MANAGEMENT IMPACT ON MANAGERIAL PERFORMANCE

Author(s)*: Carmen Elena STOENOIU [1], Sorina Anamaria CIPLEA [2]
Position: Assoc. Prof., PhD [1,2]
University: Technical University of Cluj-Napoca
Address: Cluj-Napoca, Memorandumului Str., No. 28, Romania
Email: carmen.stoenoiu@emd.utcluj.ro [1], sorina.ciplea@ccm.utcluj.ro [2]
Webpage: http://www.utcluj.ro/

Abstract

Purpose – *The aim of the research was to obtain a ranking of the technical universities in Romania according to the existing national and international data.*

Methodology/approach *- Several criteria have been used to assess performance both at national and international level. Subsequently, a ranking of universities was made according to the score obtained.*

Findings – *Following the analysis, we obtained an appreciation of the university's level of performance according to national and international criteria.*

Research limitations/implications *–The study did not allow us to measure the level of knowledge of the managerial performance of universities through the perspective of the future student or the graduate, because at national level there are no independent studies for technical universities.*

Practical implications – *By knowing the location of each technical university, one can identify the strengths and weaknesses of each university, and take steps to improve.*

Originality/value *– The study allowed the identification of performance measurement criteria and knowledge of the level obtained separately for each individual and global criterion according to published data.*

Key words: *Performance management, Management team, Managerial actions*

Introduction

The constant evolution of society, the need for progress and knowledge led to a rapid pace of change in the sphere of education as well. Thus, it is believed that mankind needs a common consciousness able to promote a new trend based not only on moral and social values but also on technological change, progress and adaptability and continuous education. Efforts to achieve a common European framework are continuing, with European specialists considering that there is a low graduation rate in Romania, recommending the increase of skills among adults and the development of lifelong learning programs (Official Journal of the European Union, 2011, 2012 and 2017). Thus, in order to have competencies among young people or adults, it is necessary to develop competences among teachers, which then allow the transfer of knowledge, access to information, the ability to synthesize and put into practice, and ultimately the possession of knowledge and the obtaining of performance. Performance at the level of university education is a widely discussed topic in all countries of the world, with quantitative and qualitative indicators being developed to allow for measurement and monitoring (Cave et al., 1988, Melo et al., 2010, Bogt et al., 2012). In many countries, state funding for universities is based on performance criteria (research and teaching), with higher education being considered a strategic sector because of its long-term role of generating learning capable of determining development (McCormack , 2013; Goodall 2006). There are also private investments that are directed at universities as a result of their involvement in research, the development of areas close to the technological frontier or cooperation in certain joint projects of interest (Goodall, 2009a). Going beyond the importance of obtaining the necessary resources, universities are increasingly confronted with strong competition, not only on the national market but also on the global market in terms of both the student market and the labor market, that performance level needs to be measured both to make a correct selection and to identify differences where they exist (Kagioglou et al., 2001; Melo et al., 2010).

The success and competitiveness of organizations is also a topic of interest, which is found in many studies, being closely linked to the performance of the employees and depending on how managers understand to stimulate and develop their skills, creativity and team spirit (Campbell et all, 1998; Chen et al., 2004; Byron et al., 2012). Thus, numerous studies demonstrate that there is a positive effect that results in increased individual performance when applying the pay-for-performance principle (Jenkins et al, 1998, Prendergast, 1999, Atkinson et al 2009, Gielen et al., 2015).

Government control is another issue that, depending on the policy of each country, increases or decreases the level of autonomy of universities and, implicitly, the level of development and involvement, and these effects are found later in the performance (Acemoglu, 2006, Aghion et al., 2010). Also, the managerial team's competence, motivation and leadership skills are topics discussed, resulting from studies that when promoting employee performance this should be correlated with rewards, with positive impact according to the associated importance (Zhang et al., 2010; Scott et al., 1994; Hirst et al., 2009).

Material and method

The study involves an analysis of the university performance in terms of the evolution of the number of students and the level of funding. In the first part there was an analysis of the 4 state universities with technical profile from the 4 large university centers in Romania, according to data published by CNFIS. (National Council for the Financing of Higher Education). In the analysis included as variables: the number of existing students according to the allocated places (budget, fee and total), the number of students according to the type of studies (license, master and doctorate) and the level of financing received from the state budget . This analysis was carried out for a period of 6 years and started from the selection of the technical universities in Romania, and then the grouping of four university centers and the comparison both in quantitative terms (by the number of students) and qualitatively. Thus, in Romania, the size of financing is set by CNFIS and includes a part that is determined by the number of students (quantitative) and another part according to quality indicators designed to measure managerial competencies and those of the teaching staff (qualitative).

Thus, the generic name of the Technical University of Bucharest was given for the ease of study and was obtained by aggregating the data from the three technical universities in Bucharest: Politehnica University of Bucharest, Technical University of Civil Engineering and Ion Mincu University of Architecture and Urban Planning. The following three universities were also included in the study: the Technical University of Cluj-Napoca (UTCN), the "Gheorghe Asachi" Technical University of Iasi (UTI) and the Polytechnic University of Timisoara (UPT).

The second part of the study involves an analysis of technical universities in Romania according to indicators used by specialized institutions at international level, which are presented in Table 1.

Table 1. Criteria for classifying universities

Crt. no.	Name of indicators	UPB	UTCN	UTI	UPT	UTCB	UAUIMB
1	Presence Rank	3449	1959	2384	2477	6631	6886
2	Impact Rank	3162	2446	2623	3373	7633	7609
3	Openness Rank	2021	1787	1668	1804	4020	6757
4	Excellence Rank	783	1614	1636	1819	4696	5777
5	World Rank (5=1÷ 4)	1251	1565	1614	1838	4620	6924
6	Academic Reputation	51.8	18.9	30.5	15.4	-	-
7	Employer Reputation	60.4	17.3	40.6	23.6	-	-
8	H-index Citations	51.1	-	-	-	-	-
9	Citations per Paper	-	40.7	51.8	40.5	-	-
10	Web Impact	62.9	50.7	46	35.8	-	-
11	Papers per Faculty	-	70.4	98.3	96.2	-	-
12	QS University ranking (EECA) (12=6÷11)	109	128	88	121	-	-
13	Best Global Universities Rankings	730	1111	1140	-	-	-
14	Country rank	2	6	7	10	22	25
15	World rank	1212	2094	2367	2919	5696	5780

1-5 by www.webometrics.info; 6-12 by www.topuniversities.com; 13 by www.mastersportal.com; 14-15 by www.4icu.org.

Thus, according to the data presented by "webometrics", the "Presence rank" indicator was calculated taking into account the "google" data source, the values being obtained as a result of the university dimension according to the web domain (www.webometrics.info). The "Visibility" indicator has been obtained by measuring the number of subnets that generate references to the university web site (source: Ahrefs and Majestic). The "Transparency" or "Openness" indicator was obtained by measuring the number of citations from top authors (source: Google scholar citations). The "Excellence" indicator was obtained by establishing the number of existing papers among the top 10 most cited in 26 disciplines during 2011-2015 (source: Sciomago). Each of these indicators was then weighted according to their importance, according to "webometrics" (5%, 50%, 10% and 35%).

According to "Top universities", universities were ranked according to other important indicators such as: academic reputation, employer reputation, quotes per article, web impact, articles per faculty, H-index citations etc. (www.topuniversities.com).

"USNews" through the MastersPortal set the "Best Global Universities Rankings" composite indicator that also allows a ranking of Romanian universities in the international context and was taken in this study (www.mastersportal.com).

UniRank is another ranking made by 4 international colleges and universities (www.4icu.org) through an international directory and search engine that includes reviews and rankings of over 13,000 recognized universities and colleges. This classification uses two indicators: "Country rank" and "World rank". The university's classification components and algorithm are based on impartial and web-independent metrics extracted from four different web-based sources of information (Moz Domain Authority, Alexa Global Rank, Majestic Trust Flow).

To make a comparison between the universities studied, the criteria mentioned in Table 1 were used, and for ease of comparison, indices of importance were assigned on a scale of 1 to 6 for each indicator taken in the study. Thus the number "1" was assigned for the best result and the number "6" for the worst result. This was done to see if there were any differences between the existing and studied rankings because each specialized institution used different indicators and so the comparison in that state was not possible.

Results and discussions

By centralizing the existing data on the CNFIS site related to the number of students according to the level of studies (license, master and doctorate), the situation presented in Figures 1-3 was obtained.

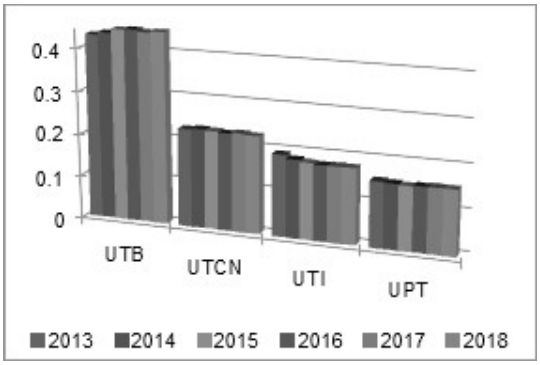

Figure 1. The number of students on the budget places

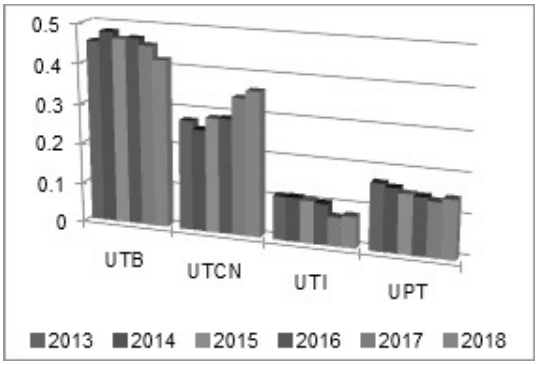

Figure 2. The number of students in the places from the tax

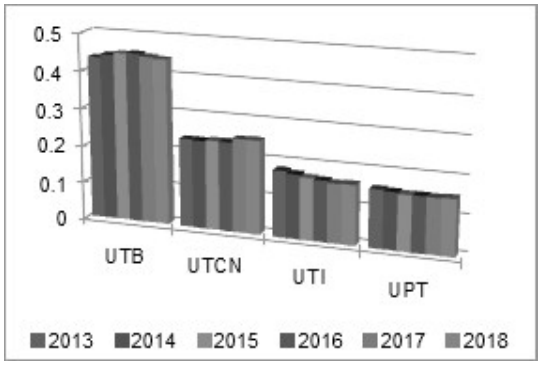

Figure 3. State of the total number of students

From the analysis of Figure 1 it can be seen that in Romania the highest number of students in the technical profile, in the budget, is recorded in Bucharest this one reaching the maximum in 2016, and afterwards there was a slight decrease. After the city of Bucharest (44.56%) the highest number of students is in Cluj-Napoca, here there are small variations of growth and decrease from year to year (in 2018 being 22.68%), then Iasi, registering a slight year-on-year decline (in 2018 being 17.62%) and Timisoara (registering in 2018 a share of 15.14%).

From the Figure 2 it can be noticed that the students' tax situation is slightly different at each university. Although the city of Bucharest (41.71%) with the highest number of students is still the first place, it is noticed that the trend of evolution is decreasing, compared to the trend of the next university of Cluj-Napoca (35.95%), in Iasi there is a decrease (7.8%) and in Timisoara a decrease followed by a slight increase in 2018 (14.55%).

From the analysis of Figure 3 it can be seen that the total number of students (budget and tax) is more balanced, the highest number of students is in Bucharest (44.07%), Cluj-Napoca (24.96%), Iasi (15.93%) and Timisoara (15.04%).

Figures 4-5 show the evolution of the number of students in the license cycle whose studies are financed from the budget, respectively from the fee. In Figures 6-7 there are presented the situation of the number of students from the master cycle of the two types of students and in Figures 8-9 the situation of the students from the doctoral cycle is presented.

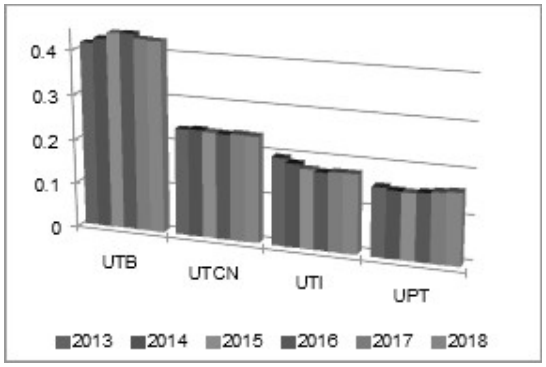

Figure 4. Evolution of the number of license students (budget)

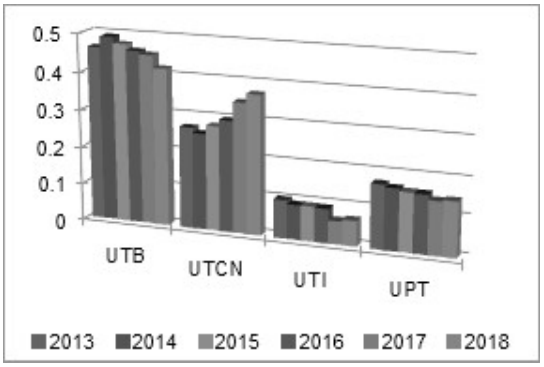

Figure 5. Evolution of the number of license students (with a fee)

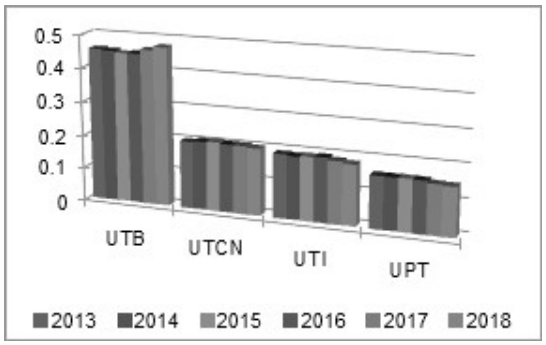

Figure 6. Evolution of the number of master students (budget)

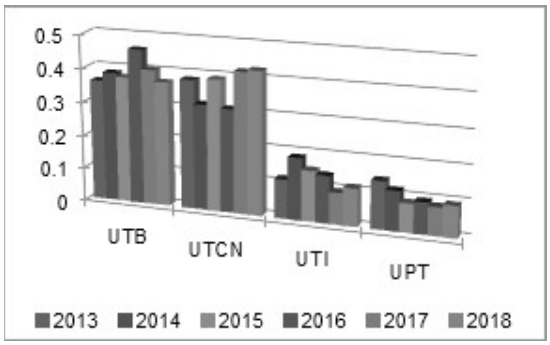

Figure 7. Evolution of the number of master students (with a fee)

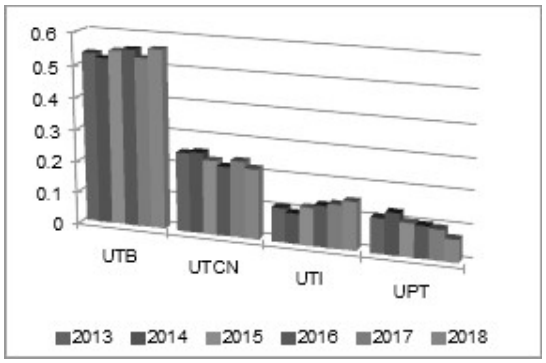

Figure 8. Evolution of the number of doctoral students (budget)

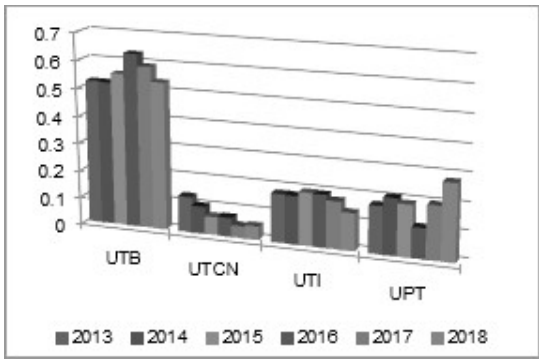

Figure 9. Evolution of the number of PhD students (fee)

From Figure 4 it can be noticed that the highest number of students is in Bucharest (42.7%), followed by a difference of 19% from Cluj-Napoca (23.74%) to about 6 % of Iasi (17.65%) and almost 2% of Timisoara (15.92%).

From the analysis of Fig. 5 it can be said that in the tax license studies, the difference registered in 2018 between Bucharest and Cluj-Napoca is only 5%, between Cluj-Napoca and Iasi about 30% less and between Iasi and Timisoara contrary to expectations an increase of about 8%.

From Figure 6 it can be noticed that the difference between Cluj-Napoca and Iasi is insignificant (2%) as for the difference between Iasi and Timisoara (3%).

From the analysis of Figure 7 it can be said that in the master studies with tax the situation recorded fluctuations in all these years, so in 2018 in Cluj-Napoca there are 5.5% more university students from Bucharest, 31% from Iasi and with 33% against Timisoara.

Figure 8 shows that in the PhD studies in the technical profile in 2018 Bucharest occupied the first place (56.04%), Cluj-Napoca (21.88%), Iasi (15.06%) and Timisoara (7.02%).

Figure 9 shows that in 2018 there are fewer PhD students in PhD studies at the tax-paying places in Cluj-Napoca, followed by Iasi, Timisoara and Bucharest.

As "institutional financing" at the Romanian universities represents the main source of financing of the universities, an analysis of the types of sources of financing from the state budget was made according to the universities studied (Table 2).

Table 2. Situation of financing by types of financing sources

Type of financing	Year	UTB	UTCN	UTI	UPT
Institutional financing	2013	46.13%	20.57%	18.24%	15.07%
	2014	45.68%	21.77%	17.76%	14.79%
	2015	46.61%	21.83%	17.26%	14.30%
	2016	46.77%	21.85%	17.18%	14.21%
	2017	46.70%	21.85%	17.28%	14.17%
	2018	46.54%	21.86%	17.00%	14.60%
Basic Funding (72.5%)	2013	44.51%	21.67%	18.68%	15.14%
	2014	43.75%	22.35%	18.57%	15.33%
	2015	44.34%	22.45%	18.04%	15.16%
	2016	44.46%	22.41%	17.87%	15.27%
	2017	44.65%	22.39%	17.85%	15.11%
	2018	44.89%	22.13%	17.65%	15.34%
Additional funding (26.5%)	2013	49.19%	18.58%	18.93%	13.30%
	2014	47.93%	19.48%	19.06%	13.53%
	2015	48.39%	19.44%	18.72%	13.45%
	2016	47.76%	19.72%	18.47%	14.05%
	2017	47.76%	20.36%	17.70%	14.18%
	2018	47.79%	20.96%	16.62%	14.62%
PhD Grants	2013	47.67%	29.89%	11.59%	10.84%
	2014	49.15%	28.71%	11.52%	10.63%
	2015	52.94%	26.15%	11.35%	9.56%
	2016	53.74%	24.70%	11.86%	9.71%
	2017	53.84%	23.97%	12.82%	9.37%
	2018	53.97%	22.68%	13.74%	9.60%

From the analysis of Table 2 we can say that due to the principle " resources follow student" and the quality indicators obtained, the largest budget funding is registered at UTB, followed by UTC-N, UTI and UPT. Institutional funding is constant at TBU, increased by 1.29% in 2018 compared to 2013 at UTC-N, UTI fell by 1.24% and UPT by 0.47%. If in the case of basic funding the change registered at all universities is up to 0.5% on additional financing, this is most significant, this being the highest decrease to UTI (2.31%) and the lowest decrease to UPB (1.4%) and the lowest high growth at UTC-N (2.38%) and lowest at UPT (1.32%). In the PhD grant grant, if we compare the year 2018 to 2013, the highest increase was registered by UTB (6.3%) and the lowest UTC-N (7.21%) decrease.

As a result of the analysis of the university performance as it is perceived internationally, another classification has been obtained which is presented in Table 3.

Table 3. Ranking of technical universities in Romania according to the global index

Crt. no.	Site Name	UPB	UTCN	UTI	UPT	UTCB	UAUIMB
1	www.webometrics.info	1	2	3	4	5	6
2	www.topuniversities.com	2	4	1	3	-	-
3	www.mastersportal.com	1	2	3	-	-	-
4	www.4icu.org	1	2	3	4	5	6
5	Final Score	1.25	2.5	2.5	3.67	5	6
6	Occupied place	I	II	II	III	IV	V

According to the results presented in Table 3 it can be seen that in the situation where we choose to place a technical university in Romania using the global index, we get UPB (Politehnica University of Bucharest) first, followed by UTCN and UTI, and then by UPT, UTCB and UAUIMB.

In Table 4 a placement of universities has been achieved by adding together several individual criteria by adding an index of importance depending on their score.

Table 4. The ranking of technical universities in Romania according to individual indices

Crt. no.	Name of indicators	UPB	UTCN	UTI	UPT	UTCB	UAUIMB
1	Presence Rank	4	1	2	3	5	6
2	Impact Rank	3	1	2	4	6	5
3	Openness Rank	4	2	1	3	5	6
4	Excellence Rank	1	2	3	4	5	6
5	Academic Reputation	1	3	2	4	-	-
6	Employer Reputation	1	4	2	3	-	-
7	Web Impact	1	2	3	4	-	-
8	Best Global Universities Rankings	1	2	3	0	-	-
9	World rank	1	2	3	4	5	6
10	Final Score	1.89	2.11	2.33	3.63	5.2	5.8
11	Occupied place	I	II	III	IV	V	VI

From the analysis of Table 4 it can be seen that although UPB occupies the best position (first place in placement), it has as strengths the results obtained at indicators 4-9 and as weak points indicators 1, 3 and 4. The second place is UTC-N which has the best results for the 1-2 indicators and the weakest results for indicators 6 and 5. The 3rd place is located UTI which is at a relatively small distance from UTC-N, and fourth is located UPT.

Discussion and conclusions

From the analysis carried out at national level it can be seen that the performance of the university was measured by the evolution of the number of students and the financing obtained by each technical university. Thus, at the level of the technical profile, UTB is the largest university in terms of size and financing and records the best performance, followed by UTCN, UTI and UTP, this classification being somewhat obvious and due to the size of the city where the university is located. Another important criterion, but sometimes difficult to measure by students or parents, is the prospect of economic, cultural and social development of the city. Although the ranking of universities at the national level is made by CNFIS, which establishes the level of financing (taking into account the combined effect of the number of students and predetermined quality indicators) at national level, this hierarchy is not much publicized or known. Comparing this national hierarchy with the international one it can be observed that there are small differences according to the total criteria.

From the international analysis level according to the data studied, it can be noticed that the performance of the technical universities in Romania is measured in terms of the results obtained from various indicators taken into study such as: presence, impact, openness which has not presented in the national evaluations. Thus, if we measure the university performance according to the indicators mentioned in Table 1, the first place is UPB followed by UTCN and UTI, and then by UPT. Thus, UTCN and UTI are in equal positions if we take into account the global index (rows: 5), or in the immediate vicinity if we take into account the individual indices's (rows: 12, 13 and 15). However, if we analyze the position of the technical universities in Romania compared to other universities in Europe and the world, according to gross data, then we can see that in the first 1500s there is only UPB (1251/109/730/1212), indifferent the value of the global indicator being analyzed or the data source to which we refer. The other technical universities can be found in the 1500-2000 range after some classifications or 2000-3000 after other classifications (UTCN: 1565/128/1111/2094; UTI: 1614/88/1140/2367; UPT: 1838 / 121 / - / 2919).

References

Acemoglu, D.,
2006
„Distance to frontier, selection, and economic growth", Journal of the European Economic Association, 4 (1): 37–74.
Aghion, P., Dewatripont, M., Hoxby, C., Mas-Colell, A., Sapir, A.,
2010
„The governance and performance of universities: evidence from Europe and the US", Economic Policy, 25 (61): 7–59.

Atkinson, A., Burgess, S., Croxson, B., Gregg, P., Propper, C., Slater, H., Wilson, D.,
2009
„Evaluating the impact of performance-related pay for teachers in England“, Labour Economics, 16 (3): 251–261.
Bogt H.J., Scapens R.W.,
2012
„Performance management in universities: Effects of the transition to more quantitative measurement systems“, European Accounting Review 21 (3): 451–497.
Byron, K., Khazanchi, S.,
2012
„Rewards and creative performance: A meta-analytic test of theoretically derived hypotheses“, Psychological Bulletin, 138: 809–830.
Campbell, D.J., Campbell, K.M., Chia, H.,
1998
„Merit pay, performance appraisal, and individual motivation: An analysis and alternative“, Human Resource Management Journal, 37: 131– 146.
Cave, M., Hanney, S., Kogan, M., Trevett, G.,
1988
The use of performance indicators in higher education: A critical analysis of developing practice, London: Jessica Kingsley.
Chen, H.M., Kuo, T.S.,
2004
„Performance appraisal across organizational lifecycles“, Human Resource Management Journal, 23: 227–233.
Gielen, A.C., Kerkhofs, M.J.M., Ours, J.C.,
2010
„How performance related pay affects productivity and employment“, Journal of Population Economics, 23 (1): 291-301.
Goodall, A.H.,
2006
„Should research universities be led by top researchers, and are they?“, Journal of Documentation, 62 (3): 388–411.
Goodall, A.H.,
2009a
Socrates in the boardroom: Why researchuUniversities should be led by top scholars, Princeton, NJ: Princeton University Press.
Goodall, A.H.
2009b
„Highly cited leaders and the performance of research universities“, Research Policy, 38 (7): 1079–92.
Hirst, G., Knippenberg, D.V., Zhou, J.,
2009
A cross-level perspective on employee creativity: Goal orientation, team learning behavior, and individual creativity. Academy of Management Journal, 52: 280–293.
Jenkins, D.G. Jr., Mitra, A., Gupta, N., Shaw, J.D.,
1998
„Are financial incentives related to performance? A meta-analytic review of empirical research“, Journal of Applied Psychology, 83: 777–787.
McCormack, J., Propper C., Smith, **S.,**
2013
Herding cars? Management and university performance, The Economic Journal, 124: 534–564.
Kagioglou, M., Cooper, R., Aouad, G.,
2001
„Performance management in construction: a conceptual framework“, Construction Management and Economics, 19 (1): 85-95.
Melo, A.I., Sarrico, C.S., Radnor, Z.
2010
„The Influence of performance management systems on key actors in universities“, Public Management Review, 12 (2): 233-254.

Malik M.A.R., Butt A.N, Choi, J.N.,
2015
„Rewards and employee creative performance: Moderating effects of creative self-efficacy, reward importance, and locus of control“, Journal of Organizational Behavior, J. Organiz. Behav., 36, 59–74.
Melo Al., Sarrico C.S., Radnor Z.,
2012
„The influence of performance management systems on key actors in universities“, Public Management Review, 12(2): 233–254.
Prendergast, C.,
1999
„The provision of incentives in firms“, Journal of Economic Literature, 37, (1): 7-63.
Scott, S.G., Bruce, R. A.,
1994
„Determinants of innovative behavior: A path model of individual innovation in the workplace“, Academy of Management Journal, 37: 580–607.
Official Journal of the European Union,
2011
Council Resolution on a renewed European agenda for adult learning, 2011/C 372/01 (http://eur-lex.europa.eu/legal-content/RO/TXT/PDF/?uri=CELEX:32011G1220(01)&from=RO)
2012
Council conclusions of 26 November 2012 on Vocational Education and Training in Europe 2020 - The contribution of VET to recovery, growth and job creation, 2012/C 393/02 (http://eur-lex.europa.eu/legalcontent/RO/TXT/HTML/?uri=CELEX:52012XG1219(02)&from=EN)
2017
Council recomandation of 11 July 2017 on the National Reform Program of Romania for 2017 and which includes a Council opinion on the Convergence Program of Romania for 2017 (2017 / C 261/22)(https://eur-lex.europa.eu/legal-content/RO/TXT/PDF/?uri=OJ:C:2017:261:FULL&from=EN)
Zhang, X., Bartol, K. M.,
2010
„Linking empowering leadership and employee creativity: The influence of psychological empowerment, intrinsic motivation, and creative process engagement“, Academy of Management Journal, 53 (1): 107–128.