have to be modified to enable this area to reach its full potential in quality publication.

6. Conclusion

A need for more diverse higher educational programs emerged, and higher education universities started to proliferate. As their domestic student base exhausted, they turned their focus to the international environment. This process increased resource demands that could not necessarily be met by the public sector. The role of the private sector grew, and it led to the proliferation of management concepts and tools. Accountability, transparency and efficiency became top priorities, and to alleviate their concerns, the private actors prompted the universities to introduce comprehensive management control systems and KPIs.

The previously very stable Hungarian higher education system went through a similar process, resulting in radical changes in the life of Corvinus University of Budapest too. The Corvinus transformation officially took place on July 1, 2019, however, its effects are still visible.

Ambidexterity is a concept that is especially useful to survive and perform well in a dynamic environment. An ambidextrous organization can follow two different kinds of activities at the same time, known as exploitation and exploration, therefore giving the organization stability while allowing it to react to changes. An organization has to strike a balance between these dimensions in order to perform outstandingly. However, where the balance lies is different for every organization. The question is, where is it to be found in case of Corvinus, and how KPIs can help to reach it?

Based on the systematic literature review I conducted, I concluded that ambidexterity in connection with universities and KPIs is a highly undiscovered area and an adjustment in the original ambidexterity definition is needed. Therefore, I define ambidexterity as the ability of the university to find the right balance (ratio) between how exploitative and explorative education and research activities should be. Education is more exploitative, while research is more explorative, however, this statement is not generalizable. Education can be explorative, as research can be exploitative too. I proposed a matrix to better translate ambidexterity to universities.

I conducted 8 interviews with members of university staff and analyzed Institutional Development Plans. The results show that before the university transformation, Corvinus was education-oriented and both education and research were characterized by exploitation. During and after the model change (2019-2023) the university went through radical changes, a larger focus was placed on research and exploration prevailed in both main activities. This led the an urgent need for stability and consolidation. Currently, the university has started to shift to exploitation again. The university has finished the structural changes, however, some further innovations (mostly incremental ones) are still approaching. Due to rising managerialism, the number of KPIs with strategic significance doubled during the model change. The indicators accommodated exploration, however, in research, the expectations were not met regarding high-quality publications. The explorative nature of KPIs was necessary to help the transformation. But now they have to change. The future balance of Corvinus is a state where equal emphasis is put on education and research, and both activities are more explorative in nature than they used to be before the model change. KPIs have to foster stability and exploitation in education, while the alteration of particular KPIs in connection to research is necessary.

In order to achieve this balance, I made recommendations in terms of focus activities and corresponding KPIs. To provide stability in education, explorative activities should be focused on, such as professional staff training, workshops, improving educational methodologies and curriculum development. The role of KPIs here is efficiency improvement and incentivizing incremental innovations. Indicators that fulfill these requirements are for example number of lecturers participating in training, the number of produced study materials, internationally and locally relevant content and number of students. However, the focus on exploitation does not mean that exploration should be eliminated. Talent management and postgraduate courses are still to be reformed and are likely to stay highly innovative areas. Regarding research, higher efficiency could be reached through research groups, while the use of SJR score instead of Q1-Q2 level publications is a better proxy of quality.

Altogether, both exploration and exploitation should be maintained and supported by KPIs in education and research, however, the ratio of these two dimensions is key.

6.1. Limitations

There are two limitations to this study, the applicability of ambidexterity for university and bias arising from interviews.

Currently, the academic field between ambidexterity, higher education management and KPIs is under-researched. The majority of the literature I found is highly theoretical, with only a few concrete, practical examples to serve as a guideline for analysis and discussion. Furthermore, the application of business concepts in higher education context is limited. Sometimes it works well, sometimes refinements are needed to the original concepts, and in some cases, the business concepts fail to be useful and relevant. During this research, I also encountered difficulties in applying ambidexterity for Corvinus resulting in a concept that was harder to define clearly due to the mixed nature of education and research.

The second concern is related to the interviews. Many employees see the Corvinus transformation critically, which might have influenced how they described certain activities and changes. My personal involvement as a student is also a bias, as I have formulated my opinion about particular actions prior to my research. Furthermore, my interview subjects have similar profiles which might have limited the scope of the insights too much.

6.2. Future research

This study is focused on Corvinus University of Budapest, however, it might be interesting to apply the created framework to other institutions. The framework can be useful to understand how short-term versus long-term oriented the university is, and how the resources are allocated. It can stimulate thinking about the strengths and shortcomings of the activities and provide a guideline to identify whether KPIs, activities and strategy are aligned and point in the same direction.

Another improvement area would be to increase the number of interviews and include participants from diverse areas. Students, administrative staff, former employees and even external stakeholders could provide information for a more comprehensive picture.

Last but not least, the study has an internal focus, and the recommendations were made based on the literature review, internal documents and interviews. When choosing the KPIs, benchmarking to other universities would be a considerable next step, as well as connecting concrete, quantifiable targets to the KPIs. This can be a sound basis for establishing a comprehensive management control system too.

Appendix

Appendix 1. List of interview questions

Introduction

1. Introduce yourself briefly! What do you do, how long have you been working at the university? How would you define your job, and your tasks before and after the model change? How has it changed?

University transformation, dimensions (exploration, exploitation)

2. How has the university's innovativeness in education changed since 2016? Please illustrate this in the diagram below. Why is the figure like this? What are the high points, low points, inflection points? What activities have shown innovation and stability?

3. How has the university's innovativeness in research changed since 2016? Please illustrate this in the diagram below. Why is the graph like this? What are the high points, low points, inflection points? What activities have shown innovation and stability?

4. In what activities are exploitation and exploration shown? How has their role and importance changed over time at the university? Has this been reflected in indicators and, if so, how?

5. Which indicators would you highlight in the field of education and research? How did these change before and after the model change? (On the institutional level and in your work.)

6. Which indicators would you highlight that promote efficiency and which promote innovation? How did these change before and after the model change? (On the institutional level and in your work.)

7. And what KPIs do you think would be appropriate to measure the performance of the university and your own work?

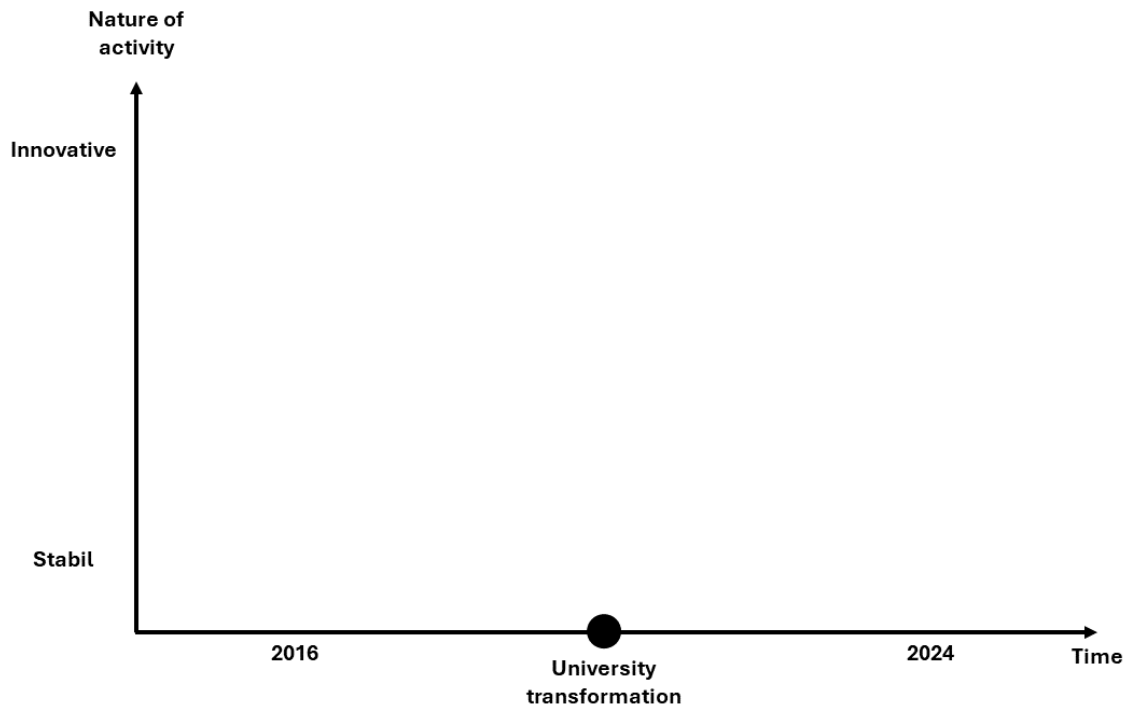
8. Is there a tension between desirable activities and indicators? For example, are activities desirable that the indicators do not measure, or do the indicators encourage activities that are not desirable?

Closing question

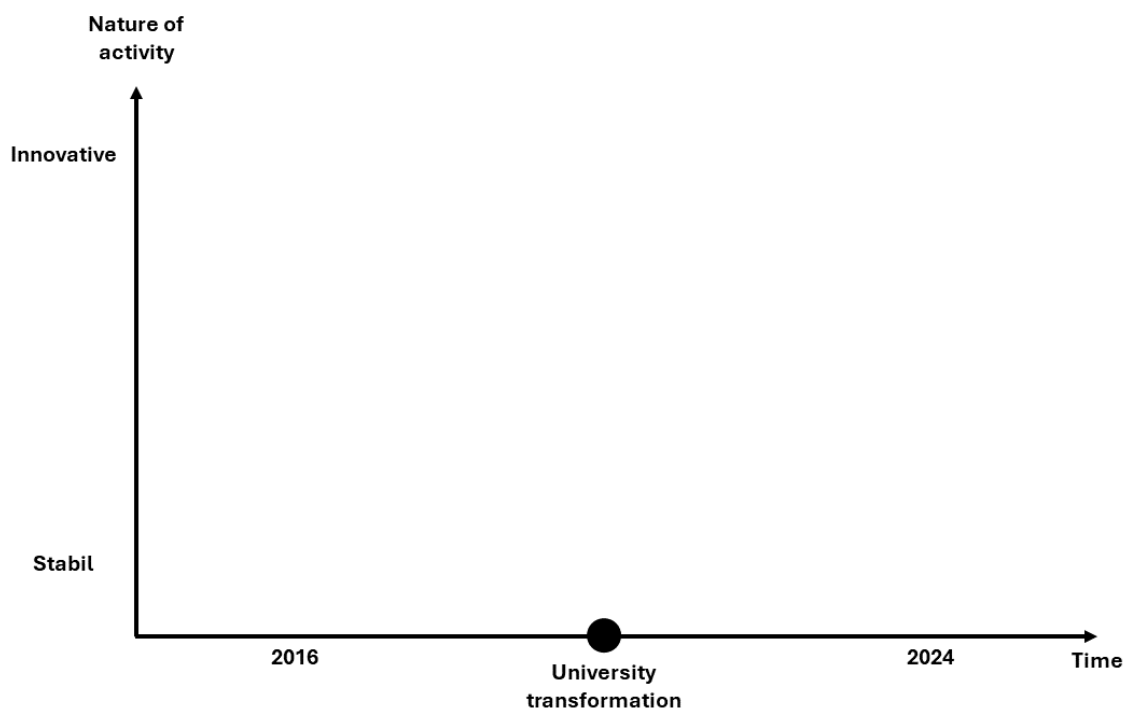
9. How would you describe a Corvinus where institutional stability and innovativeness are in balance?

Appendix 2. Original figures shown during the interviews to capture the characteristics of activities (Education, Research)

THE CHANGES OF RESEARCH ACTIVITY OVER TIME



THE CHANGES OF EDUCATIONAL ACTIVITY OVER TIME



Appendix 3. Figures, their descriptions and example quotes by each participant

PARTICIPANT 1		
EDUCATION	RESEARCH	EXAMPLE QUOTES
THE CHANGES OF EDUCATIONAL ACTIVITY OVER TIME - Stable educational portfolio with small improvements before the university transformation. It became innovative as recently two completely new undergraduate programs were created and launched (PPE, Data Science in Business), and Business Administration and Management were reconsidered. - Student review was a stable system („HalVel”), then it was transformed after the model change (CTE) - Talent management has always been innovative, and recently it was improved even more (Student Scientific Papers, Colleges, teacher’s assistants).	THE CHANGES OF RESEARCH ACTIVITY OVER TIME - Preferred not to draw - Greater emphasis was placed on research after the transformation. - Publication was mentioned, as earlier the university did not take such a conscious approach to research and did not measure it - Research support was mentioned as an activity that became more comprehensive.	„Nobody has launched it [PPE, Data Science in Business] yet in Hungary, we are the only one. (...) as far as I know, there are not many universities in the region that offer such programs at the undergraduate level. So it is definitely an innovative one.” “Regardless of how we shape our portfolio, we can say, that management studies, economic and social sciences are interconnected. This gives stability to our education.” „This is the direction in which the new [talent management] system goes. I don't feel that it is much more innovative here, (...) because I think it was innovative before.” „The university supports participation in international conferences, publication in paid journals, and gives support for questionnaireing.”
PARTICIPANT 2		
EDUCATION	RESEARCH	EXAMPLE QUOTES
THE CHANGES OF EDUCATIONAL ACTIVITY OVER TIME „Structural” (top-down, radical) and „within-the-structure” (bottom-up, incremental) changes were separated. - Structural changes thrived during the transformation, while grassroots initiatives soared. - The pre-model change era was characterized by internal, incremental innovations with several curriculum and program developments - After the model change the English language programs were given top priority.	THE CHANGES OF RESEARCH ACTIVITY OVER TIME „Structural” (top-down) and „within-the-structure” (bottom-up) changes were separated. - Research activity was stable and at a low level before the university transformation. Structural changes were achieved during the university transformation, but now it has started to stabilize again. Structural changes thrived during the transformation, while grassroots initiatives soared. - Tenders, running the library, preparing projects, organizing research, and internal conference support belong to structural changes. - Research is not overemphasized.	„(...) [“within-the-structure” change] in a department, a curriculum development, which doesn't happen because we're starting a new subject, but there's a subject that we're doing, and all of a sudden colleagues say, well, a lot of things have changed in approach, I read a good book, and let's put it together. Or colleagues say that a lot of research material has now been collected, and we should incorporate it into a curriculum..” “(...) does not mean that we have not developed the content, but rather that we have done so as a consequence of top-down things. It could still be that somebody (...) was motivated from within [“within-the-structure”], but that there was an overriding intention, a top management intention, in this respect.” „I don't think we exaggerated it [research], talking to universities where it's much worse. Abroad, when a colleague sleeps in the building specifically because he wants to do research so badly.” „...the research support system, which we did at the Faculty of Business Studies, we were able to transfer most of it to the university level. (...) you have to be motivated, you have to have resources.”

PARTICIPANT 3

EDUCATION	RESEARCH	EXAMPLE QUOTES
THE CHANGES OF EDUCATIONAL ACTIVITY OVER TIME The educational portfolio used to be very stable until the model changes and then the model change was followed by radical changes and fluctuation: eliminating Hungarian language programs at the postgraduate level, standardized (unachievable and inadequate) entry criteria for students,	THE CHANGES OF RESEARCH ACTIVITY OVER TIME - There was a big shift in mindset towards research and international publications. However, this is not unique to Corvinus, the entire Eastern European region does the same. - Hungary was excluded from the projects financed by the European Union, so international projects became harder to get and could not be done representing Corvinus. Research support has changed after the university transformation, and became significantly better, and now quite stabilized. Earlier, research support was minimal, because the university did not have the resources and the money for that. Internationalization is also present in recruitment: the goal is to hire professors from abroad. This is a crucial change compared to the old system.	„I had a feeling that it was a pretty stable thing until then. I didn't necessarily need to see all the changes, I certainly didn't, but I didn't have the feeling that there were many [innovations]. It went up for a little bit after that and then it kind of jumped up somewhere [around the model change] (...) now with fluctuations, but right, so this is the education portfolio. Since then it's been constantly high [the fluctuation], so now we're still going..” “(...) research activities. We made a big leap. So it is true that there has been a strong shift in emphasis towards international and journal publications..” “I think the research support system has improved. Basically, it's much better (...) This is because the top management has agreed to have resources for this.” „Well, in this recruitment, this international approach, it's going. So we try to recruit foreign people. This is also a remarkable change from the situation before 2020-21.” „ (...) at least [publication] has the advantage of being objective and gaming and cheating are relatively harder to happen here.”

PARTICIPANT 4

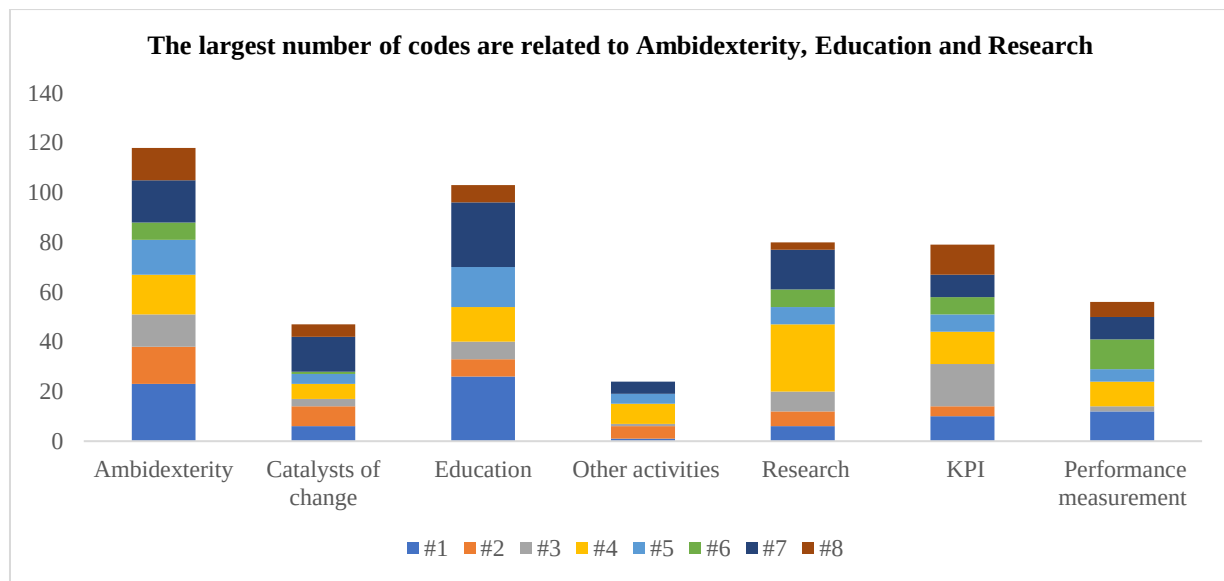
EDUCATION	RESEARCH	EXAMPLE QUOTES
THE CHANGES OF EDUCATIONAL ACTIVITY OVER TIME - The change in the educational portfolio was driven by the top management of the university. A lot of varying took place, regarding the duration (one or two years) and language of the programs (English programs). - The development of undergraduate programs has finished, but there is still a lot to do with postgraduate programs Internationalization. Corvinus has a high percentage of international students as they play a significant role in the university's income and rankings. Retaining Hungarian students is challenging. Educational methodology and innovating it became a top priority during the transformation (but it was important earlier too). The interactions between students and teachers during classes became more dynamic and meaningful.	THE CHANGES OF RESEARCH ACTIVITY OVER TIME Research activity was minimal before the university transformation. However, publications are about the quantity and not quality, as the university do not set strict enough guidelines and researchers have total freedom in where they publish, even though there is a huge gap in quality between different Q1 and Q2 journals. Research support, both formal and informal are enhanced. Formal research support improved as research became emphasized by the management after the model change. Now, people are encouraged to discuss their research and to participate/organize conferences, and there is a central budget available for these. - At the individual level, we reached peak level. There were a lot of innovations on a large scale. The next step is to organize research groups and lead a change in organizational culture.	“At a bachelor level, I think it has been transformed. The plan there was to have more general programs. I think that's pretty much passed, that's pretty much done.” “(...) there were big lectures, I don't know, then the teacher went in, the idea was not quite like that, but it wasn't so intensive in terms of engaging the students. Now you may have fewer students in your class, but it's still more intense..” “(...)but it [transforming the educational portfolio] happened very quickly, then there was a lot of variation, that we'll start with this, this will be in Hungarian, no, that will be in English, this will be for two years, this will be for one year. It's chaotic, so I wouldn't call it innovative..” „It was actually stable for a long time because research was a hobby here.” “(...) I gave them a list, which is different from what the university asks for. (...) Colleagues have a very large room to choose where to publish. I don't necessarily agree with that.” “We made the most of it at the individual level, and as I told you, there were quite a lot of innovations that were scaled up. (...) Now we are working to create groups. (...) This has to develop organically, it cannot be forced.”

PARTICIPANT 5		
EDUCATION	RESEARCH	EXAMPLE QUOTES
THE CHANGES OF EDUCATIONAL ACTIVITY OVER TIME - The blue line represents the university, while the grey line represents the individual/faculty level performance (Faculty of Business Economics). - The participant and his faculty have been always seeking innovative educational methodologies, new content and tools (e.g. Kahoot, Slido, case studies), and as these practices became widespread in the organization thanks to the transformation and COVID, their relative position decreased. They have been also encouraged to go abroad and stay at prestigious universities to bring the knowledge home. Practical, real-life experience was also embraced by the university, but its importance declined after the model change, and the focus shifted towards theoretical and academic work. The role of local knowledge, book writing, and translating were also downplayed.	THE CHANGES OF RESEARCH ACTIVITY OVER TIME - The blue line represents the university, while the grey line represents the individual/faculty level (Faculty of Business Economics). - The faculty was already good at research with a well-working research support system, and these practices had started to diffuse in the university even before the model change. - After the model change, research was given greater focus, and it was given larger recognition than education. The professors started to shift their focus from local matters and local conferences to international ones, and increased publishing internationally in Q1 and Q2 journals.	„So, I think that we [Faculty of Business Economics] had already made the big innovations in the '80s and '90s. We didn't have to bring in too many new things in the 2000s, because even then we were already where others in the world were, but it was far from common in the university. (...)” “COVID was a huge impetus to start distributing education methodologies centrally.” “Colleagues have reorganized their portfolios. They publish where it matters. Since what counts is to produce international Q1 and Q2 articles, that's what colleagues are producing and they are not going to national conferences.” „The [publication] quantity is probably the reason why there is a larger intensity. Are they more innovative? Well, I don't know...” “I'm afraid this expectation of Q1 and Q2 publications is going in the opposite direction, so colleagues are choosing less innovative topics. They prefer something that's stable to write about, but not as exciting”. “I was just looking at the research strategy, and it says that our colleagues don't participate enough in international competitions. Because we are excluded...”

PARTICIPANT 6		
EDUCATION	RESEARCH	EXAMPLE QUOTES
THE CHANGES OF EDUCATIONAL ACTIVITY OVER TIME Preferred not to draw and not discussed	THE CHANGES OF RESEARCH ACTIVITY OVER TIME - Preferred not to draw - There has been a lot of progress recently in terms of research infrastructure and research support to accommodate researchers' work. These were small innovative practices that were already applied by benchmark universities but were novel here. - Innovative initiatives are CRE (Corvinus Research Excellence, Corvinus Kutatási Kiválóság) and CIAS (Corvinus Institute of Advanced Studies) which are connected to the new management of the university.	„It may be five times more in quantity, but it's not five times more in quality, so the number of publications is a voluntaristic approach. It's five times more, and then we come to the point of whether it's innovative or stable.” „This year there's been a lot of progress I think because all kinds of academic writing courses and everything else have been offered for colleagues to help them in their work, especially young people. It's called sustaining innovation. I mean, it means bringing techniques that have been tried and tested by others into the university and applying them.” „We can consider the introduction of the CRE an innovation, (...) the research weeks, I think, I don't know if they existed before, for example, you could consider the establishment of the CIAS an innovation. I think this one is also linked to the new top management of the university.”

PARTICIPANT 8		
EDUCATION	RESEARCH	EXAMPLE QUOTES
THE CHANGES OF EDUCATIONAL ACTIVITY OVER TIME - Altogether, the educational activity went through a lot of upside changes and innovation. Education was stable and without any changes before the university transformation, then right after the model change, accelerated by COVID, a comprehensive study program reform took place. Now the undergraduate programs are stabilized, but the next wave of innovations will be concerning the postgraduate programs and talent management. Program development and creation of new programs were accompanied by incremental methodological innovations.	THE CHANGES OF RESEARCH ACTIVITY OVER TIME - Overall upside in research activity throughout the years. - The establishment of the career path model and improvement of the research infrastructure, CRE program, and the establishment of ERGO all fostered this shift. - Participating in international research projects and conferences are incentivized.	„I think bachelor programs belong to exploitation because the portfolio is almost complete. There will still be experiments in the social sciences, but not that much. Basically, the undergraduate programs are pretty stable. What is more like exploration in the educational area is the master programs. The new master programs, which are in a modular system, one year and two years, and talent management. And I would also put methodology, this innovation, in exploitation because it's actually about trying something new within an existing framework rather than a major change.” „Firstly, the fact that new job expectations, for example, that you should do research, have been introduced thanks to the so-called academic career model.” „The research infrastructure has also improved, how much it is possible to buy data and go to conferences and things like that, and importantly, there's a lot of pressure, and the opportunity to be able to do international tenders. It's expected of the institutes, but you've got an entity called the European Research Grant Office (ERGO), which obviously supports you.”
PARTICIPANT 7		
EDUCATION	RESEARCH	EXAMPLE QUOTES
THE CHANGES OF EDUCATIONAL ACTIVITY OVER TIME - The education (educational portfolio) used to be stable with only minor program developments due to external limits. After the model change, it became innovative, and it was further amplified by COVID. Business Administration became a large, aggregated program, and other programs were launched, and English programs became widespread. Now, the undergraduate programs are stabilizing again but the master programs are still changing. - Now, the goal is quality over quantity in students, with a focus on international standards and students. Educational methodology also shifted a lot from frontal lectures to more dynamic seminars.	THE CHANGES OF RESEARCH ACTIVITY OVER TIME - It used to be focused on education, now research is given larger attention. - There was an improvement in innovation, but it was not as significant as the improvement in education resulting from the transformation. Research has started to gain more focus even before the model change (at least at the Faculty of Business Economics). Now it has become equally important in the entire university, especially quality (Q1, Q2) publications. Research infrastructure was reformed, and the university established ERGO (European Research Grant Office) to attract professors from abroad. - A challenge is to establish a culture of research and corporate partnerships.	„I think it's not a bad ratio [number of Q1 publications], if you look at the fact that at Corvinus, especially in the Business School, research was not a prioritized activity. So, we defined ourselves more as an educational institution. We are a business school, a business school is about teaching.” „We want the best students. It's because of the funding, and that's specifically the result of the model change.” „The bachelor's portfolio is now quite stable, and the master's transformation is now underway.” „We also need to show the Hungarians an alternative: you don't have to go abroad because you can get an international education here. With an international background, in English, at an international level, and that is why we work to do. We see that a lot of people go abroad to study.” „Even before that [model change], we had a research committee, a research director, we were more and more conscious about research, and what perhaps started here after the transformation of the university is that we wanted to give a higher priority to research activities.”

Appendix 4. Number of mentions for each main coding category



Appendix 5. Subactivities that, according to respondents description, fall within the categories of exploration or exploitation*

Example Activities - Before university transformation (until 2016)		
	EDUCATION	RESEARCH
EXPLOITATION	Improving existing programs, Curriculum development, Education methodology (case studies, new digital tools), Student reviews ("HalVel")	Fewer publications, less developed research infrastructure (except at the Faculty of Business Economics)
EXPLORATION	Talent management (TDK, Colleges)	Not mentioned
Example Activities - During/after university transformation (2019-2023)		
	EDUCATION	RESEARCH
EXPLOITATION	Education methodology, curriculum development, Student reviews (MyView)	Not mentioned (Workers of the Faculty of Business Economics stated that their practices and research support became ubiquitous in the entire university)
EXPLORATION	Creating new undergraduate programs (PPE, Data Science in Business), Improving existing programs (Merge smaller programs into a large undergraduate program, Business Administration and Management), Talent management, English language postgraduate programs, CTE, Standardized application process	CIAS, ERGO, research support and infrastructure, internationalization initiatives (student, lecturers, publications), focus on Q1-Q2 journals, CRE
Example Activities - Present (2024)		
	EDUCATION	RESEARCH
EXPLOITATION	Talent management, Refining the recently launched programs, Curriculum development, Education methodology	Creating research groups
EXPLORATION	Talent management, Postgraduate programs	Publications, Research infrastructure and support

*The participants rarely used exploitation and exploration explicitly. Therefore, I made the categorization based on relating attributes, like stability, efficiency and incremental innovation for exploitation, and radical innovation, change, experimentation and adaptability for exploration.

Appendix 6: Description of codes

Name	Description	Files	References
RQ1 - Where the balance is	Where does the balance between exploitation and exploration lie for Corvinus University of Budapest?	0	0
<i>Ambidexterity</i>	<i>An organization's capability to pursue two distinct sets of activities at the same time</i>	8	167
Balance	The tight ratio between exploitation and exploration that enables the organization to achieve higher performance	6	16
Exploitation	Activities that focus on short-term results, efficiency and stability, incremental innovation	8	74
Efficiency	One characteristic of exploitation (here: more output with the same input / same output with less input)	4	8
Incremental innovation	One characteristic of exploitation (here: gradual improvements and refinements)	8	21
Stability	One characteristic of exploitation (here: practices that did not change over time (the opposite of change), or practices that provide operational stability for Corvinus)	7	27
Exploration	Activities that focus on long-term results, adaptability, experimentation and innovation	8	77
Adaptability	One characteristic of exploration (here: adapting to premises and external challenges, e.g. educational system, globalization of higher education, attracting and retaining talented students, COVID)	2	3
Change	A change in an activity that was perceived neutrally or negatively by the participant	6	12
Experimentation	One characteristic of exploration (here: experimenting for example with new educational methodologies, study programs, tools and practices in education and research)	4	8
Radical innovation	One characteristic of exploration (here: a radical change in an activity that was perceived positively by the participant)	8	42
<i>Change of change</i>	<i>Phenomena and events that surged and accommodated the change in activities and processes</i>	8	48
COVID	COVID-19 pandemic	5	8
Digitalization	The rise of digital solutions	4	5
University transformation	Legally, the model change came into effect on 1 July 2019, but the transformation of the university is a longer process, consisting of subsequent steps. This is what I refer to by university transformation/model change ("Modellváltás")	7	35
<i>Education</i>	<i>One of the two main activities of the university</i>	7	135
Application process	Application process to the university/to study programs	2	7
Creating new programs	Creating new study programs	3	4
Curriculum development	Curriculum development	1	2
Education methodology	Education methodology	6	28
E-learning, blended learning, online education	E-learning, blended learning, online education	1	4
English language programs	English language programs	4	7
Improving existing programs	Improving existing programs	4	10
Postgraduate programs	Postgraduate programs	5	21
Students	Students	2	7
Talent management	Talent management	3	4
Undergraduate programs	Undergraduate programs	5	26
<i>Other activities</i>	<i>Other activities that emerged during the interviews, and in which the participants are engaging, but are not strictly connected to either education or research, or have impacts on both</i>	6	25
Corporate project, partnership	Collaborations and partnerships with companies with a possible effect on education and/or research	3	5
Internationalization, international initiatives	Steps to make the university more embedded in the international climate: international conferences, international publications, applying professors from abroad, focusing on international students.	3	7
Knowledge transfer	Internal knowledge sharing activity among staff members, informally	3	12
Networking	Networking, network building, and using personal network to find someone to research with	1	1
<i>Research</i>	<i>One of the two main activities of the university</i>	8	85
CIAS	Corvinus	2	4
Doctoral school	PhD programs	2	3
ERGO	A department that was established to search for, provide support and manage research projects	3	6
Informal research support	University staff helping each other informally (e.g. self-organized research groups)	1	1
Organizing, participating in conference	Organizing, participating in conference	4	5
Publication	Publication activity	6	26
Research group	Researchers congregating in research groups	1	4
Research infrastructure, support	Centrally provided research infrastructure and support to researchers (e.g. budget, conferences, data)	7	16
Tender	Research tenders, research projects	3	5
RQ2 - KPIs	How have the key performance indicators been changing during the transformation in order to find the balance?	0	0
<i>KPI</i>	<i>KPIs used by the university in the past and in the present</i>	8	79
<i>Performance measurement</i>	<i>Performance measurement tools, except KPIs</i>	7	67
Career path model (Elérpályamodell)	These career paths are available at Corvinus: research-oriented, education-oriented and balanced. These are chosen in every 3 years by individuals, and performance goals and KPIs are defined accordingly ("Elérpályamodell")	5	9
CHK	Recognition and monetary award given to the best researchers (Corvinus Research Excellence / "Corvinus Kutatási Kiválóság, CHK")	5	8
CTE	Recognition and monetary award given to the best teachers (Corvinus Teaching Excellence / "Corvinus Oktatási Kiválóság")	6	12
HalVei, MyView, MyVoice	Student review systems. The old one was called HalVei, and the new system is called MyView (to evaluate the teacher and the subject on a quarterly/semesterly basis). MyView is part of the CTE.	6	14
Peer review	As part of the CTE, colleagues evaluate and give feedback to each other's classes	5	5
Rankings	University rankings	2	3
Should be measured	Indicators that have been highlighted that are not currently measured, but that should be measured (if it were possible)	3	9

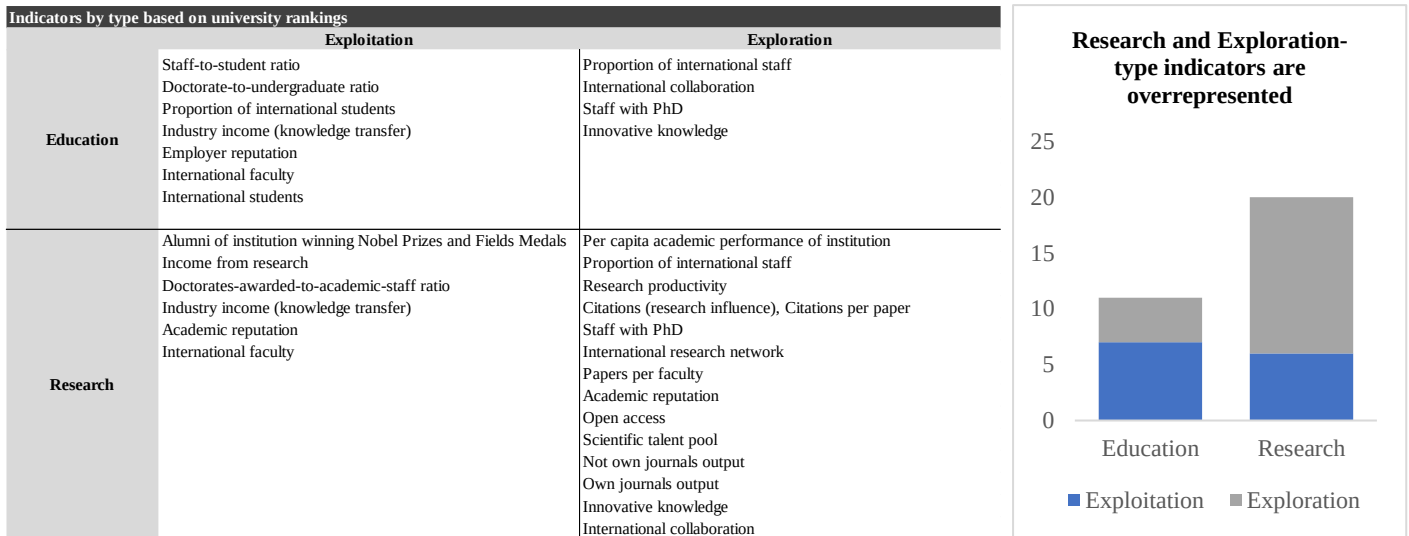
Appendix 7: Table of KPIs related to Education, Research, Exploration and Exploitation mentioned by participants

Highlighted KPIs	EDUCATION	RESEARCH	EXPLOITATION (efficiency/stability)	EXPLORATION (innovation/experimentation)
Results				
<i>Before university transformation (Interviews)</i>	Individual: Hours spent on educational activities by individuals (final exams, oral exams during university application, teaching hours, preparations), evaluation from student review ("HalVel") University: Number of applicants and number of first-place applicants to different programs, their scores, Net Promoter Score, student-to-teacher ratio, student group size, growth in total number of students	Individual & University: Conference participation, Publications (all)	Student group size, teacher-to-student ratio, ratio of paying students	Publication, number of (international) research projects
<i>After university transformation - changes compared to the previous system (Interviews)</i>	Individual: Teaching hours are based on the career path model, writing study books and producing locally relevant materials are not as important anymore University: Ratio of paying students, number and ratio of international students and lecturers	Individual: Publication (only Q1-Q2 internationally, and A defined by the Hungarian Academy of Sciences, and with particular focus on the number of international co-authors), number of publications is defined by the career path model University: Number and sum of (international) research projects, number of international researchers, corporate revenue	Publication (especially, if not defined strictly), student review, satisfaction with internal services, employee engagement	Income from tenders/research projects, Income from corporations
<i>Found important but difficult to measure (Interviews)</i>	Activities that build the community or enhance recognition of the university, more feedback from employers after graduation, more information about graduates after a few years (student learning outcomes), quality of information flow	Activities that build the community or enhance recognition of the university, more focus on the impact of the publications (references), national publication, quality of information flow, entrepreneurial attitude presence in non-academic forums, quality of information flow. D1 publications	-	Entrepreneurial attitude

Appendix 8: Collection of exploration and exploitation indicators in university rankings. Source: own editing based on Peris-Ortiz et al. (2023)

Exploitation	Exploration
Alumni of institution winning Nobel Prizes and Fields Medals	Per capita academic performance of institution
Staff-to-student ratio	Proportion of international staff
Doctorate-to-undergraduate ratio	International collaboration
Institutional income	Research productivity
Income from research	Citations (research influence), Citations per paper
Proportion of international students	Staff with PhD
Doctorates-awarded-to-academic-staff ratio	International research network
Industry income (knowledge transfer)	Papers per faculty
Academic reputation	Academic reputation
Employer reputation	Open access
International faculty	Scientific talent pool
International students	Not own journals output
	Own journals output
	Excellence with leadership
	Innovative knowledge

Appendix 9: Collection and visualization of exploration and exploitation indicators related to education and research. Source: own editing based on Peris-Ortiz et al. (2023)



Appendix 10: Examples of recommended key activities, KPIs and their impact in the future balance*

EDUCATION			
Dimension	Activity	KPI	Impact
Exploitation	Professional staff training, workshops	Number of lecturers/researchers participating in training (yearly)	Quick win
Exploitation	Improving existing programs	Student satisfaction (NPS)	
Exploitation	Improving education methodologies	Number of produced study materials (e.g. books, case studies), number of new tools/methods introduced	Quick win
Exploitation	Curriculum development	Student review scores, content relevance (internationally and locally)	Quick win
Exploitation	Undergraduate programs	Number of students, number of first-place applications	
Exploration	Talent management	Number of students participating in talent management	Long term
Exploration	Postgraduate programs	Number of transformed postgraduate programs launched, number of new programs launched, number of microcredential courses provided, number of retained students after bachelor degree	Long term
Exploration	Engaging the alumni network	Number of alumni events, number of active alumni members growth (%)	
Exploration	Partnerships with corporations	Number of partners/projects, income growth (%)	
Exploration	Partnerships with local communities	Number of local projects	Long term
Exploration	Internationalization	Number of English level programs, ratio of international students (with high application scores), growth (%) in international lecturers	
RESEARCH			
Dimension	Activity	KPI	Impact
Exploitation	Research groups for efficiency improvements	Number of successful research projects and publications per group	
Exploitation	Research infrastructure and support (ERGO)	Number and sum of research projects	
Exploitation	Participation and organizing local conferences	Number of participations, number of organized conferences, number of participants	
Exploration	High-quality publications	SRJ score, references	Long term
Exploration	International research collaborations	Number of international collaborations growth (%)	
Exploration	International researchers	Number of international researchers growth (%), number of international researchers coming from top universities	Long term
Exploration	Participation and organizing international conferences	Number of participations, number of organized conferences, number of participants	
Exploration	CIAS	Number of invited professors	
Exploration	Research projects with corporations	Number of projects	

*the most important ones highlighted in blue

Appendix 11: KPIs from the Institutional Development Plan 2016 and 2020 categorized.
Source: own editing based on Corvinus University of Budapest (2017, 2020b) and Peris-Ortiz et al. (2023)

Institutional Development Plan (IDP) 2016				
Activity	KPI	Exploitation (efficiency/stability)	Exploration (innovation/experimentation)	Reason and Source to support the categorization
Education	Number of English language undergraduate and postgraduate programs		Exploration	Internationalization is an experimental and highly innovative area for Corvinus (Peris-Ortiz et al., 2023), Interviews)
Education, Research	Number of English language PhD programs		Exploration	Internationalization is an experimental and highly innovative area for Corvinus (Peris-Ortiz et al., 2023), Interviews)
Education	Number of double degree programs		Exploration	Internationalization is an experimental and highly innovative area for Corvinus (Peris-Ortiz et al., 2023), Interviews)
Education	Number of international students		Exploration	Internationalization is an experimental and highly innovative area for Corvinus (Peris-Ortiz et al., 2023), Interviews)
Education	Number of international accreditations	Exploitation		Maintaining and refining existing practice (IDP, 2016)
Education	Number of teachers participating in teacher training in the last 5 years	Exploitation		The goal to make education more efficient, incremental innovation (IDP, 2016)
Education	Seminar group size	Exploitation		Efficiency measure (Peris-Ortiz et al., 2023), Interviews)
Education	Number of low-credit courses in the NEPTUN study system	Exploitation		Efficiency measure (Peris-Ortiz et al., 2023))
Education	Number of subjects with less than 20 students	Exploitation		Efficiency measure (Peris-Ortiz et al., 2023))
Education	Number of students participating in talent management		Exploration	Considered highly innovative area (interviews)
Research	Number of international conferences organized by the University		Exploration	Internationalization is an experimental and highly innovative area for Corvinus (Peris-Ortiz et al., 2023), Interviews)
Research	Corvinus Research Excellence: Number of application	Exploitation		Performance measurement tool where the goal is to increase the number of applications (IDP, 2016)
Research	Number and sum of research projects	Exploitation		Efficiency measure (Peris-Ortiz et al., 2023))
Research	Number of international publications		Exploration	Internationalization is an experimental and highly innovative area for Corvinus (Peris-Ortiz et al., 2023), Interviews)
None	University presence on social media		Exploration	Not core activity
None	Number of non-educational partnerships and agreements		Exploration	Not core activity
Institutional Development Plan (IDP) 2020				
Activity	KPI	Exploitation (efficiency/stability)	Exploration (innovation/experimentation)	Reason and Source to support the categorization
Education	Number of new undergraduate programs launched		Exploration	Creating new programs was found highly innovative (Interviews)
Education	Number of transformed undergraduate programs launched		Exploration	The transformation of the educational portfolio was found highly innovative (Interviews)
Education	Number of new postgraduate programs launched		Exploration	Creating new programs was found highly innovative (Interviews)
Education	Number of transformed postgraduate programs launched		Exploration	The transformation of the educational portfolio was found highly innovative (Interviews)
Education	Number of transformed executive programs launched		Exploration	The transformation of the educational portfolio was found highly innovative (Interviews)
Education	Number of students	Exploitation		Efficiency measure (Peris-Ortiz et al., 2023))
Education	Number of blended learning study materials developed		Exploration	Accommodates experimentation (Interviews)
Education	Number of mirrored classroom courses		Exploration	Accommodates experimentation (Interviews)
Education	Ratio of courses in renewed programs that use digital tools		Exploration	Accommodates experimentation (Interviews)
Education	Number of staff members participating in educational methodology training	Exploitation		The goal to make education more efficient, incremental innovation (IDP, 2020)
Education	Student satisfaction	Exploitation		The goal is to improve education incrementally and measure performance of teachers (Interviews)
Research	Publications (Q1)	Exploitation		Quantity became more important than quality, therefore publications are more about efficiency (Interviews) - this is in oppose to Garcia-Hurtado et al. (2022)
Research	Ratio of journals published in journals that have more than 70 AIP (Article Influence Percentile)	Exploitation		Quantity became more important than quality, therefore publications are more about efficiency (Interviews) - this is in oppose to Garcia-Hurtado et al. (2022)
Research	Publications (Q2)	Exploitation		Quantity became more important than quality, therefore publications are more about efficiency (Interviews) - this is in oppose to Garcia-Hurtado et al. (2022)
Research	Obtained external research funds	Exploitation		Funding is about about efficiency (Peris-Ortiz et al., 2023))
Education, Research	Overapplication to doctoral school (academic and expert-oriented model)	Exploitation		Student numbers are efficiency measures (Peris-Ortiz et al., 2023), Interviews)
Education, Research	Number of international lecturer, researcher		Exploration	Internationalization is an experimental and highly innovative area for Corvinus (Peris-Ortiz et al., 2023), Interviews)
Education, Research	Number of staff members participating in international mobility program		Exploration	Internationalization is an experimental and highly innovative area for Corvinus (Peris-Ortiz et al., 2023), Interviews)
Education	Number of international students (part-time, full-time)		Exploration	Internationalization is an experimental and highly innovative area for Corvinus (Peris-Ortiz et al., 2023), Interviews)
Education	Number of double degree students		Exploration	Internationalization is an experimental and highly innovative area for Corvinus (Peris-Ortiz et al., 2023), Interviews)
Education	Number of international accreditations	Exploitation		Maintaining and refining existing practice (IDP, 2020)
Education, Research	Income from corporate partnerships		Exploration	Experimentation area for Corvinus (Peris-Ortiz et al., 2023), Interviews)
Education, Research	Income from institutional partnerships		Exploration	Experimentation area for Corvinus (Peris-Ortiz et al., 2023), Interviews)
Education, Research	Number of partnerships with large enterprises		Exploration	Experimentation area for Corvinus (Peris-Ortiz et al., 2023), Interviews)
Education, Research	Number of partnerships with SME		Exploration	Experimentation area for Corvinus (Peris-Ortiz et al., 2023), Interviews)
Education, Research	Employee engagement		Exploration	Hard to measure but key to quality information flow and innovation (Interviews)
None	Leader effectiveness		Exploration	Not connected to core activity
Education	Ratio of first-place applications (undergraduate and postgraduate programs)	Exploitation		Efficiency measure (Peris-Ortiz et al., 2023), Interviews)
Education	Students with Corvinus bachelor's degree who continue their studies here on master level	Exploitation		Efficiency measure (Peris-Ortiz et al., 2023), Interviews)

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