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The use of international rankings in the formulation of a university's strategic goals – the Polish perspective

Abstract

Aim/purpose – The aim of the paper is to identify key indicators from selected international rankings that might be used while formulating a university's strategy; especially in the context of Polish higher education regulations and requirements.

Design/methodology/approach – The paper is based on literature review, accompanied by qualitative-comparative analysis of the most popular international rankings of universities; comparative analysis is also applied to methodologies accommodated by these rankings and to the organization of their output.

Findings – Modern universities face growing pressure from the intensifying processes of internationalization and have to search for effective methods of increasing their competitive advantages worldwide. Thus, a well-defined and implemented strategy should play a significant role in this process.

Research implications/limitations – The very recent discussions concerning the proposed new Polish Law on higher education and science prove that there is still limited understanding of the importance of university strategies. The government emphasizes the significance of improving international competitiveness of Polish higher education institutions; thus, the proper use of international rankings seems to be vital in responding to governmental visions. The research findings should help universities in the development and execution of strategies.

Originality/value/contribution – The paper combines analysis of international rankings and strategy development/formulation. Therefore, it might be a useful tool for the administration of Polish universities and should help in understanding of university organization.

1. Introduction

Published originally every five years, the first international rankings of universities appeared at the beginning of the 20th century and were associated with the activities of James McKeen Cattell (Hazelkorn, 2011), who wanted to compare the scholarly power of American universities by evaluating the research reputation of their academics (Szadkowski, 2017). He developed statistical data on a large number of scientists, studied their geographical distribution and arranged them according to their academic achievements. He also introduced two type of measures for the evaluation of universities: quantity (productivity) and quality (efficiency) (Godin, 2017). Now one of the most popular international ranking, the so-called Shanghai Ranking, was first published in 2003, although this was the result of a much older project. Its objective was to determine the position of Chinese universities in comparison to outstanding higher education institutions (HEIs) around the world. In Europe, the first comparisons of universities were published in Germany in 1998. It was the time when European countries started to adopt a much more active approach to the reform of their universities, which, since then, have been perceived as institutions of key importance for the economic development. Consequently, university managers had to face permanent changes within universities, influenced by external forces, and influencing these forces at the same time (Bugaj, 2016ab). Therefore, university authorities more and more often decide to use management tools, such as strategic or macroeconomic analyses that might be successfully applied in other organizations. One of the driving forces of modern systems of higher education is internationalization, understood as a multidimensional and complex phenomenon shaped by national and international policies, capital investment, development of information technology and telecommunication, and increasing competition.

As Jane Knight explains in her seminal works, the internationalization in higher education can take various forms: from employing academics from abroad, to recruiting foreign students, to launching dual/joint degree programs, to organizing

branch campuses abroad (Rybkowski, 2011). Internationalization is also visible in increasing competition in the market of educational services, and the global quest for research grants, which increases the activity and mobility of scholars, as well as the quality of their teaching. Thus, HEIs authorities need to develop a clearly defined operational objective which determines the functioning of the whole university, which influences the activities of the employees. The challenges of the modern, competitive academic world call for the development of a new approach to strategic planning, taking international university rankings into consideration.

Thus, the objective of the article is to connect university strategy with assessment indicators of international university rankings. Furthermore, its aim is to answer the question of how these indicators may influence the process of defining university goals and mission.

First, the paper presents an introduction to the methods of developing university strategic goals in the context of international rankings, as well as the criteria they use. Then, the paper discusses the indicators that may be useful in the development of university strategic goals. Finally, it presents a discussion of the proposed approach, conclusions and suggestions for directions of further research.

2. Theoretical background

2.1. University and the regulatory state

Social and economic challenges of the 21st century made universities even more important part of national and international policies. Various reports of international organizations leave no doubts that securing a stable and sustainable progress must take HEIs into consideration. S. Yusuf in the World Bank's publication *How Universities Promote Economic Growth* states that: "Virtually every industrial country is moving to make university-industry links a centerpiece of its innovation systems, and the notion of a triple helix – representing the symbiotic relations yoking together the government, the universities, and the business community" (2007, p. 7). OECD seconded the opinion of the World Bank by claiming that: "*New growth* models provide more solid evidence of the role of education and learning on growth through generating new technology and innovation. In particular, tertiary education is identified as important for the development of innovative research and the ability to acquire and adopt it" (Santiago, Tremblay, Basri, & Amal, 2008, p. 39).

Supported by such vocal institutions, virtually all governments of developed (and aspiring) states adopted active higher education policies: providing funding and requiring accountability of HEIs (Rybkowski, 2009). The globalization of higher education forced systems and institutions of higher education to compare with their peers, especially since governments wanted to prove to the public that the money spent on higher education really worked. Following the advice of the World Bank, OECD and the European Union, the institutions of higher education were granted substantial autonomy, but the modern state set a network of indicators that should be matched by HEIs. Thus, instead on focusing on absorbing and costly controls, the states and governments shifted toward a so called 'regulatory state' (Szadkowski, 2017, p. 62).

One of the important tools in higher education policy used by 'regulatory states' are international higher education rankings. Such rankings provide some basic information on the performance of the system of higher education as a whole, and more importantly, on the performance of a particular HEI included in the ranking. As recent research in Australia proves, even the civic engagement of universities, or the activities of the so called 'Third Mission', might be stimulated by international rankings. The University of Western Sydney in response to its position in the QS World University Ranking, established a new program called 'The Academy' that "emerged from the desire both to respond to the imperative of increased competition among Australian universities and to develop the Citizen Scholar" (Kourtis & Arvanitakis, 2016, p. 57).

There is yet another reason why international university rankings have started to play such important role. Although the ranking might be eventually connected with the money a HEI receives, equally important is the quest for the prestige. It is not just wealth that attracts international scholars and students. This is the reason why "President Sarkozy has ordered France's science and higher education ministry to set 'the objective of having two French establishments in the top 20, and 10 in the top 100'. That universities pay close attention to rankings and their attendant prestige is entirely rational since prospective students use rankings to decide on their destinations, especially at the graduate level, and money follows students. In addition, the more productive, grant-raising faculty seek to work at more highly ranked institutions" (OECD, 2010, p. 42).

The universities in developed and rapidly developing countries must understand that international university rankings are not just an ephemeral eccentricity. They are going to stay longer and to influence policy-making processes in a stronger way. That is why S. Marginson and M. van der Wende conclude that

"it appears that global ranking has secured mainstream public and policy credibility. Given this, research universities are impelled to succeed within the terms of the measures and will adopt institutional policies and strategies which optimize their position, especially their position in the Shanghai Jiao Tong rankings which are based on credible metrics of performance. Rankings have exacerbated competition for the leading researchers and best younger talents" (2007, p. 55).

The universities struggling for public money, global prestige, and international students and faculty members have to respond to the challenges posed by international university rankings. Willing to achieve and maintain higher status the university administration has to include rankings into their strategies. Otherwise they could not survive growing national and international competition (Bassett, 2006; Szadkowski, 2017).

2.2. Developing university strategy

Armstrong claims that the strategy-building process has recently become more intuitive, evolutionary and reactive (Armstrong, 2010). In the context of Polish public HEIs (Bugaj, 2016a) strategy is understood in two ways: as a certain declaration of intentions aimed at controlling the present and anticipating the future (Abell, 1993), or an action plan that is shaped by people managing the university (Jashapara, 2014).

The process of formulating a strategy requires agreement on a course of action and strategic adjustment resulting in a useful guideline for future decision making of the university authorities (Bugaj, 2016ac). In practice, however, this process is neither strictly rational nor linear (Armstrong, 2010). Whittington (1993) identified four approaches to the building of strategies:
− 'the classical approach' – a rational process which is separate from the implementation process,
− 'the evolutionary approach' – an evolutionary process in which efficiency and productivity verified by the market are top priorities,
− 'the gradual approach' – a process emerging out of discussions and disputes,
− 'the systemic approach' – a process determined by organizational culture, the interests of an organization and the community in which it functions.

The strategic goals of an organization may include survival, development or the achievement of a particular competitive position (Romanowska, 2014). In case of universities, such goals may be maintaining the quality of research or

teaching at the current level, opening of new research fields or teaching programs, or advancing in international rankings.

Moreover, strategies of Polish HEIs are influenced by documents adopted by the national government (e.g., OECD, 2013; Polska 2030. Wyzwania rozwojowe [Poland 2030. Development challenges], 2009); regional authorities (e.g., Strategia Rozwoju Województwa Dolnośląskiego 2020 [Strategy of Dolnośląskie Province's Development 2020], 2013); and also documents prepared by organizations of HEIs (e.g., Ernst & Young Business Advisory & Instytut Badań nad Gospodarką Rynkową, 2010; KRASP & FRP 2015; Standards and Guidelines for Quality Assurance in the European Higher Education Area [SGQA], 2015).

In the case of Poland, it is equally important to understand the impact of the Ministry of Science and Higher Education's narratives about the position of the Polish higher education system and Polish HEIs in relation to our higher education as seen from the global perspective. The Ministry, through its documents and public statements of the Minister and Deputy Ministers, calls for radical and quick improvement of the position of Polish HEIs in internationally recognized rankings. Such a clear message of the Ministry should influence strategy development and implementation of Polish universities and colleges, especially that public authorities remain the main source of financial support (Rybkowski, 2016).

3. Research methodology

3.1. International rankings and their methodologies

As it was stated above, the original objective of university rankings was to create a useful platform of comparison of HEIs from various systems of higher education. The rankings should have answered the key question: What should a world class university be like? Since the rankings also attracted the attention of the media and legislators, national governments started to distribute public funding according to the position an institution holds in a particular ranking (e.g., Sivertsen, 2017). Additionally, the applicants (especially international) have started to make their choices based on the position a particular university's ranking.

Every team responsible for the preparation of rankings wanted to develop reliable methods for measuring the quality of academic excellence (Szadkowski, 2017). First, they took into consideration objective parameters based on bibliometric data. Then, they started to use surveys focusing on the opinions of vari-

ous stakeholders of the evaluated institutions. M. Lewicka (2013) presented three possible evaluation procedures to be used in the preparation of international rankings: 'a bibliometric procedure' (based on the translation of academic achievements into points), 'an expert procedure' (based on qualitative assessments by the peers), and 'a mixed procedure'. The bibliometric procedure, at least theoretically, is unambiguous (the most objective), while the expert procedure is the most subjective.

There are over thirty global university rankings nowadays; but as Szadkowski (2017) rightly points out, the most popular are the following:
− Bibliometric Ranking of the University of Leiden,
− SCImago Research Group Institution Ranking,
− Webometrics Ranking Web of World Universities,
− Ranking of Scientific Papers of Word Universities,
− U-Multirank.

These rankings differ in methodologies used, criteria, and weight assigned to these criteria. Nevertheless, there is a group of most common indicators, including:
− the student-to-staff ratio,
− the learning outcomes of graduates,
− the results of conducted research,
− the reputation of an institution.

Data for the rankings are acquired from publically available information published on the Internet, questionnaires filled in by the representatives or stakeholders of universities, governmental databases and the proprietary sources of the institutions which prepare rankings.

3.2. Interpretative-symbolic paradigm

The interpretative-symbolic paradigm is most often used in the area of strategic management and adopted in this article, indicating interdependencies in complex social and organizational structures (Sułkowski, 2011). The foundation of this research was comparative analysis of the information provided on the websites of the institutions specializing in international rankings of universities. During the selection process the authors used the following three criteria: the availability of data, the possibility of adaptation in the Polish context, and clarity. The criteria were further specified as follows:

– the indicators used in the rankings are clearly defined, measurable and speci-
   fied in time,
– the indicators are based on clearly defined criteria taken into consideration in
   the evaluation of the activities of a particular university,
– the indicators belong to one of the following groups: management, teaching,
   research or organization.

In the subsequent steps, this allows for their possible generalization (the ag-
gregation of a few indicators to form one larger indicator/goal) or elaboration.
Having these criteria in mind, six international rankings were selected for further
analysis, since all of them met the criteria specified above:
1. QS World University Rankings,
2. The Times Higher Education Ranking,
3. Sunday Times Ranking,
4. Academic Ranking of World Universities,
5. Web of World Universities,
6. U-Multirank.

4. Research findings

4.1. Criteria and indicators used by selected international rankings

The QS World University Rankings has been focused on the quality of uni-
versities all over the world since 2004. It compares the world's 800 best universi-
ties, based on the four basic criteria of potential students' interests (*research,
teaching, employment and international outlook*). These four criteria are evalu-
ated by the following six indicators to which various weights have been assigned
(QS World University Rankings: Methodology, 2018):
– academic reputation: 40%,
– employer reputation: 10%,
– citations per faculty: 20%,
– faculty/student ratio: 20%,
– international faculty ratio: 5%,
– international student ratio: 5%.

The Times Higher Education takes into consideration five basic criteria and
12 indicators in its evaluation of higher education institutions. In 2015 the indi-
cators included the following (World University Rankings 2016-2017 methodol-
ogy):

1) teaching – the learning environment (30%), reputation survey (15%), staff-to-
   -student ratio (4.5%), doctorate-to-bachelor's ratio (2.25%), doctorates
   awarded-to-academic staff ratio (6%), institutional income (2.25%);
2) research – volume, income and reputation (30%), reputation survey (18%),
   research income (6%), research productivity (6%);
3) citations – research influence (30%), field weighted citation impact;
4) international outlook – staff, students, research (7.5%), international-to-
   -domestic-student ratio (2.5%), international-to-domestic-staff ratio (2.5%),
   international collaboration (2.5%);
5) industry income – knowledge transfer (2.5%), research income from industry/
   academic staff.

The university ranking published by Sunday Times is based on the follow-
ing six criteria (The Times and Sunday Times University League Table, n.d.):
− staff reputation with a weight of 40%,
− employer reputation with a weight of 10%,
− student to staff ratio with a weight of 20%,
− number of citations with a weight of 20%,
− number of international faculty members with a weight of 5%,
− number of international students with a weight of 5%.

The Academic Ranking of World Universities (the so called Shanghai
Ranking), developed by the Institute of Higher Education at the Jiao Tong Uni-
versity in Shanghai, China, takes into consideration four main criteria and six
indicators. This ranking focuses on universities' both teaching and research
achievements (Methodology U-Multirank, n.d.):
1) quality of education – alumni of an institution winning Nobel Prizes and
   Fields Medal: 10%,
2) quality of faculty – staff of an institution winning Nobel Prizes and Fields
   Medals: 20%, highly cited researchers in 21 broad subject categories: 20%,
3) research output – papers published in Nature and Science: 20%, papers indexed
   in Science Citation Index-expanded and Social Science Citation Index: 20%,
4) per capita performance – per capita academic performance of an institution: 10%.

The Web of World Universities takes into account the volume of Internet
content (the number of websites and files uploaded to the Internet) and evaluates
their visibility and impact based on the number of external links (received web-
site citations). These four indicators obtained from the quantitative results pro-
vided by the main search engines (*Methodology. The Ranking Web or Webomet-
rics*, 2018):

1) Size (S) – number of pages recovered from three engines: Google, Yahoo, and Bing Search.
2) Visibility (V) – the total number of unique external links received (inlinks) by a site, according to Yahoo Site Explorer.
3) Rich files (R) – after evaluation of their relevance to academic and publication activities and considering the volume of the different file formats, the following were selected: Adobe Acrobat (.pdf), Adobe PostScript (.ps), Microsoft Word (.doc), and Microsoft PowerPoint (.ppt). These data were extracted using Google, Yahoo, and Bing.
4) Scholar (Sc) – the data is a combination of items published between 2006 and 2010 included in Google Scholar and the global output (2004-2008) obtained from SCimago SIR" (*Methodology. The Ranking Web or Webometrics*, 2018).

This ranking is published by Cybermetrics Lab, a Madrid-based research group from CSIC (*Methodology The Ranking Web or Webometrics*, 2018).

In 2014 a new ranking called U-Multirank was published for the first time. It covered 850 universities from 74 countries and was based on the following criteria: teaching and learning, research, knowledge transfer, international orientation, and regional engagement. Each of the criteria has been assigned from a dozen to a few dozen indicator such as:

– graduate satisfaction,
– labor market relevance of their qualifications,
– inclusion of issues relevant for employability into program/curricula,
– inclusion of work experience into programs.

Table 1 presents a general compilation of the indicators used in the aforementioned rankings. The lines in Table 1 concern the indicators which are subject to evaluation together with a weight assigned to an indicator in a given ranking. The letter 'V' indicates that a given ranking contains exactly this particular indicator, while the symbol * means that the same indicator has a similar or synonymous name. This, however, is a supplementary marking, hence it appears without a percentage share in the main criterion of a given ranking. Colors indicate the occurrence of the indicators in the particular rankings. The most popular indicators are marked with the darkest color.

Table 1. A compilation of indicators from the selected rankings

Ranking	Criterion					
	1	2	3	4	5	6
Reputation of institution	V (40%)	*				
Alumni evaluation	V (10%)					*
Citations	V (20%)	V (30%)	V (20%)	*	*	*
Faculty/student ratio	V (20%)	*				*
International faculty ratio	V (5%)	*	V (5%)			*
International student ratio	V (5%)	*	V (5%)			*
Faculty evaluation		*	V (40%)	*		*
Employer evaluation			V (10%)			*
Student to staff ratio		*	V (20%)			*
Industry income: innovation		V (2.5%)				*
International outlook: staff, students and research		V (7.5%)				*
Highly cited researchers in 21 broad subject categories				V (20%)		*
Papers published in *Nature* and *Science*				V (20%)		*
Alumni satisfaction		*				*
Labour Market Relevance of their qualifications						*
Inclusion of issues relevant for employability into programme/ curricula		*				*
Inclusion of work experience into programmes		*				*

Note: 1 – QS World University Rankings; 2 – The Times Higher Education Ranking; 3 – Sunday Times rank-
ing; 4 – Academic Ranking of World Universities; 5 – Web of World Universities; 6 – U-Multirank.

Source: Adapted from the Internet websites presenting the methodologies of the particular rankings.

Table 1 shows that the most frequently used indicators are the following:
- citations,
- international faculty ratio,
- international student ratio,
- faculty evaluation.

The occurrence of the indicators, as illustrated by the table, confirms that university authorities should focus on a limited number of indicators while developing and implementing university strategy. This, in turn, may result in improving the position of a university in international rankings.

4.2. Developing university strategic goals

Rankings provide universities important information about their respective positions on the map of peer institutions (Antonowicz & Brzeziński, 2013). Moreover, they may help them to formulate and pursue research, didactic, organizational and employment policies. Hence, rankings may be an effective reference points used in the process of strategic planning.

By using a ranking, its criteria and indicators, the university's administration may easily define strategic goals related to the areas of the university's strategic activities (action pathway). Thus, the administration may select indicators that are vital for the university's competitive and strategic positions, helping to improve university's performance in future editions of a ranking. The clear statement of the operating goals should help to achieve expected results in a relatively short (up to 5 years) period of time. Clarity in stating strategic goals (and their relation to international performance of the institution) is essential in motivating staff and faculty members to focus on the activities necessary in achieving the defined goals in their work (Bugaj, 2016bc).

Thus, formulated university strategy should cover areas of operational indicators used by the international rankings such as:

1) The development of scholarly research; it corresponds to the introduction of curricula supporting the development of research and scholarly potential, i.e. supporting employees in their attempts to acquire funds for academic and research projects, establishing qualitative and quantitative minima for academic publications, supporting cooperation with the representatives of other universities or business communities, developing innovativeness in this area, determining the rules of acquiring patents for the results of research and academic projects, protecting intellectual property.

2) The development of professional teaching, including in the international dimensions; it corresponds to considerable modifications in curricula and study plans, i.e., opening new fields of study taking into account the participation of foreigners and shutting down those which do not generate expected results, developing innovativeness, competitiveness and orientation towards the student.

3) The development of professional university management; this may concern changes in the university's strategy, organizational structure and culture, the implementation of a management support system, modifications in financial management, changes in employee remuneration and incentive systems.

There are examples of the effective management of European universities aiming at improvement in international rankings (Bugaj, 2016c). One of the examples is the University of Iceland that "in 2006, set itself the long-term goal to become one of the 100 leading universities in the world. In order to achieve that goal, the university intends to focus on outstanding research, teaching and support services. The university now works purposefully towards implementing this strategy, and has already enjoyed great success" (*Vision and strategy*, n.d.). Adopting and implementing the strategy the University of Iceland improved its position in The Times Higher Education World University Rankings: it was ranked 276-300 in 2012, and 201-250 in the very latest edition. Just for the comparison, the position of the University of Warsaw was: 301-350 and 501-600 (respectively), while the Jagiellonian University: 301-350 and 601-800.

As in all strategic planning, it is necessary to consider the resources available. The university should not set goals that are beyond reasonable reach. The university administration needs to focus on a few selected areas of strategic activities which are of primary importance for them. At the same time, it is necessary to remember that "the university should develop the following to the highest possible degree: 1) independence, originality and creativity in thinking; 2) the freedom of initiative, altruism, far-reaching idealism, realistic effectiveness in constructive and team-based activities" (Znaniecki, 1997).

5. Discussion

In the context of Polish HEIs one can easily notice that universities quite often pursue goals that are vague and difficult to measure. Moreover, sometimes these university strategic goals might differ from the goals and objectives of the faculties, institutes and departments the university is composed of. Such differences frequently result in an internal competition being an obstacle to achieving the general strategic goals. Furthermore, a strategy is usually a very general document containing goals and tasks that are difficult to achieve and quite often incomprehensible for employees (Bugaj & Szarucki, 2014).

The ever-evolving methodology of these rankings should be considered as a useful suggestion of desirable changes and improvements for any particular HEI. So, the main purpose of any such examination should not be just a mere statement about the HEI's ranking. It should rather focus on the directions any aspiring HEI should follow.

Thus, the rankings are not only to tell the position (and quality) of Polish HEIs as compared to other systems and institutions of higher education. The rankings' criteria also represent a set of useful indicators for the development of strategy and for the later evaluation of the implementation of the adopted strategy. The selection of a particular ranking, and consequently its indicators and criteria, can help in:

- developing and formulating priorities important for university government as well as ensuring that all employees actively pursue their achievement,
- managing the university coherently at the level of the whole institution, particular faculties and organizational units (without internal competition),
- motivating employees to pursue the university's strategic goals by getting them involved in the solving of organizational problems and empowering them with respect to decision making.

Another important fact is that improvement in the selected ranking should not constitute an aim in itself. The organizations preparing rankings may suddenly change the previously applied criteria and indicators, which could make it more difficult for a given university to achieve its objectives related to its ranking.

Public opinion shares a mixed perception of international rankings: on the one hand, they are criticized, but on the other, they are considered a useful tool in assessing the relative international quality of Polish higher education (Szadkowski, 2017; Kulczycki, 2017ab). They certainly help to compare universities with respect to the measurable effects of their work (Drozdowicz, 2015; Jajszczyk, 2009; Życzkowski, 2011).

However, as K. Twardowski (2011) claimed, the work of the university should not be restricted by any measure and that no results of its work should be presented as required or expected. Academic research may develop only when it is not exposed to any threats. This, in turn, necessitates maintaining internal governance and compliance with the academic values as well as disseminating research results by discussions with students and unrestricted publishing possibilities.

6. Conclusions

Every contemporary higher education system combines, in various proportions and configurations, the elements of state control and market mechanisms. According to J. Jabłecka (2014), the efficiency and effectiveness of the functioning of these systems depends on the accuracy of the selection and arrangement

of such elements. The existing strategies and strategic development plans of Polish public HEIs focus on high quality of education and on improving the managerial competences of people holding executive positions (Bugaj & Sza-rucki, 2014).

Solutions of a particular university allow it to pursue its own policy, to implement the adopted development strategy and to manage the university in a more flexible manner. This, in turn, creates an opportunity for a more explicit orientation of the university's activities. Hence, a strategy providing for the achievement of goals based on ranking indicators may create favourable conditions for the development of not only the university but also the European Research Area in general. An assessment of the university's activities based on objective criteria may be used, for example, in deciding about a place to work or to study. When asked why they had chosen a particular university, the students referred to the following two main indicators: a university's reputation and position in rankings (Chromińska & Mróz, 2009).

The review of the literature allows the formulation of a few conclusions. First, it is possible to distinguish the most popular indicators which subsequently can be used by the university authorities in developing its strategic goals. Second, there are some particular difficulties connected with the identification of the elements of such indicators which may be the most important for a given university. The approach presented in this paper may compose a good basis for the identification, analysis and improvement of the method of developing the university as an organization with a strong international position.

This article does not exhaust the topic; it presents, however, a few indicators (Table 1) which could be taken into consideration in the process of formulating strategic goals for a university as well as necessary assumptions for and potential benefits of such a process. Additionally, the article aims to persuade the reader to reflect on determining a university's direction of development which, thanks to connections with the selected criteria and indicators from international rankings, may appear to be very simple and understandable for strategy implementers, i.e. university employees.

However, there is still a gap in existing research on the interrelation between the international performance of universities, measured by international rankings, and the strategies they adopt to improve their standings. Without further investigation into the detailed methodologies applied by the rankings one could not plan the most efficient way of navigating through the complexity of rankings produced by various institutions. Moreover, Polish institutions of

higher education and their administration need in-depth analyses of university strategy development and execution, especially in the context of the new *Law on higher education and science* to be soon adopted.

References

Abell, D. F. (1993). *Managing with dual strategies: Mastering the present, preempting the future*. New York: Free Press.

Antonowicz, D., & Brzeziński, J. M. (2013). Doświadczenia parametryzacji jednostek naukowych z obszaru nauk humanistycznych i społecznych 2013 – z myślą o parametryzacji 2017 [The experience of 2013 parametrization of research centers in the fields of humanities and social sciences – anticipating the 2017 parametrization]. *Nauka, 4*, 51-85.

Armstrong, M. (2010). *Strategiczne zarządzanie zasobami ludzkimi* [Strategic Human Resources Management]. Warszawa: Wolters Kluwer Business.

Bassett, R. M. (2006). *The WTO and the university. Globalization, GATS, and American higher education.* New York: Routledge.

Bugaj, J. (2016a). Analiza strategiczna uczelni – model kryteriów analizy SWOT [Strategic analysis of the higher education institution – model of SWOT analysis' criteria]. In W. Sroka (Ed.), *Zarządzanie współczesnym przedsiębiorstwem. Uwarunkowania, trendy, perspektywy* [Managing modern enterprise. Conditions, trends, perspectives] (pp. 72-90). Toruń: Wydawnictwo Dom Organizatora.

Bugaj, J. (2016b). Budowanie proaktywnej strategii rozwoju uniwersytetu [Creating a proactive university development strategy]. *Prace Naukowe Uniwersytetu Ekonomicznego we Wrocławiu. Strategie. Procesy i praktyki, 420*, 26-35.

Bugaj, J. (2016c). *Uniwersyteckie strategie rozwoju zawodowego nauczycieli akademickich w Polsce* [University professional development strategies of academic teachers in Poland]. Kraków: Wydawnictwo Uniwersytetu Jagiellońskiego.

Bugaj, J., & Szarucki, M. (2014). Identyfikacja kluczowych kompetencji w misji uczelni publicznych [Identification of key competencies in the missions of public higher educational institutions]. In R. Borowiecki & A. Jaki (Eds.), *Restrukturyzacja w obliczu wyzwań gospodarki globalnej* [Restructuring in the face of challenges of global economy] (pp. 281-296). Kraków: Fundacja Uniwersytetu Ekonomicznego.

Chromińska, N., & Mróz, B. (2009). Dylematy szkoły wyższej [Higher education institution's dilemma]. In Z. Drozdowicz (Ed.), *Uniwersytety. Tradycje. Dzień dzisiejszy. Przyszłość* [Universities. Traditions. Present day. Future] (pp. 156-157). Poznań: Wydawnictwo Uniwersytetu Adama Mickiewicza.

Drozdowicz, Z. (2015). Wskaźniki doskonałości naukowej [Scientific excellence's indicators], *Forum Akademickie*, *1*. Retrieved from https://forumakademickie.pl/fa/2015/01/wskazniki-doskonalosci-naukowej/

Ernst & Young Business Advisory & Instytut Badań nad Gospodarką Rynkową. (2010). *Strategia rozwoju szkolnictwa wyższego w Polsce do 2020 roku* [Strategy for the development of Polish higher education until 2020]. Warszawa: Author. Retrieved from https://www.nauka.gov.pl/g2/oryginal/2013_05/59579f9e6efaec82014d6d5be081ca23.pdf

Godin, B. (2017). O początkach bibliometrii [About the beginnings of bibliometrics] (J. Krzeski, Trans.). *Nauka i Szkolnictwo Wyższe, 1*(49), 19-46.

Hazelkorn, E. (2011). *Rankings and the reshaping of higher education. The battle for world-class excellence*. New York: Palgrave Macmillan.

Jabłecka, J. (2014). *Ewaluacja I i II wariantu strategii rozwoju szkolnictwa wyższego w Polsce do 2020 roku przygotowanej przez Ernst & Young i Instytut Badań nad Gospodarką Rynkową* [Evaluation of the first and second option of the strategy for the development of Polish higher education until 2020 prepared by Ernst & Young and *Instytut Badań nad Gospodarką Rynkową*]. Warszawa. Retrieved from http://www.nauka.gov.pl/g2/oryginal/2013_05/44b800d03f67271ba7e4498682538edd.pdf

Jajszczyk, A. (2009, November). Smutna prawda rankingów [Sad truth about rankings]. *Dziennik Polski, 264*, A11.

Jashapara, A. (2014). *Zarządzanie wiedzą* [Knowledge management]. Warszawa: Polskie Wydawnictwo Ekonomiczne.

Kourtis, A., & Arvanitakis, J. (2016). The citizen scholar: The academy at the University of Western Sydney. In J. Arvanitakis & D. J. Hornsby (Eds.). *Universities. The citizen scholars and the future of higher education* (pp. 54-68). New York: Palgrave Macmillan.

Kulczycki, E. (2017a). Wprowadzenie. Wyzwania instytucjonalnej ewaluacji nauki [Introduction. Challenges of institutional science evaluation]. *Nauka i Szkolnictwo Wyższe, 1*(49), 7-11.

Kulczycki, E. (2017b). *Punktoza jako strategia w grze parametrycznej w Polsce* [Pointosis as the strategy in parametric game in Poland]. *Nauka i Szkolnictwo Wyższe, 1*(49), 63-78.

KRASP & FRP. (2015). *Program rozwoju szkolnictwa wyższego do 2020 r.* [Program of the development of Polish higher education]. Warszawa: Author. Retrieved from https://www.frp.org.pl/images/publikacje/publication/cz_i_program_001052_opis_prac.pdf

Lewicka, M. (2013). Czy oceny w nauce są konieczne? Parametryzacja jednostek naukowych [Are evaluations in science necessary? Parametrization of research centers]. *UW, 6*(66), 10-13.

Marginson, S. & van der Wende, M. (2007). Globalisation and higher education, *OECD Education Working Papers, 8*, 1-85.

Methodology. U-Multirank. (n.d.). Retrieved from http://umultirank.org/#!/about/methodology?trackType=about&sightMode=undefined&section=undefined&name=null

Methodology. The Ranking Web or Webometrics. (2018). Retrieved from http://www.webometrics.info/en/Methodology

OECD. (2010). *Performance-based funding for public research in tertiary education institutions: Workshop proceedings*. Paris: Author.

OECD (2013). *The State of Higher Education 2013*. Retrieved from https://www.oecd.org/edu/imhe/thestateofhighereducation2013.htm

QS World University Rankings: Methodology. (2018). Retrieved from http://www.topuniversities.com/university-rankings-articles/world-university-rankings/qs-world-university-rankings-methodology

Polska 2030. Wyzwania rozwojowe [Poland 2020. Development challenges]. (2011). Warszawa: Kancelaria Prezesa Rady Ministrów. Retrieved from https://www.mpips.gov.pl/gfx/mpips/userfiles/_public/1_NOWA%20STRONA/Aktualnosci/seniorzy/badania%20aktywne%20starzenie/pl_2030_wyzwania_rozwojowe.pdf

Romanowska, M. (2014). Granice organizacji [Boundaries of organization]. In M. Romanowska & J. Cygler (Eds.). *Granice zarządzania* [Management boundaries] (pp. 89-90). Warszawa: Oficyna Wydawnicza Szkoły Głównej Handlowej.

Rybkowski, R. (2009). Uczelnie wobec globalizacji [Higher educational institutions facing globalization]. In B. Krauz-Mozer & P. Borowiec (Eds.). *Globalizacja – nieznośne podobieństwo? Świat i jego instytucje w procesie uniformizacji* [Globalization – unbearable similarity? The world and the institutions in the process of standardization] (pp. 249-268). Kraków: Wydawnictwo Uniwersytetu Jagiellońskiego.

Rybkowski, R. (2011). Chciwość.edu. Chciwość, uniwersytety i polityka – amerykańskie uczelnie w Zatoce Perskiej [Greed.edu. Greed, universities and politics – American universities in the Gulf]. *Horyzonty Polityki, 2*(2), 225-226.

Rybkowski, R. (2016). Autonomia a rozliczalność – polskie wyzwania [Autonomy and accountability – challenges for Poland]. *Nauka i Szkolnictwo Wyższe, 1*(45), 95-115.

Santiago, P., Tremblay, K., Basri, E. & Arnal E. (2008). *Tertiary education for the knowledge society. Vol. 1. Special features: Governance, funding, quality*. Paris: OECD.

Sivertsen, G. (2017). Finansowanie oparte na publikacjach – Model norweski [Financing based on publications – Model of Norway]. *Nauka i Szkolnictwo Wyższe, 1*(49), 47-59.

Standards and Guidelines for Quality Assurance in the European Higher Education Area [SGQA]. (2015). Retrieved from https://www.eqar.eu/fileadmin/documents/e4/ESG_-_draft_endoresed_by_BFUG.pdf

Strategia Rozwoju Województwa Dolnośląskiego 2020 [Strategy of Dolnośląskie Province's Development 2020]. (2013). Retrieved from http://www.umwd.dolnyslask.pl/fileadmin/user_upload/Rozwoj_regionalny/SRWD/SRWD_2020-final.pdf

Sułkowski, Ł. (2011). Struktura teorii naukowej w zarządzaniu [Structure of scientific theory in management]. In W. Czakon (Ed.). *Podstawy metodologii badań w naukach o zarządzaniu* [Fundamentals of research methodology in management sciences] (pp. 169-175). Warszawa: Oficyna Wolters Kluwer Business.

Szadkowski, K. (2017). Czym są i skąd się wzięły globalne rankingi uniwersytetów? [What are and where the global university rankings have come from?]. *Niezbędnik Akademicki PWN, 1*, 14-18.

The Times and Sunday Times University League Table. (n.d.). Retrieved from http://www.thecompleteuniversityguide.co.uk/times-university-guide-and-league-tables/

Twardowski, K. (2011). *O dostojeństwie Uniwersytetu* [About the majesty of the University]. Poznań: Wydawnictwo Uniwersytetu Adama Mickiewicza.

Vision and strategy. (n.d.). Reykjavík: The University of Iceland. Retrieved from http://english.hi.is/university/vision_and_strategy

Whittington, R. (1993). *What is strategy – and does it matter?* London: Routledge.

World University Rankings 2016 methodology. (2016). Retrieved from https://www.timeshighereducation.com/news/ranking-methodology-2016

World University Rankings 2016-2017 methodology. (n.d.). Retrieved form https://www.timeshighereducation.com/world-university-rankings/methodology-world-university-rankings-2016-2017

Yusuf, S. (2007). University-industry links: policy dimensions. In S. Yusuf & K. Nabeshima (Eds.). *How universities promote economic growth* (pp. 1-25). Washington: The World Bank.

Znaniecki, F. (1997). *Społeczna rola studenta uniwersytetu* [The social role of the university student], Poznań: Wydawnictwo Nakom.

Życzkowski, K. (2011). *Ile waży jedno cytowanie?* [How much a citation weights?]. *Forum Akademickie, 10*. Retrieved from http://chaos.if.uj.edu.pl/~karol/pdf2/cytowanie11.pdf