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Challenges of Uncertainty in Sustainable Strategy Development: Reconsidering the Key Performance Indicators

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Abstract: The planning and development of the university strategy is closely linked to the university's current performance, key priorities, and capabilities. A systematic literature review of factors that influence decision-making for strategy development has been applied in this research. To determine the external factors that influence strategic decision-making for universities nowadays there has been chosen a structure from the PESTLE analysis. The systematic literature review was limited to only higher education factor analysis. Based on the literature review, the authors have developed an approach for strategic direction evaluation and ongoing key performance indicator analysis. The approach is based on the Importance-Performance Matrix–IPA and developed further to include a comprehensive analysis of the strategic directions, organizational sources, and capabilities. An assessment of the university's main strategic priorities with influencing factor analysis can be done using the developed approach adapted by the authors. It integrates the principles of resource-based strategy, key stakeholder engagement and creating shared value in the strategy development process. The adapted method was used in the 3rd generation university strategy development. The research contributes to the literature on a systematic approach development in the strategy evaluation process. This article puts emphasis on the resource-based view and key stakeholder involvement in the evaluation process.

Keywords: university; sustainability; sustainable strategy; self-assessment; Importance-Performance analysis; resource-based strategy

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1. Introduction

To be able to plan the university strategy in an effective and sustainable way, universities have to comprehensively evaluate the direction and level of implementation of the strategy so far, not only through the analysis of the key performance indicators (KPI) but also from a broader perspective, the changing environment and factors influencing the university. The ecosystem in which the university is developing, and the expectations of the key stakeholders are changing continuously. Nowadays, universities have a variety of roles in society, regional development, and innovation. Stakeholders are becoming more interested and involved in the university processes. It is the university's obligation to change and adapt to the new environment. Kaplan and Norton emphasized the importance of transferring and linking the organizational vision and strategy with a real action to ensure sustainable organizational performance results [1]. Some authors argue the importance of recognizing that KPIs on their own can be dysfunctional unless they are grounded within the culture of a strategy-focused organization [2]. In the context of evaluating implemented strategy and strategy development process, correct choice of KPIs play an important role. Juran [3] defined strategic quality management as a systematic approach for the whole organization to ensure meeting the organizational and strategic

objectives. Constant review not only for the processes but also for the university strategy is necessary [2]. With commitment from the management, support from the employees, ongoing communication, review, verification and validation, constructive alignment of processes with organizational strategy can be accomplished [4].

In recent years, the number of higher education institutions around the world has increased rapidly, contributing to an increasingly competitive environment. As a result, for those universities that want to adapt to trends and challenges it is necessary to pay more attention to how their institutional strategy aligns with the changing environment. For example, enhancing internationalization as a strategic priority has helped universities to attract students and researchers from different regions of the world [5]. From strategy evaluation perspective, the number of attracted international students and researchers is not big enough to evaluate if the strategy is being implemented successfully. A systematic approach to analyse sustainable strategy development, implementation and evaluation should be introduced in the organization. The organization should measure the KPIs consistently and systematically for improvement, for accountability and for sustainability of the organization [4]. Current literature includes analysis of different models and approaches of strategy evaluation but does not show how evaluation of previous performance can be used for the analysis of strategy development and adaptiveness. New solutions to the effectiveness and adaptiveness of the university strategy are needed. The approach needs to be continuously developed to enable the opportunity to adapt to the demands and needs of the key stakeholders and factors influencing the strategic direction. Researchers are looking for new solutions and approaches how to evaluate university strategy in the changing environment.

Systematic involvement of key stakeholders in the strategy implementation and evaluation process is being considered as an opportunity for more agile approach development. A variety of authors discuss systematic strategy planning and stakeholder involvement in strategy and KPIs development as crucial success factors:

- University strategies should be developed in collaboration with the main stakeholders [6].
- Working with rapidly changing demands from stakeholders can be challenging. For a wide scope of stakeholders, the principle of the exchange of views and the search for consensus should be applied [7].
- Engaging stakeholders to take part in strategy development and evaluation [8] and allowing them to give suggestions [9] is considered as a good practice.
- Stakeholders want to know how they influence the university strategy [10].
- It is necessary for the university to manage stakeholders and understand the importance of certain groups of stakeholders, such as the government and how it impacts the university [11].

The important success factor is that the main strategy and all developed strategies in the university are in line with the university's main vision [9]. Systematic stakeholder involvement in each step of sustainable strategy development is necessary to capture the demands and needs of the main stakeholders [8]. Stakeholders should be included not only in the strategy development process but also the strategy implementation and evaluation stage. Stakeholders are the main source of critically needed feedback to improve the organization and understanding of how strategy is impacting different stakeholder groups. Systematic evaluation of the institutional strategy is the key element to ensure continuous improvement [12]. This also extends to other crucial strategies and processes in the organization. A variety of support strategies, such as human resource strategy, resource strategy and stakeholder engagement strategy should be considered and must be in line with the strategy development process. [13]. Strategies that are in line with the main strategic direction of the organization contribute more to a well-balanced business model by introducing interrelated system of performance indicators. From the literature the authors conclude that there is still a considerable research gap in systematically measuring institutional strategy in its different stages and balancing the key stakeholder involvement in the decision-making process.

The aim of this research was to develop an approach by which universities are able to assess the implementation of the current strategy, while at the same time assessing the key priorities and proposals for the sustainable strategy development by involving the key stakeholders. The factors obtained as the result of the literature review were used to create an adapted approach for Key Performance Indicator (KPI) consideration for strategy by using the Importance-Performance Matrix-IPA.

The main limitations of this research are that the approach was tested in the 3rd generation university, which was defined by combining study, research, and technology transfer–valorisation activities. The use of the adapted approach in the research for sustainable strategy development planning was limited to involving only these three strategic directions. Although this limitation does not exclude the possibility of introducing other strategic directions in further research. In addition, future research can be done by analysing the literature in different fields where the strategic priorities and stakeholder involvement varies greatly from the field of higher education.

2. Methodology

The research paper consists of five sections and a reference list. In the "Introduction" section, the authors explain the topicality of the research paper, the research gap and define the main research questions and hypothesis. The "Methodology" section explains the process of selecting articles for the systematic literature review. The section includes the description of the research design, article inclusion and exclusion criteria and the systematic literature review steps.

In the "Challenges of uncertainty" section, the authors analyse the main challenges of external factors influencing an organization's sustainable strategy development and stakeholder involvement. Based on the systematic literature review the main factors have been identified and sorted using the PESLTE analysis. The authors have chosen PESLTE analysis as a reference framework to understand the types of external factors in higher education environment. As a result of the literature review and further analysis, four crucial dimensions of strategy evaluation have been identified.

The "Reconsidering the strategic KPIs" section shows how the authors have developed the adapted decision-making model for strategy direction and proposal evaluation using the basis of the IPA matrix. Furthermore, the explanation and examples of proposal evaluation are included and the answers for research questions and hypothesis are given.

The final part of this article contains the "Discussions and Conclusions" section where the authors are discussing and linking the main research results with the adapted model, explaining the main limitations, contributions, further research possibilities and the main implications.

A systematic literature review of factors that influence decision making for university sustainable strategy development has been done in this research. The research focus for this article is to determine the main challenges universities have nowadays in the process of strategy development and KPI consideration.

The process of going through 4 systematic literature review steps is shown in Figure 1.

Step 1: the authors specified two main research questions for the literature review:

R1: What factors impact the challenges universities have in the strategy development process?

R2: How are universities assessing their current strategies in the context of future strategy development?

It was important to understand what external factors influence the strategy development process nowadays and how universities are dealing with them. Different types of challenges will be used to determine the most appropriate solutions.

Step 2: the authors specified the main research keywords and limited the review with only using Scopus and accessible research articles. The search results showed 72 relevant publications from Scopus database. The authors chose publications by using three sets of

relevant keywords and query strings. The keywords and limitations used for the search of publications in Scopus were:

(1) University AND strategy development AND challenges. In total 26 articles were shown. In total 3 relevant articles were retrieved.
(2) University AND strategy development AND factors. In total 27 articles were shown. In total 6 relevant articles were retrieved.
(3) University AND strategy AND performance indicators AND stakeholders. In total 19 articles were shown. In total 6 relevant articles were retrieved.

Step 3: After analysing the abstracts from 72 articles 15 were retrieved as relevant for this research to investigate the main challenges that influence decision making for university strategy development. These articles were selected by analysing their relevance and scientific contribution to the topic of strategy development, strategy evaluation process, stakeholder involvement and performance indicators.

Step 4: The 15 acquired articles were used to conduct a literature review and identify the main influencing factors and challenges for strategy development in universities. The key findings are summarized in Section 3.

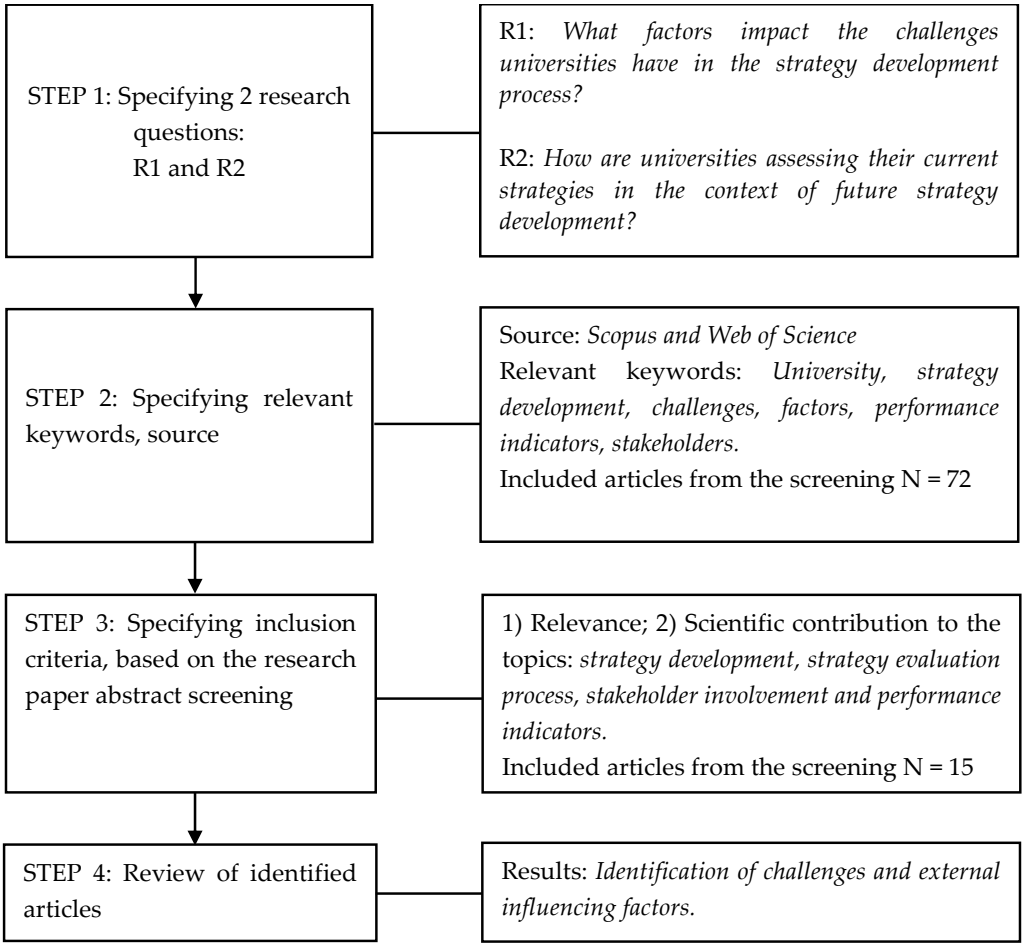

Figure 1. Overview of a systematic literature review process (Created by the authors).

After the literature review the following research hypothesis was developed by the authors:

Hypothesis 1. *The resource and capability-based view is an effective way to assess the performance of the university's current strategy and to plan the development of new strategy directions and KPIs.*

3. Challenges of Uncertainty

The choice of the strategic direction and correct KPIs is an important part of the university's sustainable strategy development and successful implementation of the strategy. Well-defined KPIs can help evaluate the university's achievements. For a strategy to be successful, it must be adapted to the current environment by considering the demands of the key stakeholders, external and internal factors, and other influencing factors. As the KPIs are evolving, more researchers are looking at correlation between university sustainability dimensions and academic performance [14–17]. In addition, some authors state organizations' openness to innovation as an important factor for organizations that are seeking new possibilities for continuous development [18,19]. By integrating and measuring the university's impact on sustainability dimensions–social, environmental, and economic, some authors consider it as an opportunity to improve the engagement of stakeholders in university decision processes that also improves the universities' overall performance [16]. Furthermore, it aligns with the concept of creating shared value. Process of creating shared value balances between social innovation and sustainable strategy and business model development to create mutual benefit for the organization and the key stakeholders [20]. Long term goals that consider the key stakeholder needs create sustainable competitiveness and joint value [21]. There has already been research on involving society as a stakeholder in the university strategic planning process as an innovative and open governance practice [22]. These trends shift the traditional university strategic priorities from focusing on the core university processes such as study and research processes to a much wider perspective. By shifting the focus to the evolving demands of the key stakeholders, the university needs to be able to keep up with the changes and make the university strategy more agile. The planning process of university strategy development has become more complex. Universities nowadays are measuring not only the impact of core processes but also universities' impact on wider groups of stakeholders, such as society, industry, partners [18,23–25]. For example, universities are becoming more socially active by analysing their social performance [23]. As it still is a new developing trend for many universities. The literature review shows the existing gap between university external activities outside the core strategic priorities and a common approach to their evaluation [25]. Universities that are adapting their strategic priorities and strategies to the needs of the key stakeholders in the future will become the main drivers and role models toward a sustainability culture in society and higher education [14].

To determine the main external factors and challenges that influence strategic decision-making for universities nowadays, the authors have chosen to adapt the structure from the PESTLE analysis. The PESTLE analysis is a strategic planning tool used to evaluate the impact of six groups of external factors-political, economic, social, technological, environmental and legal [26,27]. The PESTLE analysis is widely used as a starting point for strategy development and external factor analysis [28]. The authors have chosen these groups of factors to determine which of them have the most impact on the university strategy development process and KPI reconsideration. The summary of the analysis by introducing the PESTLE elements is given in Table 1.

The main challenges and external influences in research for strategy assessment and development process have been identified. The current research shows that stakeholder involvement in university decision processes related to sustainability is only partial [36]. Researchers put emphasis on the need of wider stakeholder involvement in the strategy development process [29,31–33]. Building a strategy in a systematic way allows it to be agile and adapt to external influences [35]. Defining performance indicators that integrate stakeholder needs, external factors and the resource-based view in a changing environment is challenging [32,34]. Managing and balancing all resources, including university's intellectual capital in the strategy development process is necessary [31,33,34,37–39].

Table 1. The analysis of the main challenges and external factors (Created by the authors).

Time	Describing Challenges and External Influencing Factors	Indicated Elements of PESTLE Analysis
2020	**Study process direction and curriculum development**—stakeholder needs, government policies and political view [29]	Political, Social, Legal
2020	**Sustainable management**—systematic way to define and analyse KPIs [30]	Economic, Social, Environmental
2019	**Strategic performance indicator development**—education reforms, stakeholder needs [31] Resource management—universities' intellectual capital management [31]	Economic, Social, Technological
2019	**Strategy development and resource management**—using diversified approaches for strategy, university's role in triple helix context, contradiction analysis [32]	Economic, Social, Technological, Environmental
2019	**Project management**—technological support, balance between priorities [33] Stakeholder engagement—leadership, key stakeholder involvement in project [33]	Social, Technological
2019	**Entrepreneurial university and academic entrepreneurship**—intellectual capital management [34]	Economic, Social, Technological
2017	**Strategic management**—flexibility and adapting to changing environment—regional, international, and political [35]	Political, Social, Legal

From the political and legal point of view, changes in government policies are driving inevitable changes for university strategic directions [40]. Economic stability also has a crucial impact on higher education and individual institutions as national government decisions can possibly influence the amount of investment in educational sector in general [41,42]. Entrepreneurial transformation and focus on internationalization are considered to be the solution for university financial independence from the negative impacts of national political decisions [34,42–44]. As entrepreneurial university transformation seems like a good solution, some researchers are highlighting the need of integrated systematic approach for evaluating the performance of universities ongoing the transformation [30,35,44].

Researchers also suggest and offer different integrated approaches for a multiple criteria decision model that analyses the performance of the university such as the balanced scorecard (BSC) [45]. BSC is widely used in the higher education sector as a tool for analysing the institutional performance. In the past years, researchers have been adapting the BSC method and integrating it with other methods to introduce new ways how to use it. By integrating BSC and the analytical hierarchy process (AHP) researchers have facilitated the process of prioritizing and weighting the criteria [45,46]. Other researchers highlight the benefits of using BSC with other multi-criteria decision methods such as the Analytic Network Process (ANP) and Decision-Making Trial and Evaluation Laboratory (DEMATEL) [47]. BSC is also being considered as a strategic map that researchers adapt and use for integrating the risk management and crisis response methods [48].

As universities are using diversified approaches and strategies, resource management has become an important element of strategic decision making [31,32]. Researchers are suggesting using a tool, such as the IPA matrix that assesses the organization's priorities by considering the resources [49,50]. The IPA matrix consists of a two-dimension model that includes evaluation of the organization's current performance and importance of an activity [49]. The IPA matrix is widely used, including education field, as a tool to analyse and prioritize activities, strategic directions and resources [47,51]. The matrix helps to analyse and prioritise attributes that need more development and those that should not be pursued [52]. These two dimensions are crucial to determine how important the activity or attribute is. The IPA matrix is a good tool for prioritizing activities based on their performance but it does not show the capabilities of the organization to continue to carry them out. Absence of the resource-based view shows the necessity to adapt the matrix. From the strategy evaluation point of view, it is important to also analyse the organization's

resources and capabilities before deciding the strategic aims. The resource-based view allows to make considered decisions and define reachable strategic targets.

Based on the literature review, the authors offer to introduce two additional dimensions which complement the IPA matrix–feasibility and contradictions as shown in Figure 2.

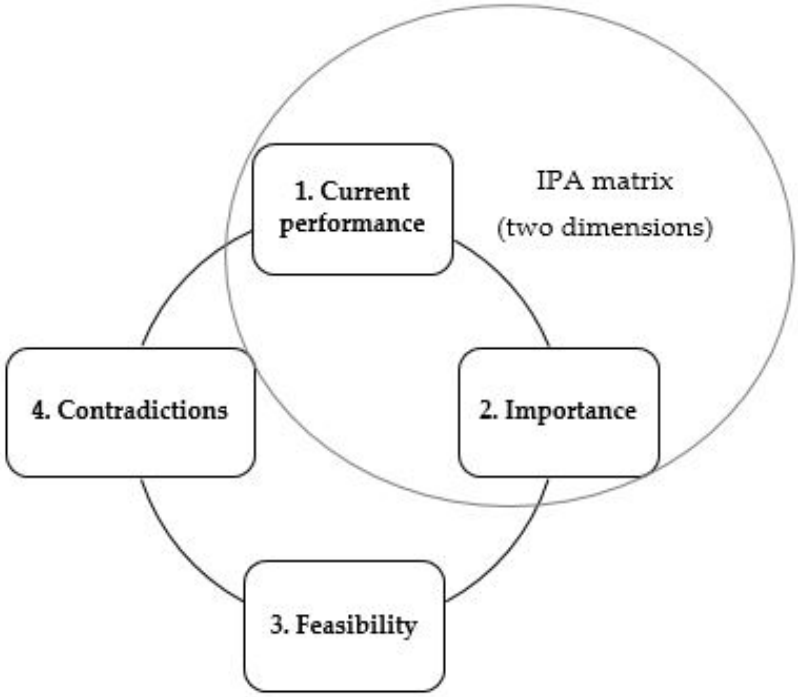

Figure 2. Adapted dimensions for strategy direction evaluation (Created by the authors).

Feasibility integrates the resource-based view that is crucial for strategic direction evaluation. As the university strategy often has more than one strategic priority, it is necessary to maintain a balance between all strategic priorities. To do so, the authors introduce the fourth dimension–Contradictions. The fourth dimension allows to analyse if some of the strategic priorities have contradictions that do not allow to pursuit all of them. The ability to analyse the strategic proposals from different dimensions allows to make decisions systematically. The defined dimensions will be used in the next paragraph as a basis of strategic direction evaluation and KPI reconsideration.

4. Research Results: Reconsidering the Strategic KPIs

In this paragraph the authors describe the adapted approach of how to assess possible strategic directions of the university that result in an in-depth analysis and reconsideration of strategic KPIs. Furthermore, the approach allows to engage internal stakeholders in the planning, establishment, and implementation of the university's strategy.

First, the authors will explain the adapted approach for strategic direction analysis. Secondly, the authors will offer a six-step procedure for implementing the adapted approach and show the results of the implementation by giving one university's result example.

Previously the authors have adapted the four-dimension approach based on the IPA matrix and literature review. It will be used as part of an approach for strategic direction evaluation. As researchers suggest, previous strategy assessment, stakeholder involvement throughout the strategy development process and evidence-based priority setting is the basis of systematic KPIs reconsideration [2,4,9,12,29,31,53].

The authors have created an adapted model that shows the main elements and process of current strategy evaluation, development of the new strategy that includes reconsideration of strategic KPIs. The model also shows the links with key stakeholder engagement and creation of the shared value. The adapted model is shown in Figure 3.

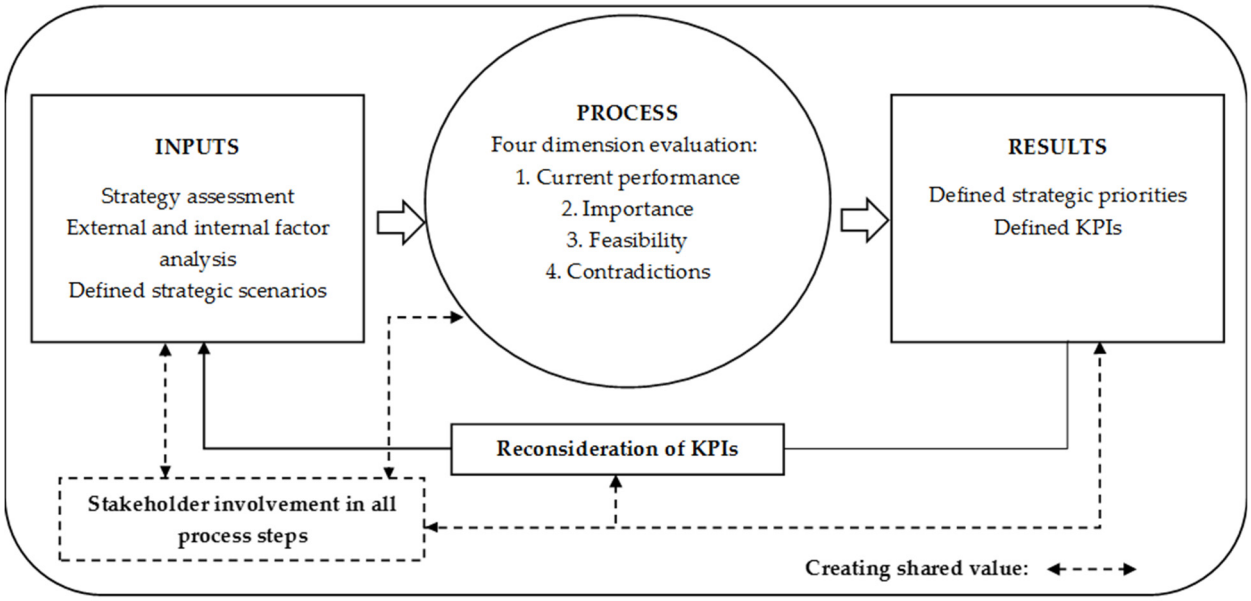

Figure 3. Adapted model for strategy direction evaluation (Created by the authors).

The model consists of inputs that include the current strategy assessment, external and internal factor analysis that are used to define possible strategic scenarios. Then each strategic scenario undergoes 4-dimension evaluation involving the key stakeholder groups. In each of the process steps key stakeholder involvement and creation of shared value streams are shown. As stated in the definition of the concept of shared value, the organization and key stakeholders should have mutually beneficial relationship. The stakeholders evaluate the current performance, importance, and feasibility of each strategic direction activity. After the prioritization of activities, the strategic management team analyses if any contradictions with the priorities occur. As the result, the strategic priorities have been defined. Based on the current strategy review, 4-dimension evaluation and final strategic priorities a new set of KPIs can be created. It is crucial to understand that the key stakeholders need to be involved in all steps of strategy development, for example the KPIs reconsideration.

The authors have described the key steps for stakeholder engagement in the sustainable strategy development process and reconsideration of KPIs. The strategy development process by taking into consideration factors that influence the process and key stakeholder engagement which consists of key stakeholder feedback, their needs and expectations and defined role in the decision-making process is shown in Figure 4.

The authors have described the main steps of strategy development process and the main results of stakeholder engagement in each of the steps that contributes to creating shared value:

1. Process step: Current strategy evaluation, external and internal factor analysis, and trend forecasting in the university's ecosystem. Results: Sustainable resource evaluation and management process.
2. Process step: Creation of strategic scenarios based on the previous analysis. Results: Joint value creation with key stakeholders. Wider understanding of common objectives, problems, and opportunities.
3. Process step: Involving key stakeholders to discuss, correct, assess the scenarios proposed and then vote for the preferred scenario. Results: Comprehensively analysed strategic proposals with achievable and balanced objectives.
4. Process step: In order to assess the selected scenario in depth, a questionnaire is used in which each of the proposals are assessed on the basis of its importance, current performance and feasibility. Key stakeholders also have the opportunity to offer their

proposals and to specify what should be done to implement these proposals. An example of the questionnaire is shown in Table 2.

4.1. Based on internal and external environmental impact factors, survey results and expert proposals, a priority map for the university strategy direction can be established for each of the activities.

4.2. Based on the results, the main priorities can be assessed by analysing how successfully the activities have been implemented so far, and what resources the university needs to successfully implement them in the next period of the strategy. Results: Defined sustainable strategic priorities.

5. Process step: After compiling the results, the key stakeholders can be presented with the results and the main performance indicators can be defined for each of the proposals within the working stakeholder groups. Results: Strategic KPIs that allow to evaluate the sustainability of a strategy and creation of shared value in each of the strategy development steps.

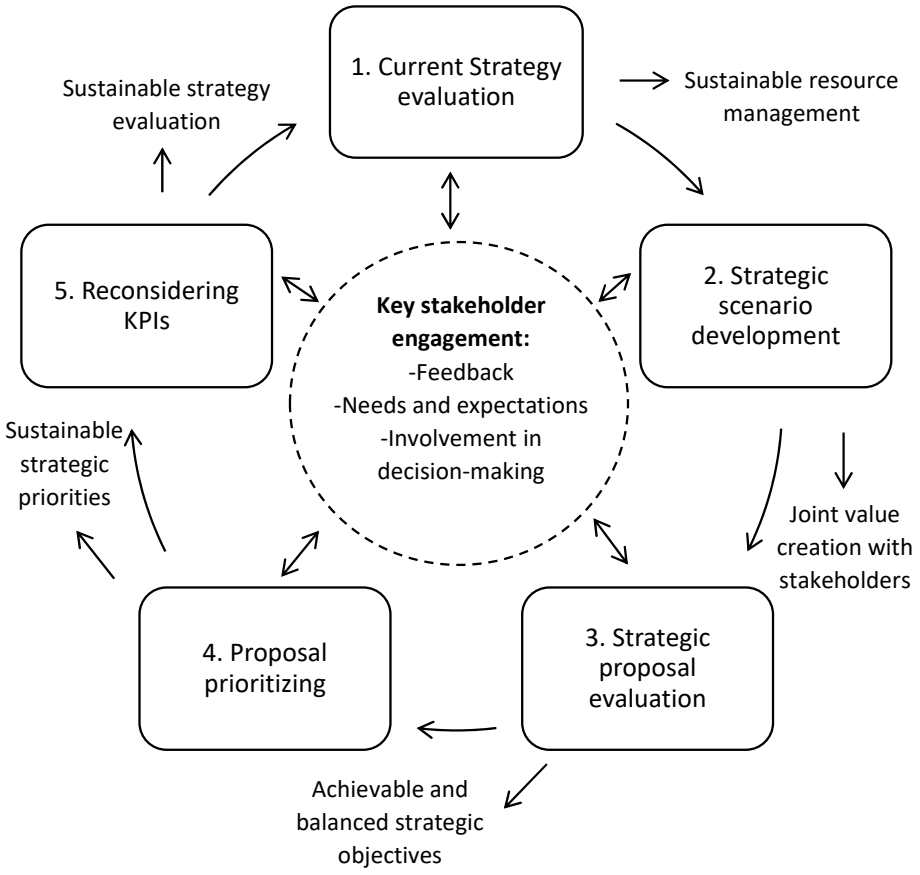

Figure 4. Sustainable strategy development process (Created by the authors).

Table 2. Matrix for strategy proposal evaluation (Created by the authors).

Proposals for Strategy Directions	**Importance to Achieve the Goal.** (0—cannot be evaluated, 1—not important, 2—rather important, 3—important)	**Current Performance.** (0—cannot be evaluated, 1—not important, 2-rather important, 3—important)	**Feasibility** (1—No, it is not possible to implement, 2—It would be possible to implement, but with a condition 3—Yes, it is possible to implement)
N1			
N2			
N_			

As the key steps suggest, the main groups of stakeholders should be engaged in each of the strategy development process steps. In each step stakeholders hold a different role that should be clearly communicated. This allows to comprehensively manage the strategy development process.

Further in this research article, the authors will show an example of obtained results from using the previously described steps. The example is based on a third-generation university that has three main strategic priorities–study, research, and technology transfer process. The authors will show an insight of the main steps and results from the evaluation process. The abbreviations used in the following graphics:

SP—Study process.
RP—Research process.
VP—Valorisation process.

Based on the strategic direction evaluation, the authors created the IPA matrix that shows how each of the offered proposals have been evaluated. The results are shown in Figure 5.

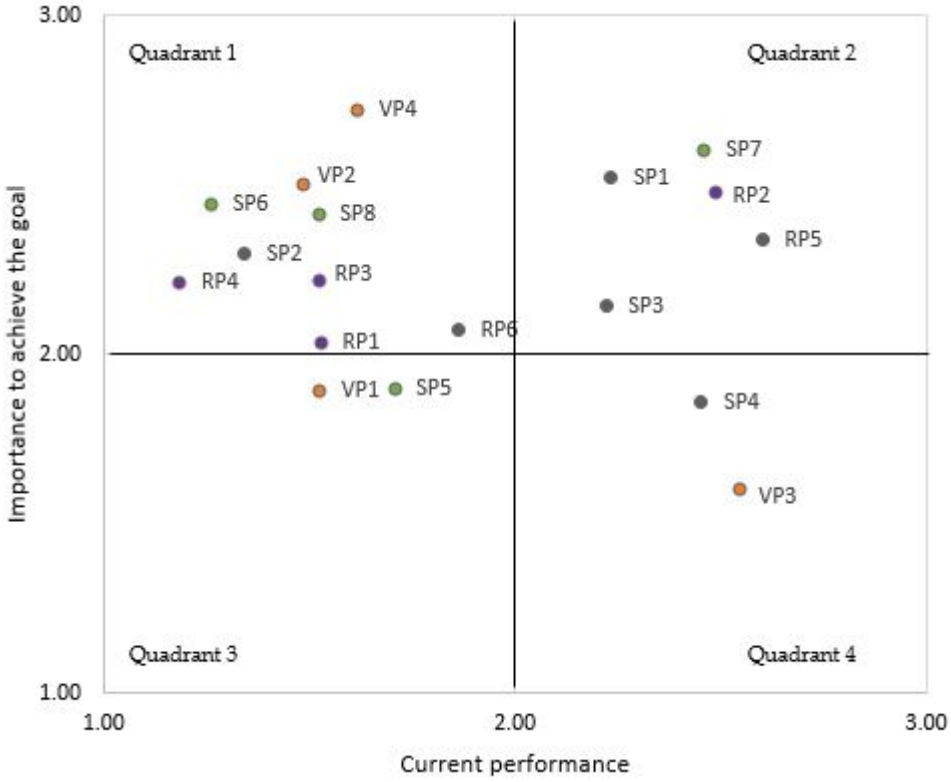

Figure 5. Results of strategy direction evaluation using the IPA matrix (Created by the authors).

As it can be seen in Figure 5, the majority of proposals are located in two quadrants—quadrant 1 and quadrant 2. From the theory of the IPA matrix quadrant 1—indicates that the proposals are evaluated as important, but their current performance is weak.

Quadrant 2—high importance and high performance. These are the most successful proposals so far.
Quadrant 3—shows those proposals that are less important, and their current performance also is weak.
Quadrant 4—These proposals are evaluated with high performance, but low importance for the strategic direction.

This can be considered as the first level evaluation to determine which of the proposals should be considered as a priority by analysing two dimensions–importance and current performance. To analyse in depth each of the proposals they should be viewed also from a

capability view. To do that the authors propose additionally to use a radar matrix for each group of proposals. The radar matrix shows the main gaps for each proposal. An example of a radar matrix is shown in Figure 6.

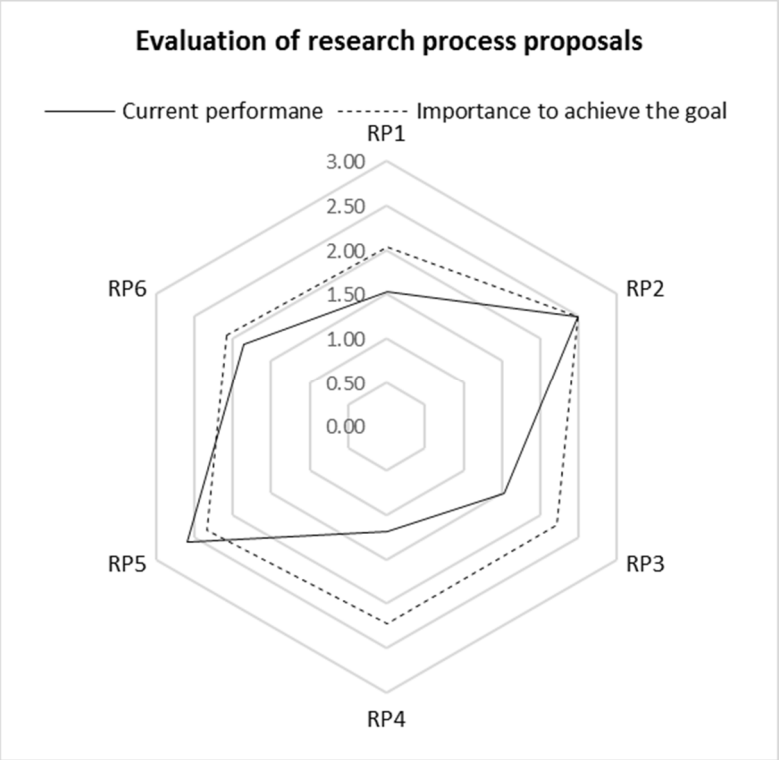

Figure 6. Results of research proposal evaluation (Created by the authors).

University can evaluate all processes by using the radar matrix view. As an example, in Figure 6 the authors have shown the results of research process evaluation and gaps between the current performance and importance to achieve the goal. In this example three versions of proposals can be seen:

- Current performance = Importance (RP2)
- Current performance > Importance (RP5)
- Current performance < Importance (RP1; RP3; RP4; RP6)

By using this radar view, universities can evaluate their current performance and importance of the strategic direction. As Figure 6 shows a variety of gaps between both dimensions, it is necessary to understand why these gaps occur and how they affect the strategic proposal evaluation. Figure 7 shows which of the proposals have the widest gaps.

It is important to mention that the gap between performance and importance can be also in reverse as shown in Figure 7, proposal RP5. This means that the importance of this proposal is rated lower than the actual performance. Furthermore, proposal RP2 has been evaluated equally by performance and importance. To analyse these kinds of proposals more in depth dimensions are needed.

The IPA matrix and radar matrix show only two of the four dimensions adapted by the authors. One of the main factors that impact these two dimensions is the proposal feasibility. The feasibility can be assessed independently by considering the university resources. This third dimension allows to integrate the evaluation of the organization's resource capability. In the next table, the authors have conducted a decision-making matrix for evaluating the strategic proposals (see Table 3).

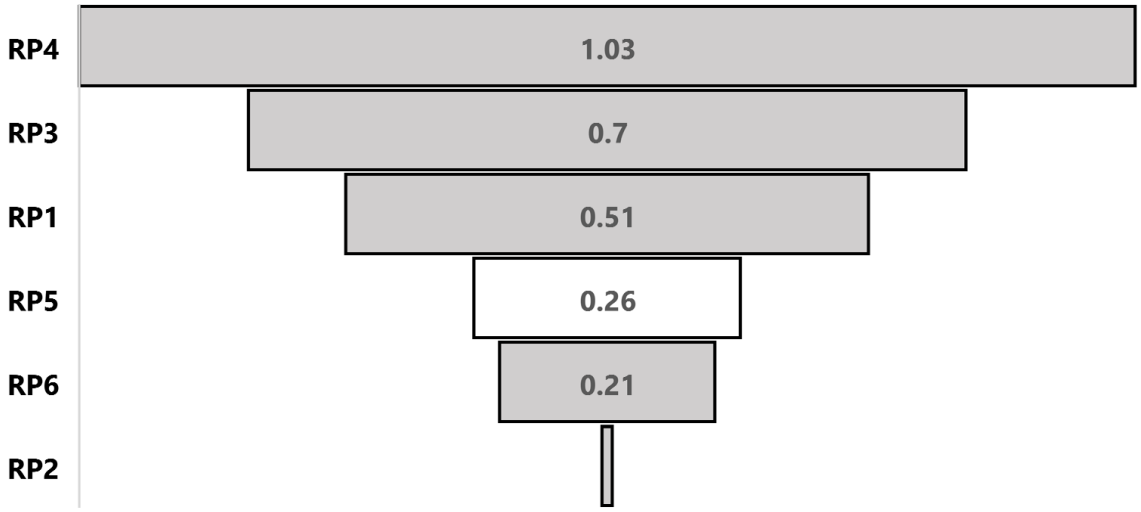

Figure 7. Gap between Current performance and Importance to achieve the goal. (Created by the authors).

Table 3. Decision-making matrix for evaluating strategic proposal sustainability (Created by the authors).

		Importance	Performance	Feasibility	Score
Example 1	1	X			1
	2		X		1
	3			X	1
		Importance	Performance	Feasibility	Score
Example 2	1				0
	2		X		1
	3	X		X	2
		Importance	Performance	Feasibility	Score
Example 3	1				0
	2				0
	3	X	X	X	3
		Importance	Performance	Feasibility	Score
Example 4	1	X		X	2
	2		X		1
	3				0
		Importance	Performance	Feasibility	Score
Example 5	1	X	X	X	3
	2				0
	3				0
Example N		...	...	...	...

The decision-making matrix in Table 3 shows proposal evaluation by introducing a score system. The matrix shows how proposals are being evaluated from a three-dimension perspective. The additional element for this matrix is proposal sustainability analysis which allows to prioritize the proposals from the most sustainable to the least. The sustainability is evaluated by considering the importance of the proposal, current performance, and

feasibility. Feasibility is considered by evaluating how the proposal could be implemented by using the organizational resources. The sustainability score of the proposal consists of the previously conducted stakeholder survey where experts evaluated each dimension with scores from 1 (low) to 3 (high). By obtaining a score above 1 in at least two dimensions the proposal can be considered as potentially sustainable. Examples of proposal score evaluation are shown in Table 4.

Table 4. Example of proposal sustainability analysis (Created by the authors).

Proposal-RP3	Importance	Performance	Feasibility	Score
0–1 (low)				0
1.1–2 (medium)		1.52		1.52
2.1–3 (high)	2.22		2.5	4.72
TOTAL score		6.24 from 9.00 (69.33%)		

The example shows that the proposal RP3 has obtained score above 1 in all of the dimensions. The total obtained score is 6.24 points out of 9.00 that equals 69.33%. This analysis can be used to prioritize the proposals and determine how the proposals fulfil the strategy.

The fourth dimension–contradictions–should be assessed with the strategic management team. The strategic priorities should be evaluated by analysing how the implementation of the proposals could possibly contradict. Contradictions can occur if two proposals are equally prioritized and need the same resources. Therefore, each of the strategic proposals need to have clearly defined aims and resources. It is necessary to look at the long-term and short-term benefits the organization could gain by implementing one or another proposal. That allows to analyse in depth the sustainability of a proposal by looking at the use of resources and main benefits for the organization and the key stakeholders.

Only after the main strategic priorities have been prioritized and agreed upon, the reconsideration of KPIs can be done. In Figure 3 the authors showed that stakeholders should also be involved in the strategic indicator development. More crucially stakeholders should participate in the process of developing the strategic targets for the KPIs. By involving the stakeholders, it is possible to assure that the chosen strategic direction, proposals, and performance indicators are in line with the organization and the key stakeholder needs and demands.

5. Discussions and Conclusions

For this article two research questions were defined: what factors impact strategy development process for universities and how universities are assessing their current strategies. The main influencing factors that appeared the most in the literature review were increasing stakeholder needs, lack of systematic approaches and performance indicators that measure sustainable strategy development and lack of the resource-based view in the evaluation process. The importance of evaluating systematically the organizational strategies has been emphasized by several researchers [2,9,12,46]. The literature shows that researchers are using more integrated methods such as BSC with other multi-criteria models to evaluate the performance in depth [45–47]. In this way, for example, it is possible to develop and prioritize different groups of KPIs that are integrated in strategy-focused organization operations [2,45–47].

The authors agree with Kaplan and Norton's point of view [1] of emphasizing the importance of transferring and linking the organizational strategy with operational actions. The important factor of success is that all developed strategies are in line with the university's main vision [9]. External factors such as changes in government policies, competition and stakeholder demands are only some of the main university strategy development and change drivers [39].

The research shows that the evolving demands of the key stakeholders are changing the strategic priorities for universities by forcing universities to analyse their impact not only by the core university processes but also other external activities such as university impact on society, innovation development and environment. A flexible strategy that integrates the resource-based view and capability assessment is the key to adapt to changing environment.

The importance of sustainability and CSR activity reporting in higher education has become more popular in the past decade. Researchers highlight the need of in-depth analysis not only on university sustainability related results but also the processes of developing strategies [36]. The authors agree that future research should tackle the research gap between evaluating the strategy development process and sustainability of the strategy. The authors consider measuring strategy adaptiveness to influencing factors and stakeholder engagement in the development process as possible research directions.

Stakeholder engagement plays a crucial role in an organization's strategy development and implementation. By understanding the needs and expectations of the key stakeholders, the organization can develop sustainable strategy that creates shared value. Creating shared value gives not only social but also economic benefits for the organization [21]. Managing resources, including university's intellectual capital in the strategy development process, has become a crucial part of strategic management [31,33,34,37–39].

Some researchers agree that by engaging stakeholders in the process of strategy evaluation and development the university ensures a long-term success [41]. Universities that promote continuous improvement culture in all levels of organization can easily adapt to changes and develop new KPIs [53]. Researchers are still trying to find effective ways on how to determine and analyse the key roles and level of stakeholder engagement in the strategy development process. The authors see this as another potential for future research–finding a systematic way how to determine and measure stakeholder engagement throughout all strategy implementation phases.

For this article, the authors had developed the following: Resource and capability-based view is an effective way to assess the performance of the university current strategy and to plan the development of new strategy directions and KPIs.

The hypothesis was proven as the authors developed an adapted model that allows to comprehensively analyse strategic priorities. A sustainable strategy development process is a crucial part of successful strategy implementation.

Furthermore, an analysis of strategy evaluation dimensions has been done based on the literature review. In total, four dimensions have been recognized and adapted in this article. Two of the evaluation dimensions are based in the IPA Matrix that has been adapted further. These dimensions have been adapted, tested, and described with all implementation stages in the research. The stages of strategy evaluation and KPI reconsideration are based on the literature review and practical evaluation examples described in the article. By using this adapted model, the top management of the university can determine the weak points of their ongoing strategy implementation and have an insight of potential challenges for future strategy development. This approach assesses the performance of the university strategy while using the resource and capability-based view for the development of new strategic directions. This approach also helps the university's top management to assess the current strategic direction and identify key priorities for the next strategy by integrating stakeholder views into the strategic planning process. The developed approach contributes to similar research that focuses on finding systematic multi-criteria models of strategy evaluation and priority setting [50–53].

The main research limitations for this article were that the authors were focused on analysing the strategy development process and only mentioning the strategy evaluation process. Further research could be done by introducing a comprehensive method for each stage of strategy implementation. The results of the adapted model included only examples of proposal evaluation. The adapted model was implemented in the 3rd generation universities, which are defined by combining study, research, and technology transfer activities. Other types of universities and organizations were not included in the research.

Additionally, further research is possible by analysing a wider scope of publications related to the influencing factors, stakeholder engagement and university adaptiveness in the strategy development process, possibly focusing more on internal changing factors and how they shape the process.

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