

# 4th EUA FUNDING FORUM

B A R C E L O N A



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## RESEARCH PAPER ABSTRACTS

### Research Master Class 1

#### **Should employers be asked to fund Higher Education?**

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Many higher education systems worldwide are coming under increased pressure from rising demographic demand and as a result the debate about their funding is receiving considerable attention. The case for investment in higher education is easily made - it is widely acknowledged that the main beneficiaries of higher education are graduates (through future careers), the State (through economic returns and social development) and employers (through access to talent).

The literature on this topic makes the general assumption that funding for higher education must come from the State and students/parents in some combination, and the mechanism and ratio are influenced by historical contexts, cultures, national goals and values. In Ireland, the Cassells report acknowledged the role of employers in contributing to the future funding of higher education. It recommended an increase in the National Training Levy, a tax which amounts to 0.7% of reckonable earnings in respect of the majority of employees, collected through the PAYE/PRSI system. The public debate which followed this recommendation is analysed in this paper with reference to international experience. The arguments in favour and against employer contributions to the State funding of higher education, and the mechanisms by which this might be implemented, are explored in this paper.

#### **Funding profiles across Spanish public university system: a regional analysis**

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Nowadays, the Spanish Higher Education system is highly decentralized, so the public universities' funding relies on regional governments. The Spanish public university system has been truly affected by the economic and financial crisis. One of the main consequences was that the Spanish tuition pricing system underwent a major change in the academic year 2012-13 because of the enforcement of the Royal Decree-Law 14/2012 by the national government. This regulation introduced greater freedom for regions in the definition of the tuition fees, being determined for the first time in Spain according to the cost of the educational service offered - the previous (incrementalist) fee system in Spain set tuition fees on the basis of the national inflation. After this State regulation, university students are supposed to pay between 15% and 25% of the cost of the educational service.

This new university pricing policy has led to a (heterogeneous) increase in tuition fees in almost all regions (except Asturias and Galicia): most remarkably Catalonia and Madrid chose to apply 25% cost

fee. In this sense, several Spanish regions have aligned with some European countries (most notably Italy, Ireland, Portugal, the Netherlands or United Kingdom) by adopting a growing cost-sharing policy.

Before the enforcement of the RDL 14/2012, the overall funding landscape was already very varied and not really systemized, but some Spanish regions had developed explicit university funding models with clear criteria for funding allocation. However, in the context of the economic and fiscal crisis, the focus of the national government on reducing public expenditure on universities has to some extent forced some regions to abandon their incipient university funding models. Moreover, most regional governments have modified their university funding strategy by increasing tuition fees while reducing the operational public funds allocated to universities (block grant), especially those to be spent by universities in investments.

Despite the regional governments attempts to establish the same model for the core funding of the public universities in their territories, university leaders and managers have made strategic decisions that affect the governance and financial structure of their universities, for instance, the proportion of undergraduate and graduate students. Currently, in Spain, the fees paid by Master students are much higher than the fees paid by Bachelor students and this fact, among others, implies that those universities more orientated to Master programs and teaching rise more private funds from students. Therefore, the public-private funding structure has changed both at regional level and at institutional level.

Given the new distribution of public-private funds, the aim of this paper is to analyse the heterogeneity of the funding structure of the Spanish public university system. In so doing, we apply cluster analysis on the 47 Spanish public universities providing on-campus education. Preliminary results based on administrative data show strong heterogeneity among universities “within” and “across” regions, identifying different funding profiles or clusters based on: (i) the public funds from regional governments allocated to each university; and (ii) the regional funds per student and per academic staff allocated to each university.

**Assessing the Impact of Public Research Funding on Scientific Production – The Case Study of Individuals in Slovakia**  
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Governments all over the world spend annually millions on providing support for research and development. Research requires substantial funding and states are interested in investing in this area as it contributes to scientific knowledge and economic growth. Moreover, knowledge produced by basic research provides positive externalities for the whole society. The key players in producing basic research in OECD countries are public universities. Thus, a high volume of public funding is devoted to them. However, with limited finance, understanding the impact of government expenditures is crucial. Especially for policy makers, who may want to know how the marginal impact of a euro of research funding varies across researcher, institution or field.

Numbers of studies analysed the relation between funding and scientific production. Since there is not yet a completely unambiguously described relationship between research funding and knowledge production, it is important to track and explore this area. The first step should be to examine how public research funding influences the knowledge production.

In Slovakia, universities are involved in creation of basic research by about 60 %. They obtained 419.44 million euros on basic research only in 2015 and 67 % of these amounts was reallocated through a project research mechanism. Especially a competitive project mechanism puts more emphasis on outcomes and quality of the research. Moreover, it creates a general incentive to become more competitive and should yield in producing better results. Wondering whether investments in research through the project mechanism yields in outputs of higher quality seems to be natural. Moreover, it provides information how efficient the reallocation system is. Paper measures what influence has project research funding and other variables on outcome of the individuals in project grants in the field of economics. Time related regression models for the period of 2010 - 2016 are estimated in order to measure the impact of research funding and other influencing factors on the quantity and quality of the scientific outputs. The results show different influence of funding when dealing with quality and quantity of publications.

## Impact of the funding formula on the system of higher education in Poland

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The presentation is intended as a case study discussing the funding formula for distributing the block grants for teaching. This factor is usually underestimated in analyses of the Polish higher education system although this funding formula is almost exclusively responsible for the structure of the employment of the academic staff in Poland. The old funding formula proved to be very effective in the period of demographic peak. One incentive of the old funding formula was clear: it was profitable to increase the enrolment. Universities perfectly adapted to the economic environment created by the funding formula and the possibility of using private funding (tuition fees). The enrolment of students in Poland increased almost 5 times during less than 15 years, while the number of the academic staff increased only by about 50%. However, this had a negative impact on the quality of higher education and science. The need for essential changes in the funding formula has been clear at least since the beginning of demographic decline around 2005. The financial situation of most universities deteriorated constantly, although public funding increased (but the private funding decreased rapidly). Modifications of the funding formula (e.g., in 2007 and 2013) turned out to be unsuccessful.

The reform of 2017, despite some mistakes, is much more promising. The new funding formula consists of 4 components (45%: staff weighted by academic degrees, 40%: students weighted by disciplines, 10%: research grants, 5%: foreign students and international exchange). This does not differ much from the old funding formula. The crucial role is played by two new indicators, weighting respectively the staff and student components, intended as incentives for improving the quality of research and teaching. The student component is multiplied by a factor depending on the student-staff ratio (SSR). If  $SSR > 13$ , then this factor equals  $(13/SSR)^2$ , while for  $SSR < 13$  this factor is 1. The staff component is multiplied by the average scientific category of the university (resulting from the detailed periodic evaluation of the research output).

The new funding formula is a strong incentive forcing universities with  $SSR > 13$  to achieve  $SSR = 13$ . The natural option is to decrease the number of students by increasing requirements. However, we will show that the new funding formula rewards generously (and without much delay) any investment in the staff, although such investment may be considered as risky by university administrators. We hope to collect the data for 2017 showing actual strategies of higher education institutions.

Another very hot topic touched in this presentation is the new Law on Higher Education and Science (which will probably be passed soon). The whole system is planned to be based on the evaluation of scientific categories, continuing the academic drift of the Polish system of higher education. The funding will be more concentrated in the direction of several largest universities (candidates for research universities). However, without separating financial flows between this group and other universities the Polish system of higher education will be still lacking international competitiveness: national funds will be much “easier” for the best universities.

## Combining Government Budget Steering and Business-like Financial Accounting and Reporting on the University level - how to decide on financial performance?

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After the University Reform in Finland (2010) Universities have been under the National accounting legislation. Before that Universities were part of the Government and not financially independent institutions. While the Ministry of Education still mostly focuses on a yearly budget in the steering of universities, universities themselves have to think about the long-term scenario. Universities are financially independent, and the Board and rector are responsible for a university’s financial stability. Personnel layoffs have been seen after the university reform and it is at least theoretically possible for a university to go bankrupt.

In Government Budget it doesn’t make difference if the money is given to the Universities as an annual state grant or as equity. However, in the University the money has to be treated in different ways. Some people even say that the equity should not be accounted and it’s only the annual budget money that accounts. Anyhow, the equity gives Universities more financial flexibility, but also volatility. It is usually invested in financial assets or real estate to generate income.

Money given in the annual budget (if not used) will be part of the University’s surplus. It will then go to retained earnings in the balance sheet and can be used when there will be deficits. These surpluses cannot be invested for long term and investment gains won’t be very high. The money is meant to be used, not accumulated.

Money given as equity will be invested and only the gains will be used. Universities try to accumulate financial assets as much as possible. Universities also have endowments from companies and private persons. They can have a spending policy to control the way these gains are used to cover budget expenses. In the University reform 2010 Government gave the real estate to universities but remained as a minority shareholder in the real estate companies. There are big differences in the way universities have arranged the management of their real estate after that. Some universities have bought the government owned minority shares and have their real estate in their own balance sheet or have it as a limited company in the university group. Some universities have their real estate in a jointly owned limited company, where government still exists as a minority shareholder.

A comparative study of Finnish universities (2010-2017) will be made to find out, how the financial situation in Finnish universities has evolved during these years. When different elements in balance sheets and profit and loss statements are taken in to account, are there differences between universities? What about the group structure? A stand-alone university looks different and has different kind of financial flexibility than a University Group.

In this study we want to find out, how the Ministry of Education can evaluate the financial performance of Universities, when those Universities don't have an equal asset structure. Should universities be transparent and comparable with each other? What elements should be included to assess the financial performance of universities?

## Internal funding and control instruments at German universities: empirical findings

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Studies

In the mid-1990s, a radical change in university governance was initiated in Germany with the reforms of the New Public Management (NPM) (Boer et al. 2007, S. 146–148). Direct state influence on higher education has been significantly reduced (for example, by converting the governmental accounting to global budgets). With the loss of state management, however, new ways of (indirect) state influence on the universities and for the control of the same sort have been sought. At the same time, the NPM reforms strengthened university governance by increasing the scope for action and decision-making (Hüther 2010, S. 364–433). This combination of indirect state control claim and capable university management resulted in (among other things) the introduction of new financing and management tools: from then on, Target and Performance Agreements (ZLVs) and performance-based models of funding (LOM) have been agreed upon by the relevant state ministries and the university governing bodies as representatives of the entire university. The hierarchy of the university, in conjunction with NPM-induced competition, also allows the introduction of new management tools at the levels within the universities.

In total, there are 115 public and private universities with doctoral rights in Germany (Hochschulrektorenkonferenz 2018), whose Rectorate and Bureau members were surveyed online in the summer of 2017 on the use of quantitative information and management tools at their university. In addition, at the beginning of 2018, 18 interviews were conducted with Deans and those responsible for information and reporting systems on the use of information, the tools used and the associated challenges.

The paper summarizes both quantitative and qualitative findings. Bogumil et al. (2013) shows how (a) the dissemination of internal ZLV and LOM at German universities has developed compared to 2010. Based on this, it is examined whether (b) the distribution of the instruments is accompanied by certain organizational features. Behind it are the assumptions,

- that the size of a university has a positive impact on the dissemination of instrument-based university governance;
- that state-sponsored universities use ZLV and LOM more often than privately-run universities;
- and that the legal framework (operationalized by the federal state in which the university is located) has an influence on the existence of instrument-based university governance.

Based on this, (c) the construction of the instruments is the focus of the article. The instruments are classified according to the dimensions of research, teaching, and transfer, and the respective indicators used are examined. The quantitative findings are (d) supplemented by qualitative statements on the challenges of instrument-based internal university governance.

### Why the road to hell is paved with good intentions - the case of output-based research funding in Slovakia

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Slovakia, like many other European countries, has since 2005 gradually changed its funding allocation mechanism in higher education research from the financing of inputs to the rewarding of outputs. The outputs in this case are operationalized as research publications. The goal was to stimulate better quality research, which could be measured by the number of publications in reputable academic journals. The effect has been rather limited. The IDEA Institute notes that Slovak researchers across all research fields have published between 2010-2014 in top journals less than half the average number of articles in other OECD countries. In addition, the introduction of publications as a condition influencing levels of university financing has contributed to a „race to the bottom“ effect. Most researchers publish large numbers of articles in lesser-known journals with high acceptance rates. As Slovak Ministry of Finance notes, even though funding of these publications is relatively marginal, when taken together, it is acceptable to the universities. In addition to publications for funding purposes, academics are required to have different publications for accreditation, and still others for promotion. This leads to inefficiency, as academics tend to concentrate on quantity rather than quality of research outputs, and they also lack time for quality teaching.

Another problem connected with the pressure to publish is that Slovak academics resort to publishing in predatory journals. The country has, according to IDEA, the second highest number of publications in predatory journals among OECD countries. The way this allocation mechanism was implemented has also negatively affected interdisciplinary research. It discourages academics from cooperating in publishing, because by coauthoring a publication, researchers receive a smaller subsidy, as calculated based on the number of published articles. According to our qualitative data, this applies both at inter- and intra-institutional levels.

There are a number of reasons why this policy tool, intended to increase the quality of research and improve the allocation of public funds, has led to unsatisfactory results and even produced unintended consequences. Some of them are connected with the design of this financing tool (e.g., weak definition of criteria for rewarding publications), others with creating an environment conducive to research quality (e.g., a lack of research grants, which limits the chances of producing research results suitable for publication in prestigious journals).

The paper will discuss policy lessons and reasons for the allocation mechanism not being properly defined (i.e., what influenced the policy design), the mechanism's limitations, and its impact on research funding efficiency and the quality of university research. The analysis will be based on findings from over 130 interviews with representatives of the main actors in Slovak higher education research, and questionnaires administered to researchers at each Slovak university. It is part of the "Learning Makes Sense" project, aiming at proposing a comprehensive reform of the education system. The reform will be based on a thorough analysis, identifying the problems of the Slovak education system and learning from Slovak and international practice, both good and bad, that will be used to respond to the identified problems.

## A Regional Innovation Impact Assessment Framework for universities

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The contribution is based on a recent report by the European Commission Joint Research Centre which provides a framework to assess the impact of universities on their regional innovation ecosystem. The policy context for this work is provided by: a) the Renewed EU agenda for higher education which argued that universities do not attain their full potential; and b) the report by the High-Level Group chaired by Pascal Lamy which called for an additional funding stream to support universities to modernise and increase their innovation impact. Our report explores what the assessment framework underpinning such an innovation performance-based funding instrument could look like. However, it acknowledges that the final form of such a framework would heavily depend on the regional, national or EU level instrument through which it is implemented. The report proposes a system in which universities draft a case study supported by indicators, through which they present evidence of their contribution to regional innovation. It identifies four impact categories and identifies a list of associated indicators. In this "narrative with numbers" the universities can both explain how they reach this impact and contextualise their performance with reference to the development level of their region.

<https://ec.europa.eu/jrc/en/publication/eur-scientific-and-technical-research-reports/regional-innovation-impact-assessment-framework-universities>

The evaluation by indicators of the scientific leadership of universities has become widespread in the German scientific system (Grande et al., 2013). It is also acknowledged by the support of the performance-measuring method that with indicators that reflect only quantitative dimensions of performance, an adequate recording of performance is not possible (Wissenschaftsrat 2011, p. 39). The mapping of the qualitative dimension of scientific performance by means of indicators is indirectly based on expert opinions, which are an essential part of the selection and evaluation processes within the science field. Usually, two types of information are evaluated: the frequency of citations and the scope of peer-reviewed, third-party fundraising.

On the one hand, analyses of third-party funds thus make it possible to assess the quality of research activities, provided that the funds have been approved by experts as a result of a review process. In Germany, the DFG's grants for third-party funding in particular are considered to be quality-assured. On the other hand, in Germany, but also in other European countries, third-party funding represents an indispensable pillar of research funding.

For those responsible within and outside the universities, in particular for the members of university and faculty administrations, as well as for state stakeholders, it is therefore of great importance to evaluate the research activities of universities. In addition to information on the success of the third-party funding, they need further information and specific knowledge, such as the importance of characteristics of the organisation in procuring third-party funding. Only these enable an appropriate classification and interpretation of the performance figures in different organisational contexts.

While a number of papers have dealt with the question of the relationship between success in attracting third-party funding on the one hand and publication output on the other (Jansen et al. 2007, Gerhards 2013, Schmoch, Schubert et al., 2010), only a few studies are available for the conditions of successful acquisition of third-party funds. In particular, the degree of interdependence of organisational structures with the production of scientific achievements is so far only vaguely known. The study by Carayol and Matt (2004) was able to demonstrate a size effect using the example of the third-party success of research clusters. The present study takes up this approach for subject departments of universities. In addition to the size, further, possibly relevant, conditional factors for third party funding success are taken into consideration, for example: Range and nature of the teaching load and governance structures.

In the focus of the empirical analysis, four subjects (History, Psychology, Physics, and Mechanical Engineering / Process Engineering) demonstrate a comparatively great importance for DFG third-party funding. The abovementioned condition factors are to be modelled as part of a multivariate analysis of relationships between third-party success and condition factors. Data from the German Research Foundation (DFG), of the Federal Statistical Office and a scientists survey are analysed. The results of the study are intended to provide relevant guidance for an assessment of research activities from the perspective of the abovementioned stakeholders of higher education governance.

## Collaboration instead of Collision: A Multirational Analysis of Fundraising Departments' Organizational Challenges

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“People give to people to help other people”, according to the 3Ps fundraising rule, stating that the core of fundraising is all about relationships. Establishing new contacts as well as maintaining and fostering them are all duties of fundraising departments. In doing so, they are using a wide variety of tools such as personal written and direct communication, events, meetings, or the involvement of people into the institution as members of committees. However, other entities such as Communications, Alumni Relations or the President’s Office have similar tasks. Interfaces between these entities therefore need to be monitored closely. Hence, the positioning of fundraising departments within universities is critical. At the University of St.Gallen, the situation is even more challenging. The institution looks back on a long tradition of decentralized fundraising, strengthening the organizational and financial independence of institutes and schools, while utilizing personal relationships of professors and other representatives of the university for fundraising purposes. This set-up was changed by the establishment of the office of university development in 2010. As a central office, it is supposed to manage donor relations. Reality shows that collaboration between the central office of university development and institutes or schools is challenging.

Conversely, learnings from multirational management indicate a smooth collaboration. The rationality at the office of university development can be considered as a “plain” rationality, whereas the fundraising tradition at the institutes and schools caused the emergence of a hybrid rationality of “fundraising” and “research and teaching”. Research found that the development of hybrid rationalities is a reliable response to overcome work-level-crisis due to different rationalities (Smets et al. 2012). Yet the given situation differs: It is not the confrontation of two distinct rationalities that could merge, but one of a hybrid and a plain rationality, where the latter is part of the hybrid one. This leads to the presumption that problems of collaboration arise from the proximity of these rationalities. The paper addresses the question of how close two rationalities can be and nonetheless allow for cooperation. Therefore, it develops a new model based on the two-axes-model of Besharow and Smith (2014). The paper is based on qualitative in-depth interviews with the President, professors or institutes’ directors, the HSG Alumni President and fundraising deputy of the HSG Foundation, the director of development, the director of Communications and other affiliated persons of the University of St.Gallen. It exposes the different rationalities within the university based on Boltansky and Thévenot (2014). Thereinafter, zones of conflict as well as of understanding will be identified. As a conclusion, practical recommendations regarding the positioning of fundraising departments will be developed.

The contributions of this paper are two-fold, practice- and theory-related. Firstly and practice-related, the study elaborates the organizational requirements for fundraising departments within universities. Secondly and theory-related, it offers a methodical operationalization of rationalities. The results will not only answer the question of whether fundraising at universities shall be managed centrally or peripherally, but also shed light on the critical interfaces of fundraising departments and other related entities.

## Catalyzing university transformation in publicly-funded HEIs: the SKOLKOVO group case study

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Transformative change is difficult to bring about in any higher educational institution, but the fully publicly-funded variety of HEIs present the most change-immune cases. Firstly, there is no imminent threat of bankruptcy or closing to fuel change – most public universities remain standing despite slow response to the environment, deteriorating slowly. Secondly, as with funding come standards, regulations, and rules, universities await directives instead of thinking strategically and position themselves to compete for state funding instead of competing for students and faculty. The first leads to strategic impotence, and the second to the exaggerated focus on reporting to the funding agency instead of caring for welfare of primary stakeholders. Finally, public funding allocations leave little to no resources to invest into new undertakings. This makes universities incapable of taking risks, limiting organizational behavior to defensive or reactive modes. Combined with the pressure to change coming from the 5-100 Russian Academic Excellence Initiative, these unfavorable circumstances offer a unique set of challenges for the SKOLKOVO group, involved with the catalysis of transformation of top Russian universities. In 2013 Moscow School of Management SKOLKOVO (SKOLKOVO Education Development Centre (SEDeC) within the school being the specific division) started working with the universities in the 5-100 Project. The group is an autonomous non-governmental agency for institutional transformation. By using the problem-based method inspired by Ackoff's idealized design, we have conducted over 70 strategy sessions in over 20 publicly-funded Russian universities. Strategy sessions are aimed at stimulating the process of strategy development and strengthening 'the steering cores' along the way.

In the process we have made mistakes, but also, sometimes experimentally or even accidentally, developed a number of working tactics and facilitated profound changes within universities 'in our care'. As a scholar-practitioner, I am ideally positioned to insider's view which yet takes into account theoretical frameworks and different relevant perspectives. I will present the SKOLKOVO group case-study, focusing on the lessons learned during our 5 years of practice, which can be applied to other contexts to help other institutions transform. The contribution will be especially useful for leaders of publicly-funded HEIs.

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The main part of Austrian public university revenues is contributed by the federal budget, agreed upon in performance agreements for three years. In the period 2016-2018, the basic budgets are the main part of allocating federal university funding whereas universities are free with their internal budget distribution. As a second university funding component, structural funds for the higher education area with a focus on a transparent set of “performance” criteria are used. The relevant indicators for structural funds include students actively taking examinations (weighted by disciplinary fields), knowledge transfers, (non-PhD-)graduates (weighted by disciplinary fields) and doctoral schools. Moreover, grants for cooperation have been allocated. Overall, structural funds have served as a vehicle for deepening of student-based funding mechanisms; to act as a catalyst for doctoral schools; and to incentivize universities to implement national standards in cost accounting which are defined by decree since 2017.

These indicators, additionally to research staff (weighted by disciplinary fields), will be the basis for a new university three-pillar funding model, implemented via performance agreements for the upcoming period of 2019-2021 on the grounds of Universities Act 2002 - amendment BGBl. I Nr. 8/2018. The targets of the new model will be: enhancing quality of teaching by lowering staff to student ratios; focusing university research profiles by the newly introduced indicator of research staff; to improve steering and planning of capacities; and to make public university funding more transparent.

In more detail, the following funding indicators will be used: active students (more than 16 ECTS per year) as the main indicator; fast active students (more than 40 ECTS per year) and (non-PhD-) graduates as competitive indicators within the teaching pillar. For calculating the corresponding indicator-based budgets, all teaching indicators are weighted by disciplinary fields. This holds also true for the main indicator of the research and advancement and appreciation of the arts pillar which is selected categories of research staff. Additionally, P&P-based funding from the EU and national programs (FWF, OeNB, FFG) as well as structured doctoral schools will count as competitive indicators within this pillar. The third pillar is for infrastructure and strategic development which include existing buildings, additional clinical overhead and incentives in the areas of teacher education, digital development and the social dimension of higher education. Furthermore, basic funding for projects started in the performance agreement period 2016-2018 and contributions for the financial stability of universities will be allocated within the third pillar.

The overall federal budget allocation for each university will be agreed upon in the performance agreements 2019-2021. They will include fixed actual and target values for the main funding indicators of active students and research staff and an educated estimation of the competitive indicators of each the teaching and the research and advancement and appreciation of the arts pillar. Annual intellectual capital reports serve as the monitoring instrument for these indicators.

## Why strong formal student representation does not secure efficient involvement of students in the university governance?

### The case of Slovakia

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Slovakia belongs to countries with the greatest share of student representatives in the academic senate in the European Higher Education Area. According to the Slovak Higher Education Act, academic senate of a higher education institution (HEI) as well as the senates of its faculties must comprise at least one third of students. Thus, formally, students, through their representation in senates, have a rather big say over the issues related to HEI's governance including the election of the Rector/Dean and adopting the institutional annual budget. Nevertheless, according to the qualitative data from our Learning Makes Sense project, the number of students participating in the election of the student representatives to the senates is very low. The legitimacy of the student representative's mandate to participate in the decision-making process on behalf of the student community is therefore considered low in like manner. Despite having formal representation in place, this is not perceived by students outside of the academic senate as working to the benefit of the overall student population.

To understand why the formal structures of student representation are not sufficient in addressing the needs of the students we delivered 10 focus groups with almost 80 students around Slovakia representing different fields of study. We also conducted individual interviews with student representatives in academic senates from private and public HEIs. Students who took part in the focus groups pointed out several barriers that inhibit their interest and opportunity to be more actively involved in the work of the senates.

Among the most stated reasons for low participation in HE governance were the lack of information about what actually happens in the senate (both from the HEI itself as well as student representatives), lack of information about when and how to get involved and disbelief that the student voice will be heard, and the things will change. Students also did not know the people who represented them in the senate and those who did, did not believe that the students in the senate represented the needs of the overall student population. Furthermore, some students expressed that student representatives in the senate tend to form impenetrable closed groups and behave in an elitist way. Contrarily, student representatives claimed that students are not interested in learning more about the senate and in participating in the elections.

The validity of these, along with other students' concerns, were measured in the online survey that was conducted among students at all HEIs in Slovakia. What are the biggest barriers for active participation? Do students and their representatives perceive these barriers along different lines? Does formal representation matter if it fails to get students involved? How else could students participate in the processes of efficient governance?

This paper presents the main findings of both qualitative and quantitative research conducted so far in the project and elaborates upon the main factors that have impact on the degree of student participation. It will also formulate policy conclusions on efficient student participation in HEIs governance relevant in other contexts.

### Innovative Campus Concepts - Platforms for Ecosystems Suvi Nenonen Adjunct Professor, Tampere University of Technology, Finland

Universities play a key role in the innovation ecosystem. But there is a challenge: can they be strategically used, developed and managed in a more innovative and efficient way, to respond to the global challenges of education and research in a digital world? Today, universities largely react a model of higher education developed over 100 years ago. The 21st century university should be viewed not just as an idea generator but as a source of knowledge to benefit society. Setting up multidisciplinary practices and spaces on campus in partnership with industry and society can help break down traditional academic silos and drive a new culture of innovation ecosystems.

This paper presents two case studies about the collaboration environments in different campus in Finland. The focus is in the physical and digital platforms which enable university to increase the collaboration in terms of research projects. The aim in both cases has been to develop a completely new, expandable innovation campus concept, which can also serve as a visiting card for the universities.

Case 1 is Kampusareena is a shared innovation platform of companies, researchers and students in the middle of the campus area of Tampere University of Technology, Finland. Kampusareena is architecturally and technologically of high-quality, but its strongest novelty value lies in its concepts: it combines the world's best benchmarked platform concepts supporting the shared use of company collaboration and research equipment, which is based on co-creation and agile cooperation. Kampusareena is a hub of science, research and technology, dedicated to industry-university collaboration.

Case 2 is Ruusuipuisto, the newest building at University of Jyväskylä (Finland) is a learning environment that has significantly altered the way teams work, learn, research and connect. A collaborative approach was taken into account already in the design phase of the building. There was a core team including a project manager, an architect, HR and user representatives, ICT specialists and an external change management consultant during the building project. This co-creation process provides a lot of useful insights to user's future challenge and the built environment was a transcription of the education and research vision of the client. The project was not just building a building; it was also about building trust.

Case-studies are discussed in terms of people, organisations and building. The built environment can support not only today's activities in the university but also tomorrow's visions. The challenge is to identify the elements of co-creation processes and new kind of space types in order to achieve future-orientated, attractive and supportive facilities for research and innovation in university campus. Such platforms can be a strategic tool for universities to contribute to future research and development challenges.

**AUDE Higher Education Estates Management Report:  
Summary, insights and analysis spanning a decade of academia**  
Andrew Burgess  
Director of Estates, Facilities & Commercial Services, Lancaster University, UK

The UK university estate is managing an additional 500,000m<sup>2</sup> of space as well as the comprehensive refurbishment of older buildings. Despite this increase in the size and complexity of the university estate, directors of estates have worked to keep costs down, and total property cost (revenue spending) has remained relatively level for the third year in a row at £2.04bn.

The size of the University estate is difficult to envisage, but it is approximately the size of 230,000 three bedroomed houses (CABE dwelling size survey 2010[1]).

Key statistics:

Estate size increases by 500,000m<sup>2</sup> from 21,400,000 to 21,900,000m<sup>2</sup> (GIA)

Total property costs remain at £2.0bn per annum, same as previous 3 years

Income per m<sup>2</sup> (a measure of estate utilisation) continues to rise above the rate of inflation

Capital expenditure significant in some institutions:

- 20 institutions with the largest capital spend, spent 50% of the total HE sector spend
- 80% of the entire sector's capital was expended by 54 out of the 154 institutions
- Four institutions spend £100m each a year – Cambridge, Imperial, UCL, Edinburgh

There has been an increase in estate utilisation of 4% between 2014/15 to 2015/16 and has risen 14% between 2013/14 to 2014/15, as universities make every metre squared work hard to accommodate demand for world-class facilities.

The number of young people available for recruitment from the UK into universities will continue to decrease to a historic low over the next four to five years.

Capital expenditure in UK university estate reached £3bn a year for the first time, with funds spent on refurbishing old buildings and also on building newer, more carbon efficient premises to decrease running costs long-term.

Despite the large expenditure figure, the experience of most universities with capital investment will be much more modest, with many directors of estates having to make difficult decisions about what they invest in.

The demographics of the UK show that the number of people available to go to university will continue to reduce for the next four to five years to a historic low, before numbers start to recover again.

Alongside the uncertainty of Brexit, and studying in the UK a potentially more difficult process than ever before for overseas students, diving efficiency, reducing costs, improving service and increasing the commercial income from the estate will be vital for the survival of many institutions.

A key driver for the investment is the age of the university estate: approximately one third of the estate was built between 1960 and 1979 and will be at the end of its design life soon, continuing to need substantial refurbishment or replacement and demanding continued capital investment. Overall, however, with investment over recent years, the age of the university estate is now getting younger.

## Exploring the possibility to develop on methodology for the evaluation of research infrastructure: the case of Estonia

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Nowadays, the scientific research is concentrated in the Centers of Excellence in Research, where one of the major inputs for the scientific success is the existence or the participation in the high-level research infrastructures (RI). RI is extremely important for the development of a contemporary society and economy. In order to establish and maintain the long-term sustainability of RIs, there is a need to create and set up strategically well-advanced RI ecosystem, with synchronized and aligned RI funding system in it.

In the third Estonian Research and Development and Innovation Strategy 2014-2020 “Knowledge-based Estonia”, released at 2014, the Estonian government established the objective to raise the level of investment in research and development (R&D) up to 3% of GDP at 2020. However, currently the Estonian science is facing the problems with still ongoing mainly project-based funding system (approx. 73% of total funding at 2016 against approx. 20% in other developed EU countries) and rather decreasing than increasing share of public funding. On the other hand, in analyzing the performance of Estonian science during the 11 years from 2004 to 2014, it is possible to witness a remarkable growth in the bibliometric indicators of Estonian researchers. For example, based on Allik (2015), if Estonian papers were cited 17.5% less than an average paper in the world for the period 1997-2007, then for the period 2004-2014, a paper published by the Estonian scientist was cited 5% more than the world average, based on data from WoS.

With the significant help of EU structural funds, the cumulative amount of capital investments made in Estonian research infrastructure during 2005-2015 was approx. 153 millions of euros, which is more than four times over than the capital investments into buildings and land at the same time. These are the investments, which require from their end-users (i.e., universities and other R&D institutions) ongoing long-term contributions of human capital resources (who know, how to handle and manage the high-scale RI) and additional financial resources for the everyday maintenance, recovery and replacement of the existing RI. As quite soon the share of EU structural funds will diminish and finally end in Estonia, the need for a thorough methodology for assessing the use of RI arises because of the rising importance of competition-based RI funding system in the future, which helps to allocate the scarce financial resources more effectively among the end-users.

Therefore, the paper aims to explore the possibility to develop on a methodological conceptual framework for the evaluation of the efficiency and performance of the RI, based on the example of the set of RI belonging to the Estonian universities and other R&D institutions. The main research question to be asked is: How to evaluate the use of the research infrastructure and what kind of methodology and methods to use for it?

The applied study method is based on the document inquiry (OECD, ESFRI and country reports) and also on the interviews with the users of RIs and the representatives of research councils in various EU countries.

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Universities have increasingly been called upon to prove the effectiveness and efficiency with which they employ their resources. Campuses (from single buildings to a large portfolio) are key resources in the global 'battle for brains' – upon which teaching, research and the innovation for socioeconomic development depend. They encompass research & innovation infrastructure (from high-tech labs to incubators for start-ups) as well as libraries, lecture halls, offices and many other space types that facilitate an increasingly international and dynamic campus community.

So far, knowledge about "campus management" – from research or practice – does not reach many leaders, managers and policy-makers at European universities, while there is an urgent need to understand (and share) how the campuses can be used, developed and managed to meet universities' ambitions.

Campus management is a complex process which should prepare each university for the needs of tomorrow's knowledge-based economy. Many universities, however, do not oversee the financial, organisational, functional and environmental consequences of their campus decisions. Campuses can influence universities' competitive advantage by attracting and retaining talent or by efficient allocation of (public) financial resources. They may also contribute to greater productivity by providing functional environments for students and staff. The quality and quantity of campus facilities (class sizes, workplace design, availability of informal meeting spaces, etc.) influence the ways in which research and education are performed and affect the well-being of campus users. On top of that, campuses are also important for smart and sustainable development.

In Europe, where many universities own and/or use heritage buildings, the problem deserves particular attention and debate. They have inherited not only a centuries-long tradition, but also many monuments of historical importance – iconic and unique, but often very expensive to maintain and dysfunctional. Their sustainable transformation and adaptation to the changing technological, functional, environmental and social requirements is a major challenge. This challenge is even greater due to the increased student mobility causing 'brain drain' in some countries and an overwhelming number of students in others.

The decreasing amount of public funds for higher education aggravates the problem. Universities are expected to do more with less. This caused a shift in some countries from traditional publicly funded institutions to hybrid partnerships in order to encourage them to operate more efficiently. Not only in their primary processes but also in the sphere of their infrastructure (facility sharing, public-private partnerships, or space-use optimisation). In other countries, policy makers increasingly link funding to institutional performance and press to enhance real estate accountability and transparency to the primary stakeholders. Operating costs of the campus are increasing in many European countries. Not infrequently, campus maintenance absorbs around 20% of university costs, and is the second highest cost after staff salaries.

Based on our European campus research – and experience from practice – we will present campus (management) challenges that European universities are facing and will share our ambition to support HEIs leaders with a collective "campus management knowledge base", to create (more) policy-supportive, meaningful, functional, affordable, resource-efficient and sustainable places to learn, work, innovate, live and visit.