

The transformation of HEIs and quality education

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Abstract

Universities and higher education institutions are critical to societal improvement and have been severely harmed by the Covid-19 pandemic, which has hampered educational advancement owing to educational institution closures and the subsequent economic crisis. In the case of higher education, it is a question of stakeholders recognizing that it has a continuous and critical role to play in promoting socio-economic mobility, innovation, and economic recovery, as well as a significant role in providing financial assistance to the most vulnerable students, regardless of the sector, as well as strengthening distance learning, technology use, health care, and overall well-being. To delve deeper into the subject, the PESTEL model was used to analyze and assess the causes, hazards, and opportunities in HEI transformation, and a scenario was built to evaluate and strategically think about the data gained through horizon scanning. The findings show how higher education institutions may endure major transformations in the most effective way for stakeholders.

Keywords: higher education, HEIs transformation, COVID-19, foresight

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INTRODUCTION

Universities and higher education institutions are vital to society's progression and have been badly hurt by the Covid-19 pandemic, which has impeded educational advancement due to the closure of educational institutions and the resulting economic depression. School closures result in a loss of learning, an increase in school dropouts, and more disparity if considerable efforts are not made to address its effects. The health crisis has resulted in a huge shutdown of face-to-face activities at educational institutions as a result of home economic difficulties, and the impact on learning will be considerably worse. In the case of higher education, it is a question of stakeholders recognizing that it has a continuous and critical role to play in promoting socio-economic mobility, innovation, and economic recovery, as well as a significant role in providing financial assistance to the most vulnerable students, regardless of the sector, public or private, in which they are enrolled, as well as strengthening distance learning, technology

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use, health care, and overall well-being. To investigate the topic in more detail, the PESTEL model was used to analyse and determine causes, risks, and opportunities in higher education institutions (henceforth: HEIs) transformation and a scenario was created to evaluate and strategically further think the data obtained through horizon scanning.

In this paper, we are going to introduce the methodology which we applied for creating the scenarios. After that, we present the domain analysis, where we determine and clarify the focus of our research. Later, the results of an earlier performed horizon scanning research will be presented. Based on these results, we will perform our scenario analysis and create basic future wheels, so the PESTEL model can be used for interpreting and analyse deeper the results. Finally, we will present what we see as the preferred future, and the future implications.

1.1. METHODOLOGY

The goal of current research is to identify possible scenarios for HEIs after Covid-19. As a result of it, the authors intend to highlight the future options for HEIs leaders related to teaching modes, provide support to decide which is the best way to continue their tasks, and help them to prepare themselves for it. To do so, we will build and analyse future scenarios to provide them some options. In this section, we will go over our research technique in detail.

There are two types of scenarios: exploratory and anticipatory. The current research will use the first one, as it is observing past and present trends and tries to indicate the likely futures (Godet et al., 1999).

The currently applied framework is based on the foresight of Bishop and Hines (2012) and the *Strategia Sapiens* article of Gáspár (2015).

First of all, we applied domain analysis in order to introduce the focus of the research, the key issues, and other important elements, like geography, timeline, etc. Based on these we could create our main research question: What format of education would be appropriate to enable HEIs transformation ensuring quality education?

After that, we applied the Foresight Analysis process of Pherson (2018). As a first step we identified the key drivers with the help of Horizon Scanning. During the second step, we could generate 3 scenarios and perform the scenario analysis, which involves baseline forecasting and basic future wheels methods. The third step was developing and tracking indicators. Finally, in order to develop an action plan, we applied the PESTEL model to highlight the risks and opportunities related to the macro environment of HEIs. Based on the results we could present the implication of the preferred future.

During the forecast analysis we focused on the criteria of a good scenario (Glenn, The Futures Group International; 2009):

- **Credibility** – To demonstrate the reliability of our research, we solely used credible sources. Publications from high-quality journals with an impact factor, websites and reports from international organizations, and so on.
- **Novelty**: research on the transition to higher education has been a hot topic since 2021, but it is still at an initial level. Long-term conclusions and mostly predictions and assumptions can be read in academic papers, thus, research on online quality education possibly involving a whole university is quite new.
- **Likelihood** – It will change the future of HEIs and stakeholders as well.
- **Impact** – It can cause a big change due to social, economic, and environmental transformation.
- **Relevance** – To the issue is vital because inappropriate reforms and lack of preparation can lead to the decline of higher education.
- **Timeliness (awareness)** – When Covid-19 began, it was mostly considered as a short break, no one expected to be in a more severe situation even after years causing huge

damages and shifts. After a long-period of time, people have not tended to return to their average life, hence, real and long-perspective transformation for HEIs will start just now.

- Timeliness (time to prepare) – Actions are temporary and mostly changing.

1.2. DOMAIN ANALYSIS

This research, based on the tribulations of higher education institutions over the last three years, presents the challenges facing universities, the expectations of stakeholders and tries to find answers to the question of what form of education might be the most effective in the future. It also important to investigate which form will guarantee the training of high quality and effective professionals, without compromising the interests of stakeholders, while preserving the image and value of the university, and meeting economic and social expectations, considering the political regime in which it operates. In this section, research framework and the research question are discussed.

1.2.1. TIME HORIZON AND GEOGRAPHY

First, we will introduce the time horizon and geography of the research. This part will answer the question *‘How far into the future is one intending to look in time and space?’*.

Time horizon

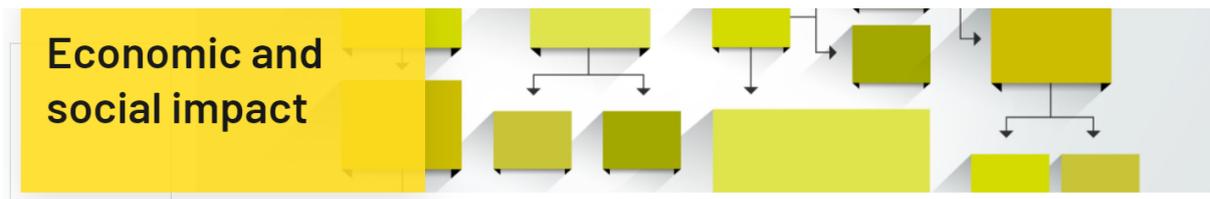
Related to the time horizon, the consequences of Covid-19 will have a major impact on the future of universities and forced them to act quickly. The emphasis is on the word ‘forced’ rather than a well thought out, structured and planned shift.

In order to ensure that in the future (even if only partially) an online and quality of university education that is economically and socially acceptable in terms of infrastructure, technology, and so on will be achieved, well-considered decisions are needed, both at governmental and institutional levels. At this point, we considered that sustainability was not a negligible consideration. Most universities already have a specific sub-section and strategic objective on their profiles to deliver quality education in a sustainable framework (e.g.: Budapest Business School, Figure 1).

In this context, we have taken as a basis the largest current global consensus, the United Nations Sustainable Development Goals (SDGs), which set out the achievement of quality education as a specific goal (Goal No. 4).

The UN SDGs were adopted as part of the 2030 Agenda in 2015, and as the name implies, Member States must accomplish these goals by 2030. This means that, taking into account the rapid technological change, the almost daily technological revolution and the consequences of Covid-19, we would give only 7 years for universities to develop a solution, without compromising the interests of stakeholders and attaining a truly high-quality education. (United Nations, 2015)

1. Figure: Budapest Business School example on quality education



Economic and social impact

BBS as an educational and research institution is committed to knowledge sharing and, in addition to our responsibility to the citizens of the University, we believe it is important to support the wider community through our own means. In line with our strategy, we therefore intend to work at several levels to ensure that the knowledge accumulated at BBS is used as widely as possible.

It was an important step in the life of our university when in January 2016, we were granted the status of University of Applied Sciences. Since then, the utilization of knowledge from scientific results has become a priority, both in terms of its integration into our training programmes and its exploitation by academic, corporate, public and non-profit stakeholders alike. With knowledge sharing being a priority, we aim to increase the economic and societal impact of our research, the number and visibility of our publications at several levels in the coming years. The enhancement of high-level and international scientific activity takes place to a large extent in the [Centres of Excellence](#) established by BBS. In the case of applied research, we aim to generate knowledge that is useful for everyday life, where possible in collaboration with business partners, thus strengthening the applied science approach. Equally important to us is the development of [quality education](#) and talent management, which will significantly expand the University's talent base and make science a real and meaningful goal for all teaching colleagues.

Source: www.uni-bge.hu

Geography

In this case, the geography is interesting. COVID-19 has affected the whole world, so closure and online university education has been implemented overnight in almost all parts of the world. The research we have used shows that there are no geographical boundaries to this problem, we have found reports and accounts from universities in Europe, the US, Asia, and Africa that are still maintaining a hybrid or online form of education (European University Association, European Commission, 2022); (AAUA, eLearnAfrica, and WILEY Education Services, 2022); (Harvard Business Review, 2021), (International Institute for Asian Studies, 2021). However, Covid is global, so we will focus only on universities in CEE during this research otherwise the focus would be too wide, and it would be almost impossible to cover all relevant segments.

1.2.2. KEY ISSUES AND KEY QUESTIONS

Based on Heng, Kao, Muong and Lor (2021) and Barrot, Llenares and Rosario (2021) the research highlights the main issues with the transition to online higher education institutions and we summarised them in the following points:

- *Lack of students' motivation:* Online learning was supposed to be the next engaging and immersive approach for teaching the next generation of pupils. Students in online classrooms complain about a lack of motivation due to the lack of human contact and interaction between the students and the lecturers. Physical interaction between students is also necessary for maintaining engagement, and this is something that the online learning system partly or does not yet address. Educational institutions must provide students with compelling instruction. Students are unable to turn off webcams or doze off during in-person classes and physical classrooms also allow teachers to pay more attention to the individual needs of each student.

- *Students with special needs:* Students with special needs are a group of students who have been neglected or have had difficulty handling the past two years. Students with special needs require a more individualized and hands-on approach to learning. Though technology has advanced significantly, it still relies primarily on the presence of a full-time professional to help the student through the tasks.
- *Infrastructural issues:* Though online learning does not necessitate large buildings, large classrooms, or further equipment such as chairs, tables, and so on, this does not reflect the need for infrastructure. Rather technological devices, such as a computer, software, electricity, and internet connection are more essential. If a student or a lecturer cannot purchase this type of infrastructure, it is provided to them through public libraries in most industrialized countries. However, in developing countries this level of infrastructure and assets is only accessible to a small percentage of the population.
- *Digital literacy:* Although the new generation is good at technology and its daily usage, this does not directly lead to digital literacy. Understanding the workings of many software programs is required to learn well through an online system, which presents a steep learning procedure. In an online learning environment, students must also comprehend online communication etiquette and be aware of their rights and obligations as students. The continual technical challenges that both professors and students confront on these platforms is a major issue. These issues frequently necessitate technical assistance, producing repeated disruptions in the learning process.
- *Course structure and quality:* Even the course curriculum and structure were thought to be modernized as a result of the shift to web-based learning and other modern teaching tools. Unfortunately, this has not been the case. Even after going online, institutions have maintained their outdated course material and structure. Students are rethinking education as a whole, and the corporate sector seems to be doing the same. For example, Google and Tesla have chosen to skip college as a requirement for employment. YouTube, Google, Udemy, and other online platforms provide excellent content on many subjects for less money or even for free. These platforms also allow them to pick and select their studies, allowing for a highly flexible learning structure. This should prompt educational institutions to reconsider their entire way of teaching.
- *Lack of universities with accredited online degrees:* It matters more where you studied than what you studied. In such a market where the brand is a huge factor, the online learning sphere is yet to convince prestigious higher learning institutions to offer their courses through online/ distance learning modes. The problem is that online degree programs are frequently unaccredited and so are unrecognized by employers or other institutions. Though schools have welcomed online learning, higher education institutions and authorities have yet to acknowledge it as a valid way to achieve a professional degree.
- *Distraction issues paired with the lack of discipline:* Due to technical challenges, internet struggles, and sometimes boring lectures, online attendance has decreased significantly, especially if attendance is not checked or compulsory. Most students find online learning tedious and frequently complain about the lack of driving factors to complete a course. Even professors frequently lament a lack of resources to make classes more engaging, resulting in a loss of interest on both sides. Quality education is frequently harmed due to the absence of accountability and transparency in the online teaching technique. Distractions have multiplied as a result of the unlimited use of laptops and cell phones during class, frequently at the expense of paying attention in class.

The research key questions are the followings:

- How HEIs will handle the changes?

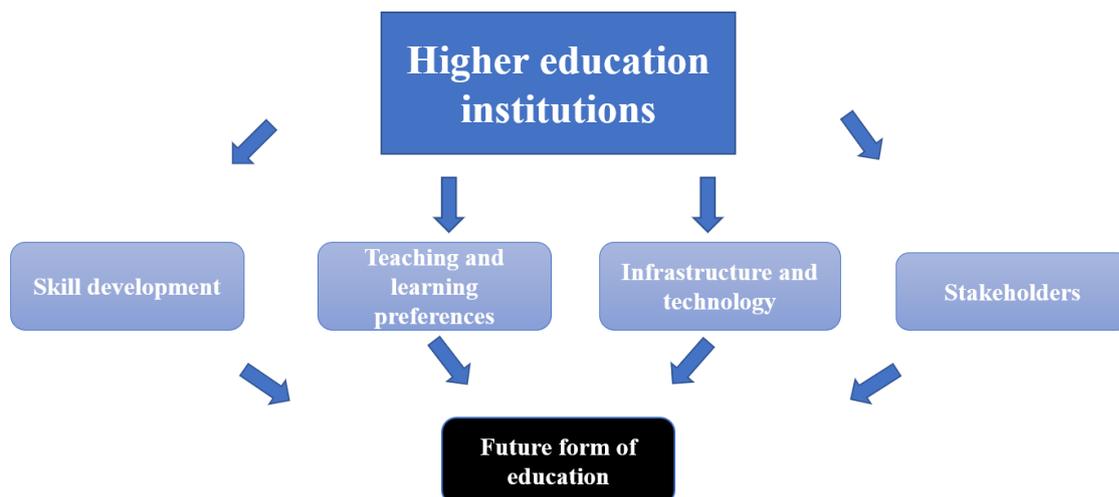
- Which changes would be the most beneficial for stakeholders?
- How will technology influence the HEIs existence?
- How financially, will the technological development be feasible?
- What kind of new teaching and learning skills will appear?

Based on these, the main research question is the next one: What format of education would be appropriate to enable HEIs transformation ensuring quality education?

1.2.3. DOMAIN MAP

The foregoing brief summary shows that the range of issues is very broad. In terms of grouping and reducing the scope of the research, we concentrate on higher education institutions rather than students. Of course, this includes taking stakeholders into account, but this research focuses on how higher education institutions can provide quality education in accordance with the economic, social, political, technological, and environmental conditions and expectations of their stakeholders, rather than how to motivate students or ensure universal access to online education. Furthermore, we are investigating which format (online, hybrid, or face-to-face) might be most suited for this purpose. The domain map is shown in Figure 2.

2. Figure: Domain map of the research



Source: own elaboration

1.3. ENVIRONMENT ANALYSIS

The environment analysis of HEIs and their current situation resulted in a lot of materials, from different perspective. We specifically focus on those points that can be further elaborated on.

The impact of the epidemic on students seeking higher education is largely unknown. We know that the digital divide, housing insecurity, and food insecurity affect disadvantaged student groups. It's difficult to deny that higher education is becoming more corporate. Worryingly, the monetization of higher education institutions compromises our ability to foster knowledge as a public benefit. This creates an environment that pushes us further away from inclusive and equitable structures, which are important elements in determining educational results and satisfying the requirements of students for continuous admission and retention. Academic leaders warn of the long-term dangers of academic capitalism and HEIs working as an export industry, and they question the future role of higher education. Predictions of declining enrolment and the closure of additional HEIs are serious trends that urge stakeholders

to rethink the HEIs priorities and goals (DasGupta, 2018), (Slaughter and Rhoades, 2010), (Qi, 2016).

It is clearer than ever that important societal shifts are taking place, and that alternative educational paradigms are required. Developing leaders for social transformation, committed to fairness and social justice, and aligning with the Sustainable Development Goals can all help us build our capacity to overcome today's difficulties. The complexity of the COVID-19 epidemic necessitates a complicated collection of interconnected views for determining the best course of action. The Sustainable Development Goals (SDGs) are set to assist such ambitions, laying out a clear roadmap to putting a paradigm shift in education and leadership into practice. Universities, according to the *United Nations' Higher Education Sustainability Initiative (HESI)*, are "essential drivers for achieving the Sustainable Development Goals" through "sustainability initiatives, research, teaching, pedagogy, and campus behaviours." (Global University Network for Innovation, 2021).

It's also worth noting that higher education has lagged behind other businesses in adopting a more digitally driven, outcomes-oriented business model. One indicator of this is that IT spending accounts for less than 5% of college budgets. Now, it appears that investing in IT is important in the first place in order to assure the continuation of programs and campus life to the greatest extent possible (Harvard Business Review, 2021).

1.4. HORIZON SCANNING

In the following part, we will introduce the methodology and the results of an earlier performed Horizon Scanning research.

1.4.1. THE PROCESS

The goal of Horizon Scanning is to identify and categorize for example trends, topics, stakeholders, and expectations related to a selected phenomenon (Géring et al., 2021). As this method is focusing on a wide range of information and data, the identification of unusual phenomena (e.g.: weak signals and unexpected themes) becomes possible (Könnöla et al., 2012). The future-orientation of this method makes possible the formulation of different scenarios based on the discovered expectations, challenges, and possibilities (Kuusi et al., 2015).

The selected articles were collected as a part of a research project called “The future of business education”. The goal of this project is to investigate the main trends which can affect the future of higher education in general (Géring et al., 2020). As the expectations of stakeholders are culturally embedded (Géring et al., 2021) we investigate articles only from Central-Eastern Europe. One part of the collection of the articles was before the pandemic (2020), the other part of the process was in the middle of the pandemic (2021), which is a so-called wild-card event.

The collection process resulted in a database with a wide variety of materials (e.g.: academic journal articles, higher education-related articles, CEE-specific initiatives, university surveys, etc.). After that, the identification of stakeholders and their expectations followed. Thanks to the 2 phases article collection process, the comparison of stakeholders' expectations before and in the middle of the Covid became possible. (Füzi et al., 2022)

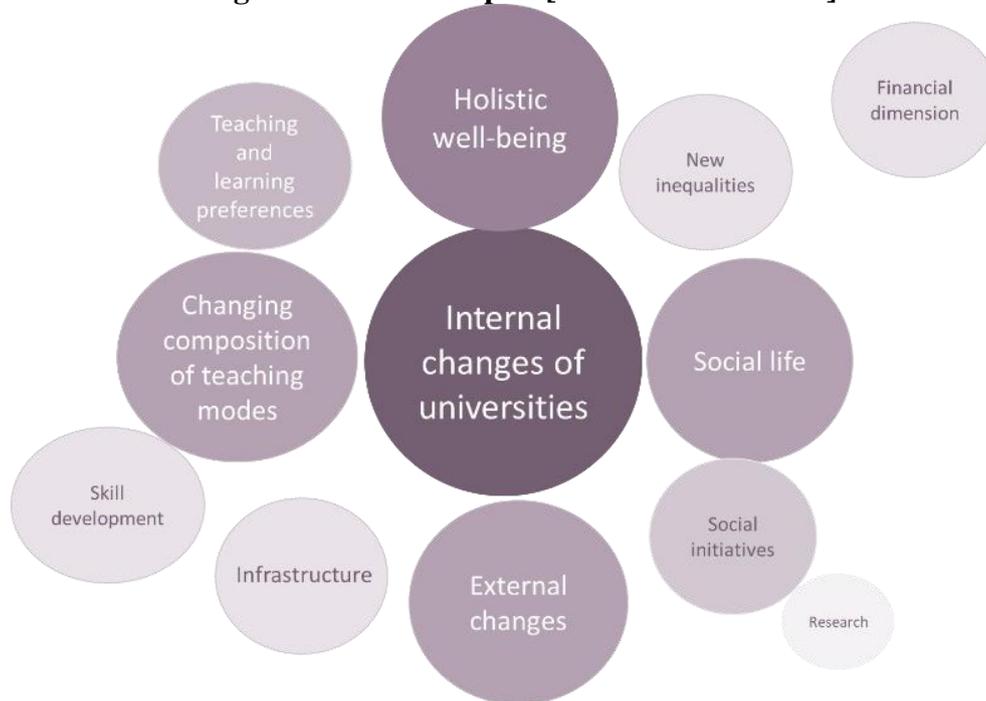
1.4.2. DATA OBTAINED FROM HORIZON SCANNING

In the following, we are going to discuss the identified topics and stakeholders. This part will also cover the most important expectations of each stakeholder before and after the pandemic.

Identified topics

As a result of the information collection, a huge database was created with the main ideas, approaches, and results of the selected articles. After that, the identification of key topics can be started. The most relevant topics and the emphasis of them compared to each other can be seen in the figure below.

3. Figure: Identified topics [2021 data collection]



Source: Fűzi et al., 2022, p. 11

As the diagram shows, the ‘internal changes of universities’ category is in the middle, which means most of the articles highlighted that Covid-19 has affected the usual working of the internal processes of universities. Holistic well-being is the second biggest category. It covered problems like mental health, work-life balance, and physical health of students, teachers, and other employees of higher education institutions caused by the pandemic. The changing composition of teaching modes covered the topics related to the new (or rarely used) techniques, which came into the limelight throughout online teaching. The social life was decreased as the restrictions were affected the opening of campuses and banned the option of offline teaching for a while. The topic of decreasing (or disappearing) social life was also popular in the discourses. The external changes mean e.g.: the changes in the labour market or in teaching-related regulations. The remaining categories also appeared in the discourses, but they were not really emphasized. Teaching and learning preferences have changed, as the students and teachers have gained experience with online teaching tools and techniques. Skill development was also discussed, as it was more challenging via online teaching platforms. The (sometimes) outdated infrastructure of universities caused problems when they had to switch to online, and this challenge also appeared in the selected articles. New inequalities appeared, as not everyone could afford the tools, which are a must-have to be able to participate in online education. The financial dimension was also important, as the resources of the higher education institutions could have been changed due to the pandemic. Finally, the challenges related to research were the least discussed topic.

Identified Stakeholders and their main expectations (before and after Covid)

During the analysis of the articles, 7 stakeholders were identified in the higher education

institutions. There are two groups of stakeholders: the internal actors and the external actors. The internal actors are the university students and teachers. The external actors are society, the IT sector, employers, and other educators. In this part, the most important expectations of the stakeholders will be introduced, and the changes in their priorities and in their power will also be covered. (Füzi et al., 2022)

First, it is important to note that the expectations of stakeholders are usually controversial. Sometimes these differences can appear not only between the stakeholder groups, but the preferences within one stakeholder group can also be controversial depending on the situation. On the one hand, Covid has strengthened some of the actors' voices, on the other hand, it changed (or completely removed) some expectations and approaches by them. Higher education institutions must consider the expectations towards itself and decide which external or internal pressures are the most relevant, and how they would like to answer to these expectations. (Füzi et al., 2022)

The first internal stakeholder is the *university* itself. Before Covid, the universities' voices and expectations almost never appeared in the discourses. The reason behind this could be that it was in the middle of the ring of conflicting external stakeholders' expectations. They had to fulfil the requirements of external and internal stakeholders and in the discourses, what the universities would like to do was not exactly emphasized. (Füzi & Szendrei-Pál, 2020). During Covid, universities became one of the most focused actors, as other actors waited for solutions from universities to ensure continuous education during the pandemic situation. The voice of universities has strengthened, and they could finally focus on their internal processes, e.g.: infrastructure development, trainings for teachers, online solutions for teaching and learning, etc. (Füzi et al., 2022).

The second internal actor is the group of *students*. As they can be considered as the customers of higher education institutions, their opinion was important before and after covid. Before Covid they had controversial expectations towards the university. On the one hand, there were discourses about the need for personal and intellectual improvement. They would like to participate in different activities (e.g.: research) with experts and teachers and develop teamwork skills. On the other hand, students can be considered as future employees. In this role, they focus on the requirements of their future employers and want to gain relevant skills and knowledge from their university programs. (Füzi & Szendrei-Pál, 2020). After Covid, their voices strengthened, and their focus changed from outside to inside. The expectations of employers were not in the limelight anymore according to the discourses, they had more urgent problems to solve (e.g.: mental health issues, and challenges of online learning). The collected materials showed students prefer online education because it is convenient and flexible, but they miss personal contacts and skills development (Füzi et al., 2022).

The last but not least internal actor of the higher educational institutions are the Teachers. Before Covid-19 their voices were relatively quiet, and their opinion was not taken really seriously by the universities. They had several requirements (e.g.: skills development, curriculum upgrades, etc.), but they had no time because of the administrative burdens among other things. Following Covid-19, the debates show exceptional university support and understanding for teachers. They obtained the infrastructure required for online instruction, and numerous universities also provided mental health services for teachers and students. Discourses were also highlighted, and preferences for teaching and learning were altered. From the selected materials, most teachers liked online teaching, but missed the great chats with colleagues, and it was very disappointing for them to hold lectures for "black boxes" (as students turned off their cameras during online lectures). (Füzi et al., 2022)

The next actor is society, society also has expectations towards higher educational institutions. Before COVID they had dilemmas about the value and contribution of university degrees. (Füzi et al., 2022)

The great winner of the pandemic situation is the IT sector. They were strongly involved in the universities' everyday life even without Covid, but after Covid, their interest in the market has increased greatly. Universities were exposed to IT service providers more than ever, as they could not continue their activities without the services of the IT sector. The IT sector reacted and adapted quickly to the new requirements of higher educational institutions, and (of course mainly after the free trial period) they expected profit and a share in the field of higher education (Fúzi et al., 2022).

Employers' voices were strong before the pandemic. They had three possible roles, from which they could choose in connection with the universities. First option is the close collaboration with universities. This means employers would have the right to modify curricula and program as they wish in order to educate students in a way they prefer. It would be highly appreciated by the employers, but also very time-consuming for both parties. This path could also lead to a dramatic decrease in the autonomy of universities. Another option is: employers remain passive, and don't pay attention to universities, so they would no longer express their opinion and requirements. This could lead to a decrease in the value of university degrees, as they could start preferring faster options to get qualifications (e.g.: micro-credentials). The final option is a mix of the introduced options. They could collaborate with universities and make suggestions as to how universities could educate more up-to-date students. Their main expectation is the same in each of the introduced cases: universities should provide more up-to-date curricula and knowledge. After Covid, the employers' voices almost completely disappeared, and their intentions were unclear. The reason behind this could be the uncertainty related to the future, as no one knew when Covid will end, and everybody tried to survive (Fúzi et al., 2022).

The options of other educators are almost the same as for the employers. Before Covid they could decide whether they collaborated with other institutions or not, and if yes, to what extent they would like to do that. After Covid, their focus turned from outside (e.g.: competition with other unis) to inside (e.g.: how to solve online education) (Fúzi et al., 2022).

1.5. SCENARIO ANALYSIS

The scenario analysis section, discusses scenarios based on horizon scanning, introducing the three scenarios, followed by the outcomes of baseline forecasting and basic future wheels.

1.5.1. SCENARIOS BASED ON THE HORIZON SCANNING

Covid-19 has changed several things within the field of higher education. For example, new teaching methods and new expectations of stakeholders influenced the working of universities. It has strongly influenced the alternative futures of higher education institutions. In this part, the alternative futures will be introduced based on the results of horizon scanning.

Full online

The first alternative is the concept of a university, which has no walls. Teaching and learning would happen in a full online environment.

On the one hand it would be great, as the universities could collaborate easier with each other and with other educators as well, as they could organize common lectures, and the students could join from all around the world. The space would not be a burden anymore, and thanks to this there would be more students who could participate in higher education. Additionally, guest lecturers from different companies could join easier to classes and show new perspectives to the students. Next to these, most students really like online education as it is convenient and flexible. Teachers could use e-learning materials and video recordings during their classes, so

their burdens could decrease in the long term. Last but not least, the IT sector would prefer this option, as this way of teaching would lead to huge infrastructure development, so their income would increase.

On the other hand, full online education has some disadvantages as well. The lack of social interactions could lead to inadequate development of students' social skills. Additionally, the value of the degree would be also questionable by society and employers, as cheating during online exams cannot be controlled. Another problem would be the role of brick-and-mortar buildings. The students would learn from home, and the campuses would be unnecessary next to full online mode. However, universities still have to pay for the buildings' maintenance. Furthermore, huge infrastructural development of universities would be required as each process would be in an online environment, and the costs of it would be enormous. The competition with other educators would increase, as they could provide shorter programs, but the value of the certificate would be almost equal to university degrees. As a result, universities could lose part of their students. Teachers have to develop their digital skills and e-learning materials, however, not every teacher would love this way of teaching because of the lack of social interaction and the questionable effectiveness of online knowledge and skills development. Additionally, a lot of teachers could lose their jobs because of reusable learning materials, and the quality of the education would become questionable.

Hybrid

The second alternative is the hybrid concept. The student can stay at home and participate in online lectures, but there will be in-person classes as well.

This mode could foster the students' social and digital skills development at the same time. The buildings could keep their important role as the students would go there regularly. Employers would like this way of teaching, as students could gain working experience more easily, thanks to the flexible studies, and their future candidates could develop more digital skills, which could be useful for their future jobs. The hybrid mode would have similar advantages to the full online mode, for example, flexibility and convenience.

Unfortunately, the hybrid mode of teaching could lead to a decreasing quality of education, as focusing on both online and offline could be hard, as both methods require different teaching and learning methods. Resource related problems could also appear (e.g.: maintenance of buildings and the development of digital infrastructure). Next to these, the burdens on teachers could increase, as they have to prepare online and offline materials, and they have to fulfil the requirements of both online and offline teaching methods. The value of the degree would also be questionable, as the hybrid mode could involve online exams as well, so the risk of cheating would be high. The competition with other educators would be high in this case as well.

Face to face

The last option is the regular way, which is the traditional offline (in person) teaching and learning. Students and teachers must go to the university to participate on the classes.

The role of brick-and-mortar buildings would remain important, and social skills development would be possible. Universities would not spend as much money on infrastructural development as they are not obliged to provide online education. Additionally, students can build their network and develop their social skills. Teachers could keep their positions and prestige as well. The value of the degree would remain the same and the competition would remain the same as now with other educators.

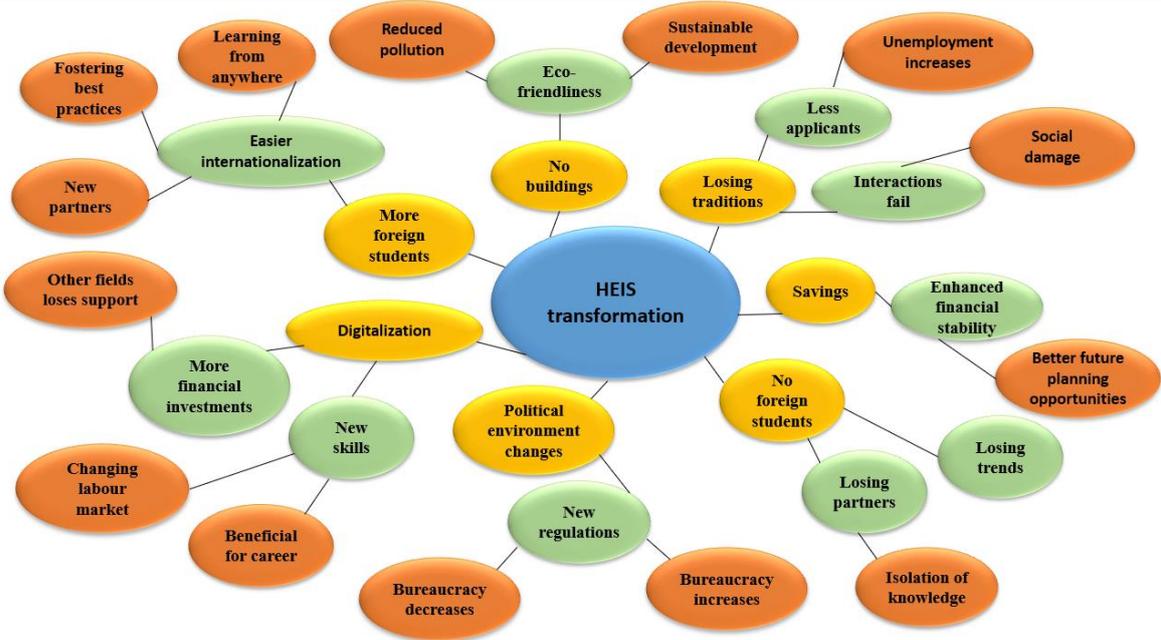
The traditional method could not develop digital competences as effectively as the previously introduced options. Additionally, this way is not flexible, so the students could find gaining work experience much harder next to their studies. Employers could join less in person classes as a guest lecturers, and travelling to the university from their workplaces could be

difficult. The IT sector would not receive more income than it receives now as there would not be IT tool developments.

1.5.2 BASIC FUTURES WHEEL

For a deeper understanding, we prepared a basic futures wheel to help us brainstorm about the happenings and expected influences. The basic futures wheel helps to organize the thoughts and questions about the future. It can be used to think through the effects of current or future trends, and create forecasts within alternative scenarios (Glenn, The Futures Group International, 2009)

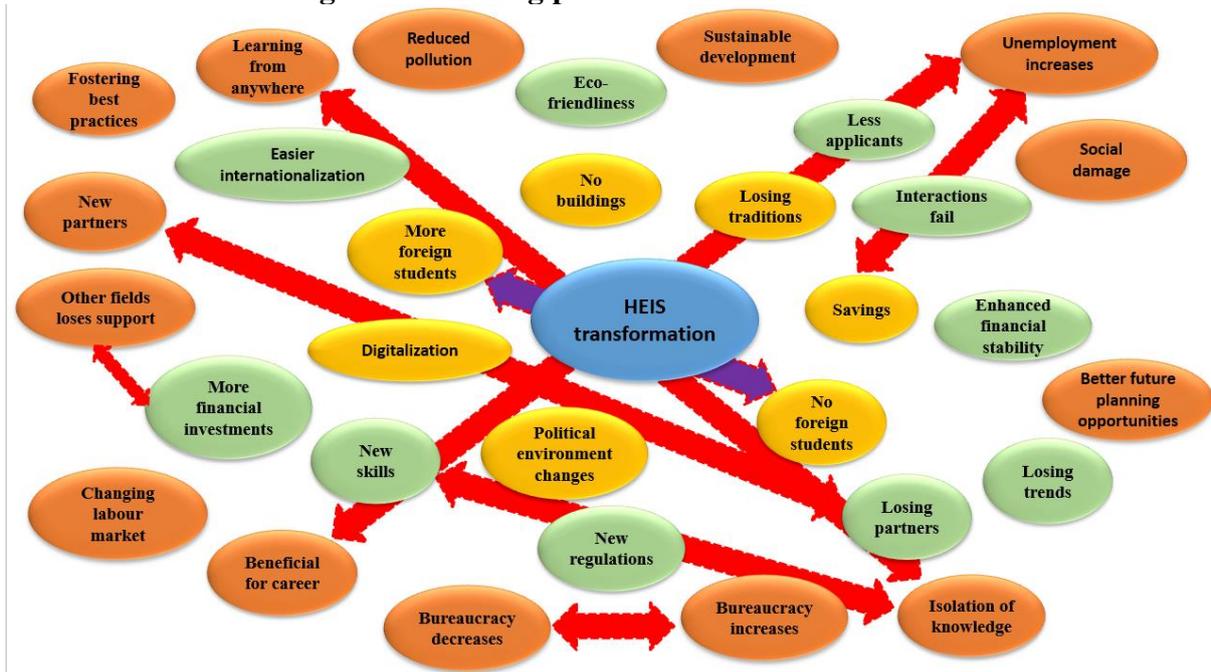
4. Figure The idea of basic futures wheel in case of HEIs transformation



Source: Own elaboration

The futures wheel shows smooth connections between several economic, social, economic, legislative variables etc., however, there are several contradictions as well, illustrated in Figure 4.

5. Figure Conflicting points in HEIs transformation

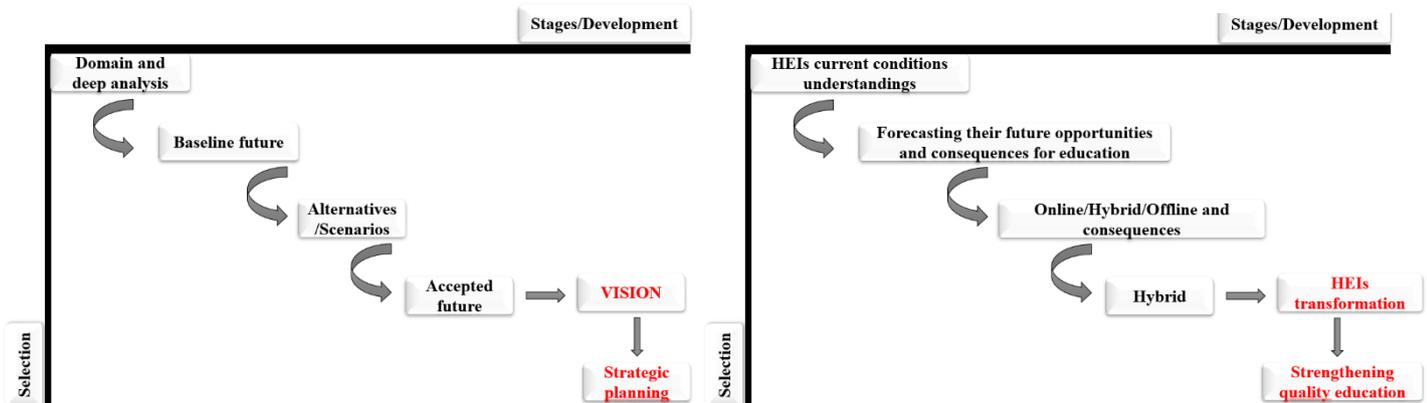


Source: Own elaboration

1.5.3 BASELINE FORECASTING

We created our own baseline forecasting charts based on our studies in the Strategic Foresight class at the Doctoral School of Entrepreneurship and Business in 2022, according to which, we have a domain and deep analysis, meaning we disclose the conditions the HEIs function in the present and understand it (Levenbach, 2016). Following that, we have a baseline future, meaning that we are forecasting processes. In our case it indicates that we assess future opportunities, consequences for education through HEIs. Based on that, we suggest alternative scenarios, which are online, hybrid and in-person forms of education and we choose one accepted future. Figure 5. illustrates that our accepted future is the hybrid operation of HEIs. During the decision making we did not performed brainstorming with stakeholders as it would be time-consuming. We applied the same method as BBS did after the pandemic. We expect institutional transformation as vision, and when it comes to strategic planning, all the goals, and techniques are assigned with the strengthening of quality education. We selected the name “Hybrid mode of Higher Education Institutions” for the Scenario.

6. Figure Baseline future concepts and our understanding



Source: own elaboration

Furthermore, we followed the traditional steps of baseline forecasting as follows:

Constants: There are professions that can be learned exclusively through university courses, so even if the interest in university courses is unstable, the existence and necessity of universities is considered constant and unquestionable.

Trends: One of today's trends in learning and higher education is that you can now study anywhere. It is not bound to a location, not even to an institution, and often not even to time. Another trend is that interactive and practice-oriented activities are taking the place of conventional classes. It might be also considered as a trend that there are teaching methods and skills which, although they may seem constant, change over time, but are, on the whole, indispensable. It is also noticeable that universities are increasingly adopting modern and new business models.

Plans: Stakeholders are of paramount importance in the life of higher education and universities. Not only can they benefit from a well-functioning higher education institution, but they also influence the success of the university, i.e., they interact with each other. That is why it is important, now that the traditional ways and forms of higher education are being challenged, that concrete action is taken. The primary stakeholder is the government, which regulates, organises, and provides a framework for universities and financial support for most institutions. Regulation also includes the process of internationalisation, talent management, etc. through various scholarships. Now that there is the possibility of the end of the present system of education, new regulations may be introduced, with new requirements, different types of scholarships, different types of funding, etc. Another important group involved are the trainers who transfer the knowledge. Digitalisation can demand and lead to self-development, different teaching methodologies, and new knowledge. The third group is students. Being a student at university can change radically, losing the feeling of campus life, the traditions, the get-togethers, the personal interaction, the building of new relationships, and replacing it with more flexible class schedules, making it easier to take up a job. Students don't necessarily need to take out loans, especially if they don't have to move or have other expenses to go to university. The same applies to foreigners. However, more difficult class attendance, less knowledge and de-concentration, and less professionalism may result from this transformation.

Cycles: Now, after the shock of the pandemic, there is a cycle of silence and confusion. Universities can decide for themselves how they teach, what facilities, technology and skills they have, it's down to personal judgement and uncertainty about where and how long the process will go.

Projections: Making forecast from the cycle, this situation will not be sustainable in the

long term. Another complete lock down will push them back into a full online world, while a complete unlock may not result in 100% face-to-face education again. There must be a transformation and an ‘individual’ decision on the development of the university, in which direction it plans to keep going on (Petropoulos et al., 2022).

1.6. TRACKING INDICATORS

Pherson (2018) good indicators have 5 key characteristics: observable, collectible, valid, reliable, stable, and unique.” During the horizon scanning we tried to discover indicators, which appeared in each scenario and played equally important role everywhere. In the following we will introduce the driving forces and the scenario.

It is important to investigate the viewpoints and motivations of the above introduced actors in connection with the hybrid working of universities.

During the Horizon Scanning we could see that the most important driving forces are the stakeholders. They have their own expectations and power to be able to shape higher educational institutions’ future. They can do this because the Universities always wanted to fulfil as many requirements as possible to remain competitive on the market and to protect the value of a university degree.

Universities have all the necessary infrastructure and tools to be able to provide hybrid education. In-person teaching would help to keep the role of brick-and-mortar buildings, so universities don’t have to handle the problems of empty campuses. During the pandemic, several online teaching materials were developed, so the efforts of teachers would not be wasted.

Students prefer online education as it is convenient and flexible, but next to this they would like to meet with their classmates and teachers in person. Additionally, social skills development is also important to them. A Hybrid solution provides them all. Teachers put much effort into online material and skill development. They learned many digital teaching methods and they applied them regularly in practice. With the hybrid mode, they can use both their offline and online skills, materials, and techniques.

Employers can also be a driving force, as they would be satisfied if their future employees can develop their social and digital competencies at the same time. Resulting in more prepared students entering the labour market after graduation. Society would also appreciate the hybrid method as they like to see education developing and becoming more and more modern. Maybe the greatest winner and biggest supporter of hybrid education is the IT sector. They had huge profits thanks to Covid-19, and (of course) they support higher educational institutions remaining online to some extent. Each actor has a driving force which promotes the success of hybrid mode.

1. Table Driving forces and variables at HEIs

Driving forces/values variables	Infrastructure	Money	Technology
University	Sufficient hardware	Enough support for online development	Sufficient online software and platforms for teaching
Students	Own tools/tools provided by HEIs	-	Digital skills development
Teachers	Own tools/tools provided by HEIs	Possibility to obtain more wages to hybrid mode	Digital skills development
Employers	-	Provide free courses, guest lecturers	-
Society	-	-	More knowledge of the digital world
IT sector	Provide tools for online education	Market share in HEIs	Provide free of charge/not free of charge software, platforms

Source: own elaboration

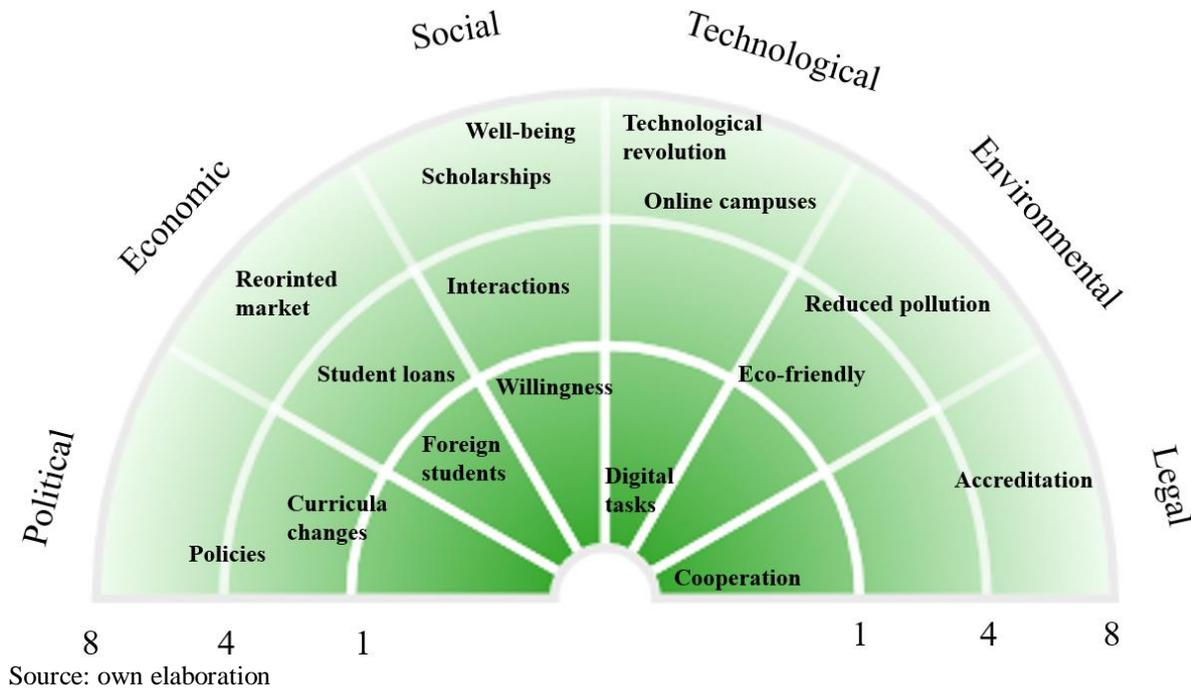
Table 1 shows the scenario model. We selected three values variables based on the most emphasized aspects during Horizon Scanning, and we introduce the model with these variables.

The table shows the stakeholders' most important expectations related to the selected variables, which are infrastructure, money, and technology. These aspects were equally important in the case of full online and face-to-face scenarios as well, but now we are only introducing the hybrid case.

1.7. PESTEL MODEL AND DEVELOPING AN ACTION PLAN

To give a deeper insight into the created scenario, we used the Pestel model, explaining each section and the expected consequences of Covid-19 and the past three years' experience and data obtained. As far as our time limit relates to a maximum 8 years, we divided the Pestel model with 1, 4- and 8-years terms.

7. Figure PESTEL model of the selected scenario



From the political point of view, it is expected that new regulations, laws, and directives will shape the HEIs life and operation. It will more widely concern present trends, for example influencing migration, etc. However, we expect that these changes will happen slowly, first gathering experiences and best practices then new policies. A much sooner expected change on the policy side are the new curricula. It is conceivable that this could affect everything from changes in the profile of universities to the requirements and forms of assessment.

Regarding economics, what has already occurred, but is likely to become a definite trend, is the situation of foreign students. With the online form of education, there will be no more travelling, spending, working, etc. in another country. This will have significant consequences for the student's household, for both sending and receiving countries. At the same time, there will be a change in student loans, which are likely to fall and should help to reduce the initial indebtedness of individuals.

In the short term, a willingness or rather the unwillingness of students to study might be experienced, hence, more high-school graduated youngsters will directly jump into the labour market, especially if the chance of interactions, traditions and feeling of student life with adventures and social experiences will decrease or diminish. It might affect the mental health, integration, and adaptability skills of younger generations. They can also experience a transformation of scholarship opportunities, losing experience, and responsibility.

The transformation of HEIs has mostly led to technological changes. More digital tasks can be expected in the near future, while in the long term, accredited online campuses will appear on the market, providing fully online education, therefore, the doors closed at previous points, open other possibilities to study abroad without any or with less financial burden. It might result in a technological revolution as well, as far as software programmes used during the pandemic were mostly forced solutions, not desirable ones. Capturing attention during an online class will require more technological knowledge from both lecturers and students and financial investments into more suitable equipment and complex systems.

Environmentally, having a hybrid or online form of education causes mostly positive effects. Without a concrete building, costs are decreased, furthermore, pollution and waste, such

as the usage of public transportation, paper, etc. will improve, creating an eco-friendlier environment. However, the usage of home devices consumes a huge amount of electricity.

The legal point of view is more serious. Individual decisions are not enough to switch between forms of education. Without appropriate accreditation it is almost impossible. More accreditation agencies might appear on the market, and HEIs expenditures might increase by spending financial assets to acquire the right justifying the value of the degree and the quality level of education to attract potential students. On the other hand, if we consider the distribution of intellectual property and further learning materials, these also have legal references.

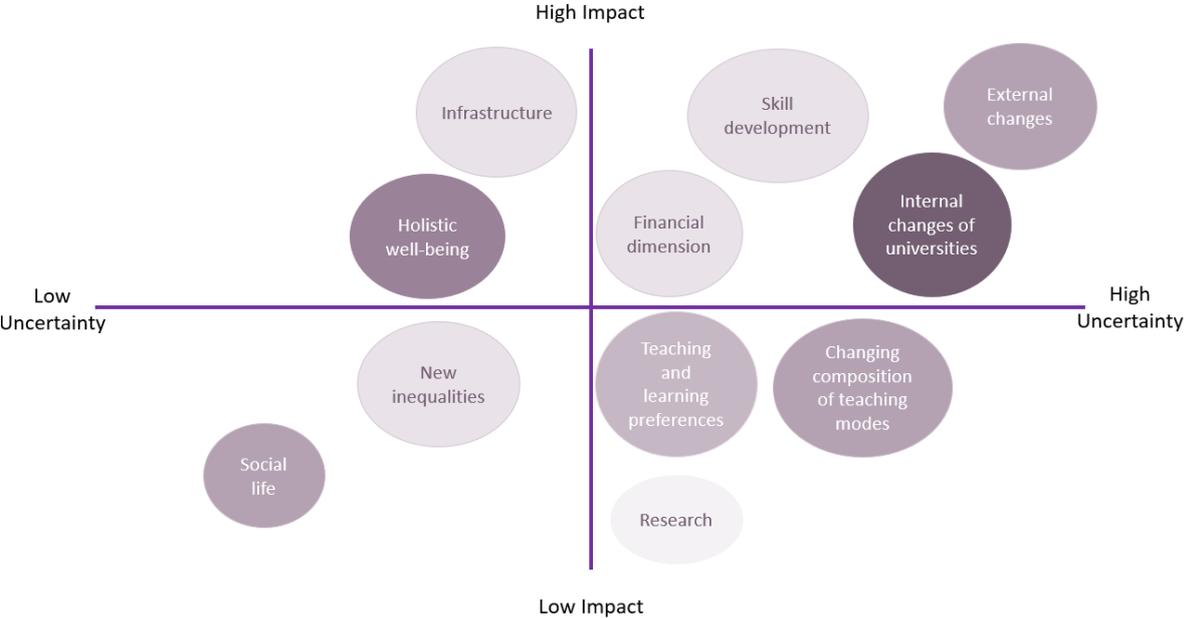
Uncertainty analysis

It is essential to introduce the uncertainty analysis related to hybrid mode and it is also important for creating an action plan. As online teaching and learning raised new problems and challenges in the sector, we have to consider the impact and uncertainty of each topic. Figure 8. contains this analysis.

Below we will highlight some examples from figure 8.

There are four items in the high impact high uncertainty category: financial dimension, skill development, internal changes of universities, and external changes. The financial dimension could cause great problems, for example, during the implementation process of new technologies. The incomes of the universities could decrease as they could lose students because of the increased competition from other educators. The external changes can be sudden and could cause huge (negative or positive) impact on HEIs, just like in the case of the pandemic situation.

8. Figure The uncertainty analysis of HEI’s hybrid mode



Source: own elaboration

The low impact and low uncertainty category contains 2 elements: the social life and new inequalities. From the viewpoint of the HEIs, these factors could have lower priorities related to the other factors when they consider the application of the hybrid mode.

Rehearsal

Because of the Covid-19 scenario, most universities are preparing to implement a hybrid teaching approach. They have the resources, materials, and platforms as well, but colleges

must exercise caution before adopting this method.

If the hybrid way of teaching and learning happens, Higher Educational Institutions must be prepared for some unpleasant facts. The stakeholders have the right to modify their intentions and grab the opportunity to exploit the system. The greatest risk is the IT sector. In the case of the hybrid mode, Higher Educational Institutions would be exposed to the IT sector. Universities must adapt to the changes and innovations of IT tools and platforms, and the IT Sector has the power to enforce universities to adopt these changes. This could lead to huge costs which could make troubles for universities. If universities enter the online world, several competitors appear on the horizon. Online certificates and micro credentials are very popular nowadays. Students can change their opinion and skip university because obtaining an online certificate of another educator is faster and cheaper. Universities must be prepared to face these challenges and create curricula to provide up-to-date knowledge for students, as online teaching is not equal to offline teaching. The Hybrid method of teaching cannot be considered as an innovation if universities provide the same material as in the offline way. They must follow the trends and prepare students for the requirements of the labour market.

1.8. THE IMPLICATIONS OF THE PREFERRED FUTURE

Based on our opinion, the preferred future is the Hybrid mode of university teaching and learning. In the following we are going to introduce the vision and the goal setting related to the selected way.

Vision

In connection with the vision of this future several positive effects can be mentioned. First of all, this way could provide more up-to-date knowledge and a more relevant skillset for the students. This would result in more prepared students, who can fulfil better the continuously changing requirements of the labour market. Additionally, the costs of higher educational institutions and of the students would decrease. For example, the universities should not spend as much as previously on overheads, and students should spend less on travel costs. After the teachers finish the preparation of online materials, there will be less burdens on them, as they can use recordings and ask students to watch videos instead of live classes. To sum up the vision, this way would be better for each stakeholder rather than traditional in person teaching.

1.8.1 GOAL SETTING

In connection with the implication, we have to set the goals to achieve this future. The first goal is to map the requirements of the hybrid method. Universities must check their inventories and get the missing elements to hybrid teaching (infrastructure development). They also must check their opportunities for online platforms and find the best solutions (online platform development). Additionally, they have to prepare their teachers to be able to conduct online classes at high quality (Digital skill development of teachers). Some students will require help in using online platforms or digital tools, so universities must pay special attention to them (Digital skill development of students). They also have to consider the content of the curriculum and modify its content if necessary (curriculum development). These are the most important steps for a university to be successful in the implementation of hybrid mode.

CONCLUSION

In this paper we introduced the methodology of our research. After that we performed the steps of scenario building: domain analysis, horizon scanning, scenario analysis, tracking indicators

and creating an action plan with the help of a PESTEL model.

The goal of this paper was to identify possible scenarios for HEIs after covid. The geographical location was the CEE and the timeline is the next 7 years. As a result, we determined 3 scenarios: full online, hybrid, and face-to-face.

In the following, we will give answers to our research question, which was: “What format of education would be appropriate to enable HEIs transformation ensuring quality education?”. Our answer is the hybrid format of education, because (highlighting only some examples based on our research):

- it ensures both social and digital competencies development,
- the knowledge transfer would remain effective,
- the knowledge would be updated more regularly thanks to the easier implementation process (e.g.: it is easier and more environment friendly to update e-learning materials than re-print thousands of books)
- the value of a degree would remain the same as now.

During our research, we focused only on the preferred scenario, which is the hybrid way of teaching and learning. We selected this one because it could foster the best development of each actor. Students and teachers could gain both social and digital competencies during their activities. Employers would be also more satisfied with fresh graduates because of their skillset. Universities would be forced to develop their IT infrastructure, but they should not rush. They would have time to apply quality solutions instead of temporary ones. The IT sector would also be satisfied, as they would have a higher income because of IT tools development. Society would also be happy because their opinion would be positive related to the value of the degree.

Our research has several limitations. First, we analysed only one scenario (hybrid) in detail, further attention should be paid to the other two (full online and face-to-face) as well. Second, we focused only on the teaching modes, however the results of the horizon scanning could provide the chance to discover deeper assessments and wider viewpoints too. Third, we did not ask expert opinion about the preferred future, we just simply select one scenario, which was preferred by us, and BBS.

We are aware of the missing elements, but these results could be interpreted as the basis of a possible future research. We could continue our assessment and develop new research questions and performs in a more detailed scenario building process. We could investigate similar research about the scenarios of HEIs to be able to create better scenarios. For example, Gering et al. (2022) created 4 scenarios about the future of HEIs. This research could be a great example for us to be able to create more detailed scenarios about the future of HEIs.

Apart from these issues, our research introduced a framework, which can be useful for HEIs who are hesitating which form of education would be the best for them. They can apply the same methodology in their regions and perform the scenario building steps.

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