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SELECTED ASPECTS OF A UNIVERSITY'S SUSTAINABLE DEVELOPMENT STRATEGY

WYBRANE ASPEKTY STRATEGII ZRÓWNOWAŻONEGO ROZWOJU UCZELNI WYŻSZEJ

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Summary: The introduction of the Constitution for Science has initiated a series of changes in universities in Poland. Particularly important are changes which will conform to the universities' structure to the new evaluation criteria, and consequently will affect their financial conditions. The concerns presented in the article refer to the sustainable development strategy of a university. This strategy should enable universities not to assess all of their research and educational employees according to the same criteria or according to the same threshold values. All academic teachers work for the success of the university, however, each of them to a different degree. This differentiation may result not only from the individual predispositions of employees but also from the adopted strategic assumptions. The article aims to present some aspects of the implementation of a university's strategy with regard to subsidies granted under the Law on Higher Education and Science in Poland.

Keywords: university, strategy, research activity, sustainable development.

Streszczenie: Wprowadzenie Konstytucji dla Nauki zapoczątkowało szereg zmian w szkołach wyższych w Polsce. Szczególnie ważne są zmiany, które dostosowują struktury uczelni do nowych kryteriów oceny szkół wyższych, tj. kryteriów wpływających na warunki ich finansowania. W artykule autor skupia się na zmianach prorozwojowych. Proponowane w artykule rozwiązania odnoszą się do strategii zrównoważonego rozwoju uczelni, która polega na odejściu od oceny wszystkich pracowników naukowo-dydaktycznych według tych samych kryteriów lub według tych samych wartości progowych. Na sukces uczelni pracują wszyscy nauczyciele akademiccy, jednak każdy z nich w różnym stopniu. Zróżnicowanie może wynikać z indywidualnych predyspozycji pracowników, ale również z przyjętych założeń strategicznych. W artykule przedstawiono wpływ decyzji kadrowych na wysokość subwencji. Celem artykułu było zaprezentowanie wybranych kwestii związanych ze strategią zrównoważonego rozwoju uczelni wyższej jako konsekwencji przemian w sposobie funkcjonowania szkół wyższych w Polsce.

Słowa kluczowe: uczelnia wyższa, ustawa 2.0, strategia zrównoważonego rozwoju uczelni wyższej, subwencja.

1. Introduction

Changes in higher education are taking place due to the introduction of the Constitution for Science. This Constitution influences, among others, a university's statute, which often leads to modifications in the organisational structure of a university. Particularly noteworthy are the changes which will adapt the university structure to the new evaluation criteria of higher education institutions and, consequently, will affect their financial conditions. One of the reasons to modify a university's structure is the need to replace the evaluation of basic organisational units with the evaluation of scientific disciplines. If a faculty conducts research (as the basic organisational unit of a university) in more than one scientific discipline, it seems to be justified to appoint a unit which would be responsible for scientific achievements in a given discipline.[1]

Undoubtedly, the most challenging period for Polish universities will be the next few years, because they will need to adjust their operating models to new conditions. One can distinguish two directions of change: changes which involve simple adaptions to the current university structures, and changes which go beyond that and have a pro-development character. The risk for the future of universities is that this will limit the changes only to adjust the state of 'being' to the new legal conditions. These changes would be reactionary and only enforced – a survival strategy.

If the changes have a pro-development character and take place together with an evolution in the macro environment of higher education institutions, they may be considered in the category of opportunity – a development strategy.

In the article, the author focuses on pro-development changes. The solutions proposed in the paper refer to the sustainable development strategy of a university.

The article aims to present a strategy for the sustainable development of a university, as a consequence of the changes in the way universities function in Poland with regard to subsidies granted under the Law on Higher Education and Science.

Along with the systematic changes, the algorithm for calculating public funds transferred to universities in Poland has also changed. The amount of subsidy depends on several variables – algorithmic variables. Their choice by the legislator should reflect the strategy for the development of higher education in Poland and should have an impact on the long-term decisions taken by universities. The second part of the article presents the implications of the decisions made regarding the personnel policy of a university – the staff component as the algorithmic variable – on the amount of subsidies.

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[1] An example of such changes is the Adam Mickiewicz University in Poznań (UAM). The current structure of the UAM includes 16 faculties within which scientific research is conducted in over 20 scientific disciplines. The changes proposed in the new UAM Statute are aimed at establishing "disciplinary faculties".

The inductive research method is used in the article. The empirical data from Poznań University of Economics and Business (PUEB) was used to illustrate the problem.

2. Sustainable development strategy of a university

The strategy for sustainable development of a university is based on the assessment of academics according to the various criteria with different threshold values. All academics work for the success of the university, however each of them to a varying degree as a result of individual predispositions, but also the underlying strategic assumptions of a university.

The interdependence of the educational and scientific area at universities has been the subject of many scientific studies (for example [Fox 1992; Baurlein 2009; Napiecek 2015; Kowalczuk-Walędziak 2017]). Among the authors one can identify opinions that tend to conclude on the complementarity of these areas or other views depicting the negative interaction between these two areas. The negative correlation appears in the case of the "deficiency model", or models emphasising various personality predispositions and competencies required in educational activities with regard to research. J. Hattie and H.W. Marsh [1996] point out the unfavourable influence of the diffusion of educational and scientific research activities carried out by the same people.

The statutes prepared by higher education institutions introduce new organisational units that will play a significant role in the educational process (for example, The Directors of Studies, The Curriculum Board) or in scientific and research processes (The Scientific Advancement Board, The Doctoral School). The achievements of these units should be considered as the sum of the accomplishments of other units which are responsible for research and educational activities such as institutes and departments.

The assessment should be carried out from the perspective of organisational units, not individual academics. The directors of the institutes and heads of departments should be responsible for the strategic achievements as team leaders.

In the proposed structure of the PUEB, the units performing tasks in the field of scientific research and didactics are institutes and subordinate departments. The Directors of Studies and the Director of the Center for Executive Education should be the units commissioning the scope of activities in the educational area. In the scientific field, the Director of Institutes remains the coordinator of the scientific work. However, long-term decisions regarding the strategy of scientific research and academic promotion should correlate with the university's strategic goals. The Scientific Advancement Board and the Doctoral School Council should be the ones responsible for setting these goals.

The matrix system will be particularly visible in the educational area. The Directors of the Studies will be responsible for the educational quality of a given

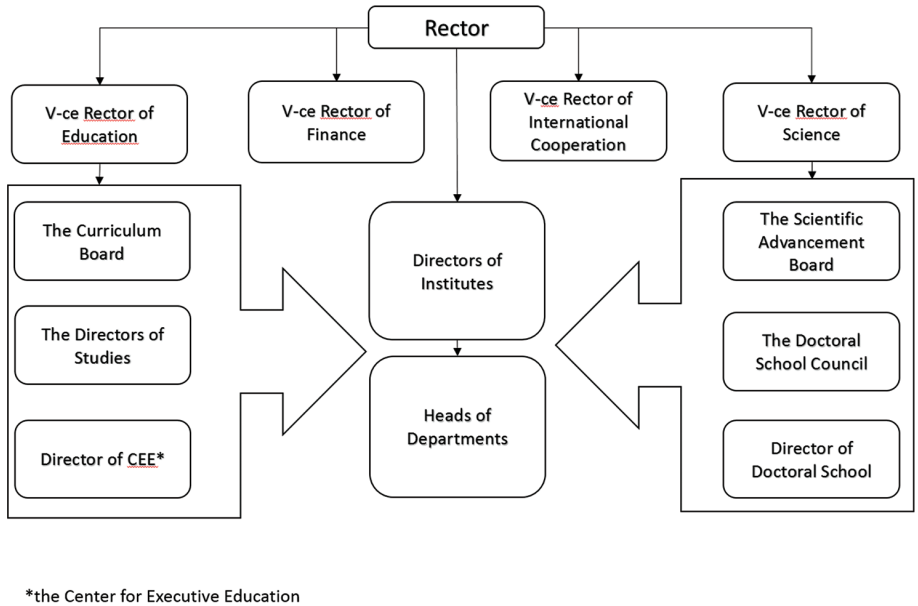

Fig. 1. A simplified organisational chart of Poznań University of Economics and Business

Source: author's elaboration based on the assumptions of the PUEB statute.

field of study. They will need to propose new fields of study and select the academics for their implementation. Academics will be organized in the smallest organisational unit – departments. The Director of Studies will report the demand for lecture hours. It is essential to introduce mechanisms that balance the achievement of a department's objectives – ensuring a minimum number of educational hours and providing an attractive teaching package. The implementation of the educational process does not only involve resources in the form of academic staff, but also the proper infrastructure (e.g. IT facilities, seminar rooms, library resources). The accessibility and quality of these resources should also be coordinated by the Director of Studies.

The scientific activity is the second area influencing the size of algorithmic variables. In the proposed structure of the university, the institutes should coordinate scientific work. The Director of the Institute will implement a strategy for scientific development within the departments under his/her command. Scientific activity is more individualised, carried out within individual departments, sometimes even by a single employee. The term "independent research worker" is symptomatic. However, when analysing the scientific achievements of many scientists, it can be stated that significant scientific achievements were obtained as a result of the work of research teams, and the results were often interdisciplinary.

The goals set for institutes should be adequately correlated with the strategic objectives of a given university. Although it is assumed that obtaining the academic

title of a professor is the individual achievement of an academic, the author believes that a strategy should be developed by the Director of the Institute to support the academic in obtaining scientific titles, assuming that such a goal was adopted by the university. An example of such a strategy is the appropriate reduction of the academic's involvement in educational or organisational activities. One should also consider support in the scientific area, an example of which is the creation of research teams whose leader is a person on the "path" towards academic promotion.

An appropriate information system is needed to measure the effectiveness of the strategic decisions made by the organisational units of the university. By information system, the author understands an accounting system, supported by databases and IT systems which process financial data as well as non-financial data characterising the organisational units of the university. This system should not only correspond to the structure of the university and the activities, thus the processes, performed in it but it should also take into account the fact that the areas of the university's activities overlap and correlate with each other.

For example, in terms of the university units, the costs should be recorded in the accounts corresponding to the organisational structure of the university. The analytical level of the accounting system should be driven by the information needs which correspond to the strategy of the university.

The cost accounting should enable a balanced assessment of the achievements of university units. A balanced assessment is understood in the context of the multidimensional character of a university's achievements. The achievements are the measures of the implementation of the strategy for the sustainable development of the university in its main areas of activity, i.e. educational, scientific and administrative activities.

The scope of accounting and cost allocations should enable to record inputs for the implementation of a university's strategic objectives. The term 'input' is understood as the time allocated to the areas of activity of university staff. The quantification of the input is expressed in a unit of time – the working hours of an academic.

Thanks to the measurement of time, and thus the valuation of inputs, information about the costs incurred to achieve a given level of performance can be obtained. At the same time, it will be possible to assess not only the effectiveness of the implementation of the strategy but also the effectiveness of the university's activities in the implementation of strategic goals [Napiecek 2013].

It should be emphasized that the proposed solution includes all areas of the university's functioning. The assumption is significant considering the granting of funds for educational and research activities as one subsidy.

According to art. 80 paragraph 1 of the Act on Higher Education and Science [Ustawa z dnia 30 sierpnia 2018], the level of fees for educational services may not exceed the expenses necessary for creating and conducting studies, nor for preparing and implementing university strategies. Therefore it is required to measure and record not only the direct costs of educational services but also the expenses of the

university's strategy implementation. Nowadays the cost calculation of educational services do not show a surplus over education costs – universities do not generate profits from educational services. It is naive to assume that the revenues from educational services perfectly match the costs of providing them.

Therefore the cost accounting system should reflect the information needs resulting from the adopted strategy and measures of strategy implementation. The appropriate valuation of these measures in the educational area should allow allocating these costs to the cost of education.

3. The sensitivity analysis of the value of the subsidy to the change in the value of the personnel component

One of the most important aspects of the sustainable development strategy of a university is the strategy concerning human resources. The academics create the position of a university by mean of their teaching and research activities.

The following part of the article concentrates on the financial consequences of the personnel decision with relation to university funding.

Until 2018, universities received subventions, funds transferred from the state budget to finance specific goals. Until then, the primary sources of income were primary subventions and statutory subventions.

Systems for financing science and higher education functioned separately. Universities, and in the case of statutory subventions, its basic organisational units, received many different subventions. Because the subventions could be spent only on a specific purpose and they were subject to separate rules, this created great difficulties in the overall management of the university.

As of 2019, public higher education institutions in Poland receive subsidies. The fundamental difference between subventions and subsidies is that subsidies are non-returnable and that a university can dedicate the funds for a more extensive range of goals. In the case of the aforementioned primary subsidies and statutory subsidies, the funds received by the universities could be used appropriately for educational activities and scientific activities, depending on the source of their origin.

The introduction of subsidies increases the autonomy of higher education institutions. They are free to decide how to spend the funds received from the state budget. According to art. 407 of the Act, the allocation of financial resources awarded in the form of subsidies will be decided by the university [Ustawa z dnia 30 sierpnia 2018]. A university can finance in any proportion all areas of its activity, and locate funds in those areas that it considers being crucial for its development and consequently will influence the amount of subsidies. Therefore it is crucial to analyse the variable on which the algorithm for subsidies calculation is based. The algorithm for calculating the value of subsidies is built on a few algorithmic variables (components) with different weights. The weight will change over the next few years. The components are a transfer constant, student component, personnel component,

research component, internationalisation component, project component, research and development component, and doctoral component.

An important parameter (algorithmic variable) included in the subsidy calculation algorithm is the transfer constant (index C). In previous years the transfer constant was included only in primary subvention, and its value was very high, amounting up to 80% of the subvention from the last year. Therefore the activities of individual universities in optimising educational processes had a relatively low impact on the amount of the primary subvention.

At present the parameter in the form of the transfer constant is maintained, but its share will decrease from year to year. It should also be remembered that this parameter currently affects the value of the subsidy as the sum of the previously received two subventions (primary and statutory subventions).

One of the algorithmic variables used is the personnel component (index Wk). Its weight in the algorithm for calculation of the subsidy is 0.25. However, the weight of a given component does not reflect its percentage share in generating the value of the subsidy. The impact on the percentage share of the algorithm components has the transfer constant as mentioned above.

In the period 2019-2024, the share of the algorithm components will increase due to the simultaneous decrease in the share of the transfer constant. The percentage of the transfer constant will decrease from 50% in 2019 to 25% in 2024.

Table 1. Weight and percentage share of individual components of the algorithm

	Weight of the component						% share of the component					
	2019	2020	2021	2022	2023	2024	2019	2020	2021	2022	2023	2024
Transfer Constant (C)	0.50	0.45	0.40	0.35	0.30	0.25	50.0%	45.0%	40.0%	35.0%	30.0%	25.0%
Student Component	0.35	0.34	0.33	0.32	0.31	0.30	17.5%	18.7%	19.8%	20.8%	21.7%	22.5%
Personnel Component (Wk)	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	**12.5%**	**13.8%**	**15.0%**	**16.3%**	**17.5%**	**18.8%**
Research Component	0.25	0.25	0.25	0.25	0.25	0.25	12.5%	13.8%	15.0%	16.3%	17.5%	18.8%
Internationalisation Component	0.05	0.05	0.05	0.05	0.05	0.05	2.5%	2.8%	3.0%	3.3%	3.5%	3.8%
Research and Development Component	0.05	0.10	0.10	0.10	0.10	0.10	2.5%	5.5%	6.0%	6.5%	7.0%	7.5%
Project Component	0.05	0.00	0.00	0.00	0.00	0.00	2.5%	0.0%	0.0%	0.0%	0.0%	0.0%
Doctoral Component	0.00	0.01	0.02	0.03	0.04	0.05	0.0%	0.6%	1.2%	2.0%	2.8%	3.8%

Source: author's elaboration.

The presented percentage share of the components does not take into account the value of the variables of the individual algorithmic variables – each component is built on a few variables (e.g. the Personnel Component has variables as the number of employees divided into titles and degrees, etc.). Their importance in calculating the value of subsidies is higher the more a university is distinguished compared to other universities in Poland.

Unfortunately, universities have limited access to data on the values of variables used in calculating the value of individual components and their share in the algorithm for calculating the value of subsidies. The problem was pointed out by J. Cieśliński [2016], who indicated the specific "hermeticity" of the algorithm.

For further calculation, it was assumed that each of the components equally affects the position of the PUEB in comparison to other universities and that only the differentiation of the impact of a given component on the value of subsidies results from the weight used in the algorithm.

Next the personnel component was analysed, based on values of component variables from 2018.

Table 2. PUEB statistics for 2018 of the variable for the personnel component

Index	Description	Weight	Year 2018 (Base)	Value of a component variable 2018 (Base)	% share of a component variable 2018 (Base)	Year 2018 (Change)	Value of a component variable 2018 (Change)	% share of a component variable 2018 (Change)
1	2	3	4	3 × 4	5	6	3 × 6	7
$Lprof_i$	Average number of academics with the professor title.	2.5	49.2	123.0	15%	59.2	148.0	18%
Ldh_i	Average number of academics with doctor habilitatus.	2	132.9	265.8	32%	122.9	245.8	29%
Ldr_i	Average number of academics with the doctoral degree.	1.5	246.9	370.4	45%	246.9	370.4	44%
Lmgr	Average number of academics with the bachelor degree.	1	72.4	72.4	9%	72.4	72.4	9%
Lzprofi	Average number of foreign academics with the professor title.	3	0	0.0	0%	0	0.0	0%
	TOTAL:		501.4	831.55	100%	501.4	836.55	100%

Source: author's elaboration based on PUEB empirical data.

Then a sensitivity analysis of the subsidy amount was carried out to change the individual component variables from which the formula for calculating the value of the personnel component is built.

Based on the calculations made with the increase of the component variable L_{profi} by 10 new employees with the academic title of professor (from 49.2 to 59.2) and the simultaneous decrease by the same number of variable L_{dhi} – employees with the academic degree of Doctor Habilitatus (from 132. 9 to 122.9), the total value of the personnel component will increase from 831.55 to 836.55 or 0.60%. Then, taking into account the percentage share of the personnel component in the subsidy calculation algorithm – 12.5% (Table 1), the subsidy amount will increase by 0.075% (0.60% × 12.5%).

This means that for a university that receives a subsidy of PLN 100 million, the increase in the subsidy amount will amount to approximately PLN 75 thousand.

It is vital that the financial consequences of the decisions taken are appropriately estimated. This does not mean the economic criterion should override other rules determining strategic decision-making. However, to effectively manage the finances of a university, it is necessary to know about the costs of implementing the adopted strategic assumptions.

4. Conclusion

At the time the article was being prepared, universities were debating the drafted new statutes. Some of the solutions proposed in them boiled down to the "minimum option", adapting the existing way of adapting the university to new legal conditions. In turn, in other statutes, we can find far-reaching changes that set new directions for the development of a given university. It should be remembered that the statute itself, as the act of the highest order, does not define specific solutions but only defines the framework for the functioning of the university. An important step will be the next stage in which each university will develop specific legal acts, for example, in the form of regulations for the functioning of organisational units. In particular, the adaptation or development of a new strategy for the units will be an activity in which ideas (initiatives) of the long-term plans of a university will "come to light". Along with the strategy, a set of strategic goals and the appropriate measures will be created to monitor the degree of their implementation.

The presented aspects of the sustainable development strategy of the university and its potential influence of funding the university may be applied at the stage of formulating strategic goals and determining the methods of their implementation.

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