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# *Calculating Prime Costs Under the New Framework of Public Finances Accounting*

## *The Special Features of Higher Education*

**SUMMARY:** At the end of last year the government adopted the new higher education strategy. The “gear shifting” strategy in higher education was soon followed by the regulation swinging into high gear on 1 January 2014, which affected the accounting system of budgetary institutions. Accrual-based accounting was introduced in the budgetary sector, which can significantly help achieve the objectives set in the higher education strategy, creating an information base for a management-oriented governance model based on performance measurement. The possibility is now available, but the extent to which the sector can take advantage of the extra information in managing the institutional system remains to be seen. Government Decree No. 4/2013 created the possibility of prime costs calculation based on a closed accounting information base, thereby making it possible to measure the performance of each period on the basis of the actual use of resources. In addition to discussing the special features of the regulatory environment, this paper addresses the theoretical and methodological issues of prime costs calculation, including the definition of different prime cost contents for each objective and assessing the possibilities of allocating general costs.

**KEYWORDS:** public finances accounting, accrual-based accounting, prime costs calculation, cost allocation, cost structure

**JEL CODES:** M41

The funding of higher education and the efficient use of public funds require the proper measurement and assessment of performance in higher education. Cash-based accounting does not really make it possible, since only as much money can be spent as is available, which may be both too much and too little compared to the quantity and quality of the output. The money spent does not reflect the resource requirement of the performance achieved, that is, cash-based accounting cannot measure the historical cost of perfor-

mance. The new approach was made possible by the new regulation adopted last year.

### CHANGES IN THE LEGAL FRAMEWORK

Government Degree No. 4/2013 (I. 11) on public finances accounting (hereinafter: new PF Decree) entered into force on 1 January 2014, which introduced essential changes in accounting methods. In addition to modified cash-based double-entry bookkeeping, a new, “economically minded” approach based on performance has emerged, and as a result, the

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bookkeeping methods as well as the structure and content of the report will also change significantly.

### The impact of accounting changes on prime costs calculation

The need to finance tasks on the basis of prime costs arose years ago in higher education, as this allows for a more efficient use of public funds.

Cash-based accounting was unable to serve as a basis for recalculated actual prime costs on the basis of accounting data, since cash-based bookkeeping considers actual expenditures, that is, changes in cash-flow as economic events, disregarding the exact representation of costs. From this it clearly follows that expenditure and cost are not synonyms in an accounting sense but concepts having their own content. Naturally, it is true that every cost is at the same time an expense for the organisation concerned, but they may arise in different business periods, which can distort the evaluation of the performance of particular periods significantly.

By cost we mean the monetary value of the resources (materials, human resources, durable assets, used services, etc.) actually used for the performance achieved in a given period. However, there may be a temporal separation between payment and the emergence of costs, which occurs, for example, when already paid resources are used at a later time. In the opposite case, the cost may follow the period affected by the given performance, such as the use of purchased materials for a particular task before they are paid. In this case, the value of the material must be taken into account in the prime costs of a performance achieved during a prior period rather than at the time payment is made.

Thus, with cash-based bookkeeping it might happen that a performance achieved in a particular period cannot be set against the

resources actually used for this performance. Under performance-based accounting systems the separate accounting of costs and expenses is a basic requirement. The costs arising at different times are handled by accrual and deferral adjustments. Accruals and deferrals “steer” the costs – irrespective of the actual time they arise – to the period which must be taken into account for the performance concerned.

The amendment to accounting regulations as of 1 January 2014 created the possibility to calculate prime costs on the basis of accounting records in the budgetary sector and also made its use obligatory. However, the monitoring of the execution of appropriations, commitments, expenditures and revenues on a cash basis continues to be important as well. Therefore, there is good reason to call the accounting system currently in force for the budgetary sector a double-double bookkeeping method. Today 2 times 2 comes to 5 sometimes; in other words, both the legislator and the law enforcer are still learning the ropes, as evidenced by the frequent changes in regulations at the beginning of a new year. All in all, we can say that Government Decree No. 4/2013 took an important step towards measuring the actual performance of the institutions of the budgetary sector.

### Determining profit and loss and the special features of calculating prime costs under the PF Decree

Contrary to Section 47(2)b) of the Act on Accounting, Government Decree No. 4/2013 does not consider the pre-charged, but non-deductible value added tax as part of the cost value and as a result, this tax does not appear as a cost-increasing factor. Pursuant to the Decree, the non-deductible VAT should be recognised as an item directly imposed on profit and loss, that is, as an expenditure listed in

accounting group 84 among other operating charges.<sup>1</sup>

All this raises questions for determining profit and loss as well as the calculation of prime costs. The express goal of the legislator was to ensure that the business management approach is enforced in public finances as well, determining the profit and loss (realised P/L) on the basis of the principle of performance, which relies on the matching principle. Accordingly, revenues deriving from a particular performance (output) should be set against the cost arising in connection with the achievement of this performance as a profit-reducing item, i.e. expenditure. If the non-deductible value added tax (hereinafter: VAT) incurred during the purchase of resources (assets, services) is immediately accounted against profit/loss, the matching principle may be compromised. This is not a problem for determining profit and loss in the case of services used, but it may have a significant impact on asset purchases (tangible and intangible assets and, occasionally, inventories). Using the purchase of tangible assets or intangibles as an example, VAT distorts the P/L figure since these assets serve the activity of the institution for years, which has a long-term effect on P/L due their depreciation being spread over several periods. However, the non-deductible VAT appears as a profit-reducing expenditure immediately in the year of the purchase.

The accounting of non-deductible VAT as an immediate expenditure raises serious questions about the calculation of prime costs as well, and requires special treatment. On the one hand, beyond the costs accounted for the given period, the amount of the non-deductible VAT related to them should also be built into the prime costs which, according to the PF Decree, should be listed not as costs but as expenditures. This may appear to be only a technical issue, given that the VAT recognised among expenditures should also be added to

the prime costs in addition to costs. However, it may give rise to serious accounting problems to decide what method should be chosen for the treatment of non-deductible VAT when tangible and intangible assets are purchased. In theory, the solution would be to divide the amount of the VAT between the periods which are affected by the depreciation of the given asset. However, this is cumbersome and imposes a severe administrative burden on the calculation of prime costs, not to mention the fact that it would also compromise the theoretical correlations between the calculation of prime costs and profit and loss. Furthermore, the regulation does not make this option possible since it defines the content of cost value, and the statement on costs and recovered cost to be prepared as part of the financial statements does not consider the non-deductible VAT as part of the prime costs either. If we add to all this that the budgetary institutions typically provide tax-free services, it is obvious that we are dealing with a significant, sizeable factor that has an impact on profit and loss. We believe that the PF Decree should be amended and, in accordance with the provisions of the Act on Accounting, the non-deductible VAT should be accounted as part of the cost value.

In the previous section we highlighted the peculiar treatment of non-deductible VAT in the PF Decree; however, this problem can be extended to other areas since the decree stipulates that other items should be accounted directly against the P/L, that is, it significantly reduced the range of items that can be taken into account for the content of the cost value of assets.<sup>2</sup>

## THEORETICAL QUESTIONS OF THE CALCULATION OF PRIME COSTS

The legal framework of the accounting system defines the obligatory requirements for the financial accounting system of each economic

entity (enterprise, budgetary institution, etc.). However, the efficient operation of an organisation requires information that goes beyond what appears in the financial accounting system, which can be ensured by “customising” the managerial accounting system of the organisations. In this area it is much more difficult to detail the mandatory, externally specified requirements. One of the salient areas of managerial accounting is cost accounting and the calculation of prime costs, which are determined, to a large degree, by the nature, structure and the internal decision-making mechanisms of the given organisation, as well as the system of rights and responsibilities. In other words, no matter how prepared the economic experts are in matters of legislation, “without knowing the business well” they cannot create an efficiently functioning management information system, including a system of prime cost calculation with adequate content. What can be defined as an objective – to meet the legitimate need for information and ensure that comparable prime cost data are available within specific areas and sectors – cannot be more extensive and more detailed than a kind of “sectoral guidance” designed to define the content of the methodological issues of the specific prime cost calculation to be carried out.

When presenting the goal, the subject and the tasks of managerial accounting, it is absolutely important to mention the three most important guiding principles that should be followed in managerial accounting (Horngren et al., 2006, p. 11). On the one hand, the principle of cost-benefit must be applied consistently; in other words, the benefit of the information created should exceed the cost of creating it. On the other hand, efforts should be made to ensure that behaviour-oriented and professional aspects and correlations are strongly considered. Thus, managerial accounting should consider the conduct of indi-

viduals and the organisation, their response to particular accounting procedures and methods (such as cost allocation, performance measurement) and the possibilities of technical implementation, and the creation and transmission of information that best suits the need of management in terms of content, form and timing. Thirdly, we need to highlight the enforcement of the principle of “different costs for different purposes”, which emphasises that we think in terms of different models in different decision-making situations and the models work with disparate concepts of cost. This can obviously be extended to all accounting concepts, in addition to cost, including the effort to create consistent accounting information by means of the decision-making models (Bosnyák et al., 2010, pp. 16–17).

#### The cost structure of the cost bearer – the importance of cost allocation

First of all, the cost bearer should be identified; in other words, the facility (product, service) created which has positive usefulness for all the actors, that is, it can generate revenues for the institution of higher education.

At the first approximation, this does not appear to be a difficult problem since the performance of higher education is embodied by teaching and research results. It is relatively easy to identify additional, distinct cost bearers within teaching performance since specific training programmes appear as independent “products” among the various courses offered by the institutions of higher education, which are required by law – through the definition of training and output requirements – to be distinctly separable, even if we just simply think of the required characteristic difference between the various courses. This means that it is the training programmes that represent the unique, distinct set of cost bearers of the

institutions of higher education, which appear as “products” to students offered by higher education.

Pursuing research activity is indispensable for meeting the expectations of the labour market and providing teaching that keeps pace with international trends. However, it is more difficult to identify research activity – as an independent cost bearer –, as in many cases the “products” offered in the “higher education market” cannot be sold directly; rather, they typically represent performance that generate returns through teaching. Obviously, there are research activities which directly generate revenues, typically classified as R&D&I. It is relatively easy to identify the research projects as independent cost bearers. However, since basic and applied research is not the kind of activity that the market recognises directly, questions regarding their funding sources are legitimate, which obviously has an impact on the prime cost content of training – as a cost bearer –, which should be carefully worked out as a basis for funding in higher education.

Considering all this, the outlines of the first question to solve begins to emerge: which areas of research can be treated as an independent cost bearer, which may be supported by independent funding sources, and in what ratio research should generate returns within strict training costs?

Before dwelling deeper into this range of issues, let us review cost bearers and costs in terms of the methods that can be used for accounting them and the methodological background in order to gain an understanding of the role of designating cost bearers for prime cost calculation. *Chart 1* illustrates the relationship between costs and cost bearers.

Costs that arise for the creation of a direct cost bearer for a given organisation are considered as direct cost. For the purposes of prime cost calculation, these represent the costs that are charged to a particular cost

bearer in an identifiable manner immediately as they arise.

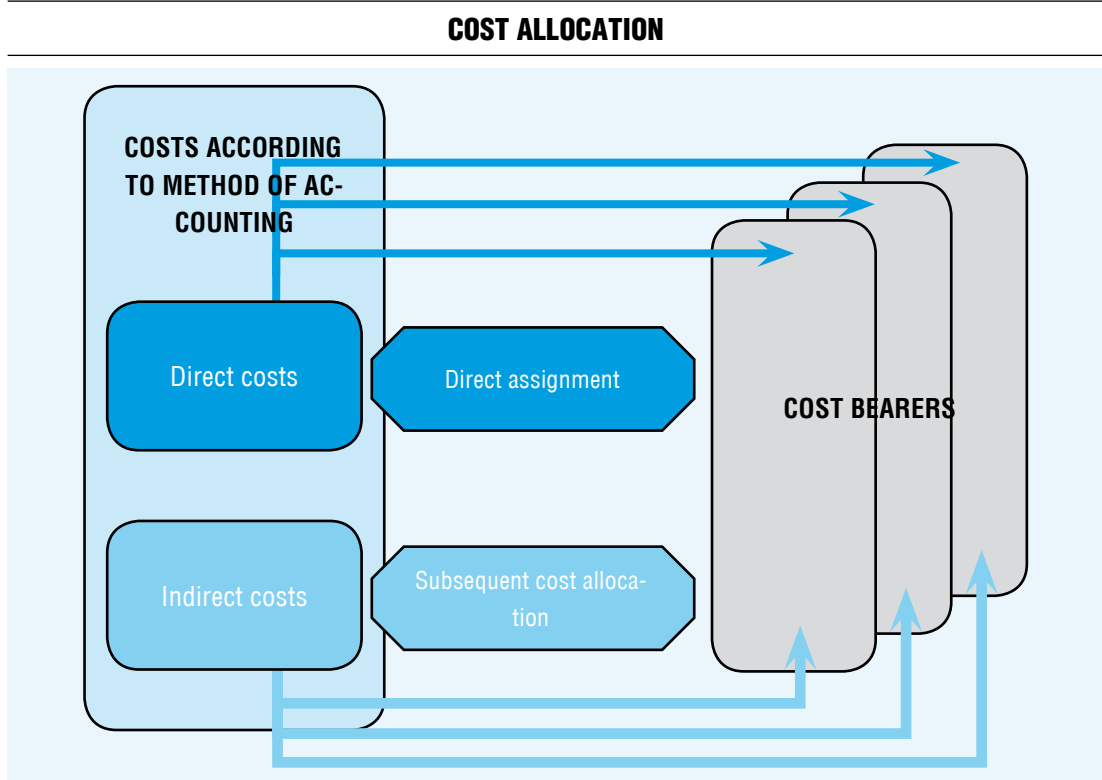
However, the subsequent charging of indirect costs to the cost bearers gives rise to severe methodological problems. It is not indifferent how indirect costs are monitored and separated from one another. It is also important to know what benchmarks (projection bases, cost features) are selected and measured for the separated indirect costs to be able to charge them to the cost bearers as accurately as possible with as little estimation inaccuracy as possible in accordance, when appropriate, with the cause and effect principle. Of course, the higher the ratio of indirect costs within total costs at the given organisation, the more emphasis is given to the methodological issues of the monitoring and subsequent allocation of indirect costs since the accuracy or the inaccuracy, for that matter, of the allocation of prime costs is dependent on this.

If we take into account that personnel expenses should be regarded almost fully as indirect costs at the institutions of higher education – that is, the personnel expenses cannot be directly charged to the training programmes – then we can conclude that about 40–50 per cent of the total costs are indirect costs.

Besides personnel costs, the other key cost category is the group of non-personnel expenses (materials, services used, etc.) which can also be regarded largely as indirect. *Table 1* shows the distribution of non-personnel costs at Corvinus University of Budapest.

It is obvious that only a small part (7 per cent) of non-personnel expenses arise directly in training.

Based on this, the classification of the accounting method of costs (both direct and indirect) clearly shows that we are facing a great challenge in higher education when it comes to the methodological questions of prime cost calculation. Through an inadequately designed allocation system and potentially inappropriately



Source: Bosnyák et al., 2010, p. 42

selected cost features – as parameters serving as a basis for allocation – the extremely high ratio of indirect costs can severely distort the identification of the prime costs of training.

### Methodological questions of prime cost calculation and cost allocation

Obviously, indirect costs can be monitored according to various criteria, and the methods of cost calculation and allocation may considerably differ from one another also in respect of the cost drivers selected for the allocation of indirect costs. Many factors influence which calculation method should be selected within a particular organisation. There are simpler, more traditional cost calculation methods, which divide indirect costs into a relatively small number of categories, typically into cost centres. They are

then allocated to cost bearers using a relatively small number of quantity-oriented cost drivers. These cost drivers are generally based on the volume of performance measured in some in-kind contribution or the quantity of resources used for a given activity (student number, number of public officials, floor space, etc.).

In addition, there are more precise methodological solutions, such as the *activity-based costing* procedure, which identifies the activities that are necessary for the creation of the cost bearers and groups the costs assigned to these activities. This procedure seeks to identify a pair of activity-cost bearer for each activity, using it and the quantity used by each cost bearer to measure the needs of each cost bearer for the activities as well as the eligible costs charged to the given cost bearer out of the costs related to these activities (for example, the number of student applications in the case of the registrar's

Table 1

**DISTRIBUTION OF NON-PERSONNEL EXPENSES AS THEY OCCUR**

Name	Distribution (%)
Operation, Information Technology, Library, Administrative-economic area, other service provider functions	83
<i>of which: PPP</i>	48
Direct non-personnel expenses of training programmes	7
Non-personnel expenses charged to tenders	7
Investment projects	1
Non-personnel expenses of R&D	1
Non-personnel expenses charged to student appropriations	1
<b>Total</b>	<b>100</b>

Source: CUB, 2011–based on the institution’s Financial Statements for the first half of 2014

office or the number of public procurement procedures and the number of individual procurement requests in the case of procurement costs, etc.) (Braun et al., 2010).

At the same time, it is very important to emphasise a principle mentioned before, namely, the enforcement of the cost-benefit principle, which stipulates that the benefit of the information created may not be less than the cost of creating the information. In other words, we need a cost calculation system by which we can reach a level regarding the accuracy of data where the operation of the prime cost calculation system does not cost more than a situation in which the prime costs of a cost bearer may not be “mathematically accurate.”

We can distinguish prime costs of different content depending on the range of indirect costs the given prime cost category contains in addition to indirect costs. Obviously, in different decision-making situations prime costs with a different content should be used as a basis for the decision. For instance, the decisions should be based on different prime cost contents for short- and long-term decisions or the full utilisation of capacities and free capacities.

Chart 2 shows the structure of the different prime cost categories. The concepts used

in the chart may seem to be foreign to higher education and may appear to represent the special features of the production sector, but these concepts are easily applicable to the institutions of higher education as well.

Once the training programmes are identified as cost bearers, we should approximate the production cost category of the previous chart to higher education. For production companies, this category includes the costs closely related to the manufacturing of products besides direct costs, which can be brought physically close to the production of the product to some extent but they still cannot be directly assigned to them. This group includes costs arising in the “operational area” but which cannot be regarded as administrative costs or costs directly serving sales.

In higher education, the HR wage and contribution costs related to teaching should definitely be classified into this category, which generally cannot be directly assigned to a particular training programme on the basis of the structure of training.

The following may be regarded as belonging to production costs related, by necessity, to training:

- laboratory cost,
- library costs,



- the costs of information technology services,
- etc.<sup>3</sup>

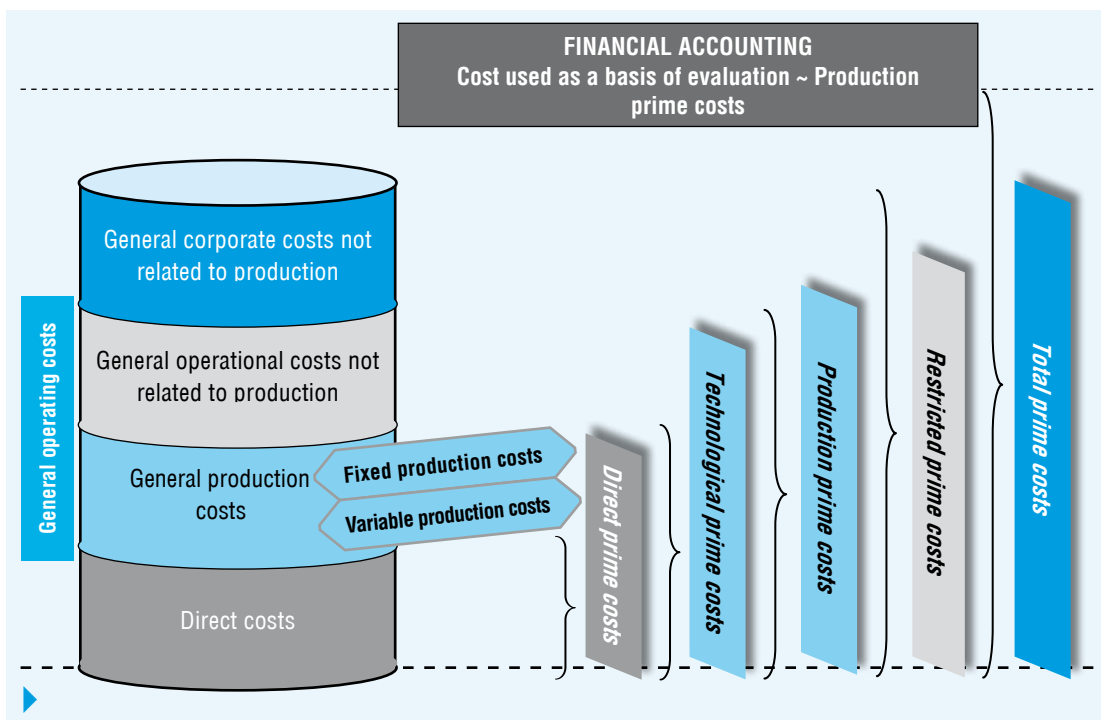
including material, wage, contribution, depreciation and all other costs.

However, some of these latter indirect costs should be captured separately from the HR costs of training, that is, not at the level of the faculties which provide the organisational basis of the institutions of higher education. In view of their special nature, it is expedient to separate library and IT costs within the organisation as units for cost monitoring. Using classical technical terminology, these should be seen as “affiliated plants” operating in addition to “main plants”, which are indispensable for the creation of the performance produced by the organisation. By “main plant” we obviously mean the faculties performing teaching activities and by “affiliated plants” operation, in addition to the library and IT services men-

tioned before, which I consider to be another important cost centre. These units may be collectively regarded as internal service provider units which, of course, can generate revenues on their own. The library may provide market-based services for external market participants or may also operate as a public library which may receive resources through independent funding channels (state subsidy) using the costs of the public library function as an independent cost bearer. The IT services may also have some free capacity that can be sold on the market. Similarly, the revenues collected from the utilisation of free infrastructure capacities can also generate returns on the maintenance costs of the infrastructure in order to reduce the costs of the training programmes operated by the organisation, that is, to reduce the prime costs of training to minimise the level of fixed costs arising from unused capacities.

Chart 2

**PRIME COST CATEGORIES**



Source: Bosnyák et al., 2010, p. 85



It is at this point that the question of capacity utilisation arises in connection with prime cost calculation. The variable and, obviously, fixed costs which generate returns by utilising free capacities can reduce the size of costs to be borne by the cost bearers – in higher education, the training programmes – that belong to the standard portfolio of the organisation.

Hereinafter these cost centres will be referred to as service provider cost centres – those required to bear the costs arising in a given period reduced by the revenues generated by the cost bearer (the training programme) under some other title (for example on a market basis).

If we are to capture the full content of the prime costs of the cost bearers, we need to build into the prime costs the indirect costs arising in administration and other areas in addition to the previously mentioned indirect faculty and service provider costs – that is, the “production costs” (Atrill – McLaney, 2010). Returning now to Chart 2 and analysing it according to the special features of higher education, the term “general operational costs not related to production” refers to the activities of the faculty registrar’s office and financial administration, while “general corporate costs not related to production” mean the campus-level administrative costs as well as the expenses of the Rector, the Rector’s Office and the Economic organisation. These indirect costs can be collected at the designated cost centres and charged to the training programmes as cost bearers, using the specified cost drivers. These cost centres will be referred to as functional units in the rest of this paper. *Chart 3* provides an overview of the cost allocation mechanisms that can be used to channel costs to the cost bearers in an organisation encompassing several campuses and several faculties on each campus, which runs several different training programmes within each faculty.

The calculation scheme of the total prime

costs of training can be determined in accordance with *Table 2*.

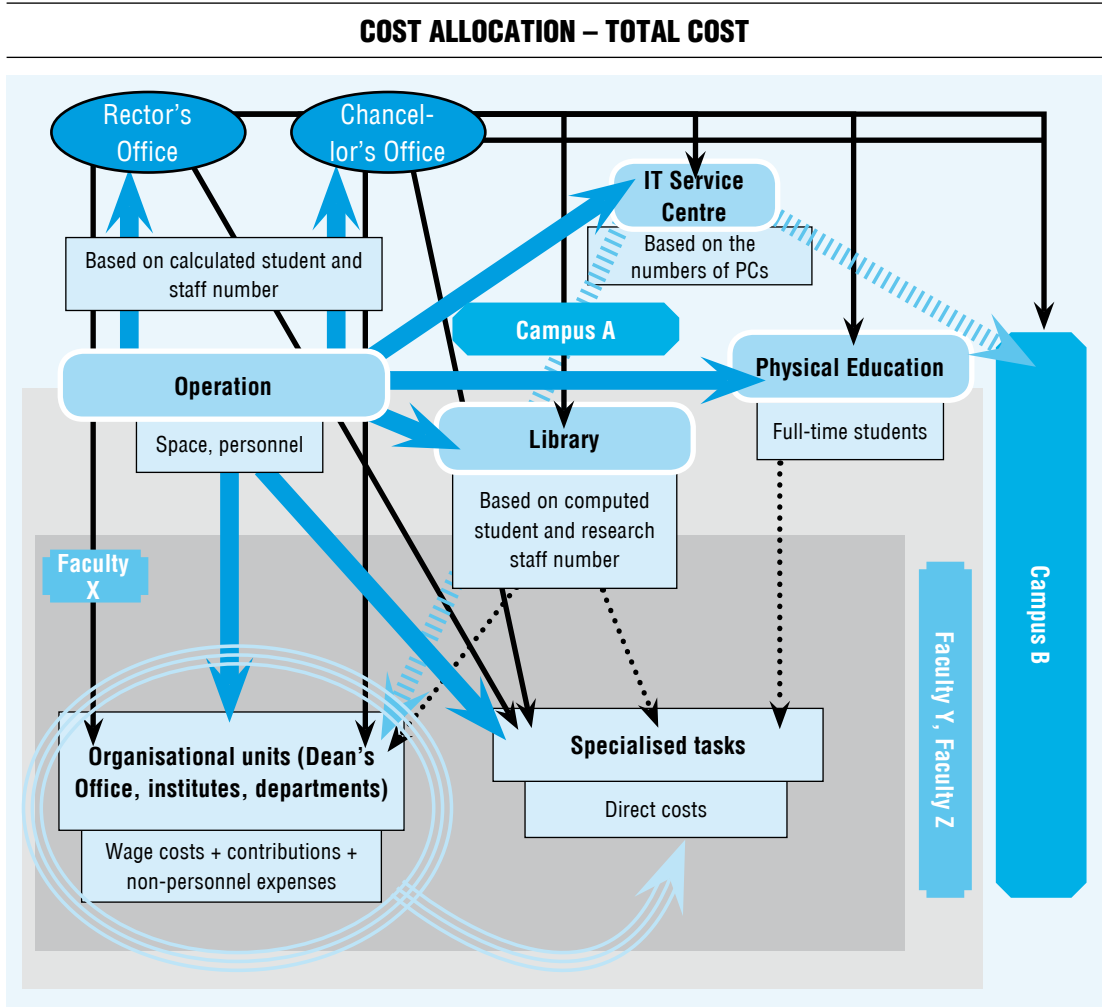
There are several other factors stemming from the special operational features of the given institution of higher education which can be built into the calculation scheme.

The calculation scheme does not reflect the important criterion mentioned before that the costs recognised for training should, if appropriate, include the costs of research pursued at the given institution. Viewed from the other side of the coin: to what extent can the costs be assigned to a particular research activity as a cost bearer generating independent revenue or an entity supported by the institution by its own resources?

The size of the research activity coupled with the generation of independent revenue will be treated in later sections on the basis of empirical data for the disciplines under analysis. This presages our claim that in specific disciplines different parts of the research activities can generate returns by independent revenues and be assessed, as a result, as independent cost bearers separated from teaching.

### Prime costs as the base for funding

The efficient use of public funds can be improved significantly by a transition from funding based on normative subsidies to task-based funding. The developments seen in higher education in 2010 are the first signs of a shift towards prime costs-based funding. For the BA and MA training programmes commenced on 1 September 2012 and thereafter, Government Decree No. 50/2008 (III. 14.) on the funding of the training and research activities pursued by institutions of higher education on the basis of normative subsidies was supplemented by Annex 2, which defines the respective training budgets for specific training areas (HUF thousands/head/year). The budg-



Legend:

- step 1:
- step 2:
- step 3:
- step 4:
- step 5:

Source: own editing

ets were defined by the legislator on the basis of the training prime costs provided by the institutions of higher education for the proprietor based on the data recorded at the end of 2010. However, the real economic content of these prime cost data is rather questionable in the case of several training programmes. One of the reasons is that the purpose of using the

prime cost data was not specified accurately. The detailed funding concept of the proprietor for higher education was unknown at the time, and remains unclear even today.

Referring back to a quote in an earlier section, it is necessary to define “different costs for different purposes.” In addition to the different costs charged directly to the given cost bearer

Table 2

<b>CALCULATION SCHEME OF TRAINING PROGRAMMES</b>
Direct material costs of training
Direct costs of training arising from using services
Direct wage costs of training
Direct contribution costs of training
Depreciation of training
<b>Direct prime costs of training</b>
Costs of materials and services used allocated for training at the faculty level
Lecturer/researcher wage costs allocated for training
Contribution cost of lecturer/researcher wages allocated for training
Operating costs allocated for training
Library costs allocated for training
IT service costs allocated for training
Costs allocated to cost centres for training which support other teaching and research activities
<b>Adjusted direct costs (“production costs”)</b>
Costs of administrative and economic organisations allocated for training
<b>Total cost of training</b>

Source: own editing

from direct prime costs to full prime costs, the content of prime costs may include various indirect costs that inevitably arise during the performance of the activities depending on the decision-making situation in which the information on prime costs should be used. Discussing prime costs as the basic factor for funding immediately raises the question of pricing supported by managerial accounting information. The prime cost content on which decisions are based is entirely different in pricing situations involving special customer orders related to performances (products and services) in the short-term, long-term and standard portfolios (Weetmann, 2010). The picture is made even more subtle by the question of capacity utilisation, since full capacity utilisation or the existence of free capacities may determine the content along which the prime costs that are used for the pricing of the product or service are specified for the right decision (Atrill – McLaney, 2010).

Another special feature of funding in higher education is that funding, i.e. pricing should be established on a non-profit basis. If the prime costs are incorrectly specified in the pricing based on prime costs – for example, they are undervalued –, at the outset it will not result in smaller calculated profit but it will immediately create an underfinanced situation which will promptly lead to operational problems and insufficient liquidity.

As far as the prime cost content of the training as the basis for funding (pricing) is concerned, it is an open question as to what extent the proprietor intends to finance research through independent channels separated from the prime costs of training.

While in recent years institutions of higher education have received state subsidy under three legal titles (Training, Research, Maintenance) – with the amounts under the Research and Maintenance titles constantly decreasing –, in 2014

the institutions were granted state subsidy only under the training title, which was determined on the basis of the prime costs data announced by the institutions in accordance with Annex 2 to Government Decree No. 50/2008. This suggests that the proprietor interprets the prime costs data published by the institutions as total prime costs which include, in addition to the direct costs of teaching activities, all the costs that arise for the institution except for the market-based research (R&D&I) costs and the expenses of research financed by public procurement funds. If the proprietor wishes to develop this form of funding in this direction over the long term, the prime costs of training should include all the costs that arise for the institution. However, it should definitely be considered whether basic and applied research should really be financed through the prime costs of training, through students, when the output of this research activity is often uncertain (which does not necessarily qualify the research activity of the institution), it is a specificity of such research that success “cannot be safely assumed in advance”. In my view, this aspect of research should definitely be treated and funded as an independent cost bearer separated from training, for which the proprietor should provide dedicated funds.

### THE EMPIRICAL STUDY OF REVENUE AND EXPENDITURE STRUCTURE IN INDIVIDUAL DISCIPLINES OF HIGHER EDUCATION

Before we define the content of prime costs that provide the basis for funding, we should examine the structure of the revenues and expenses (costs) of the various disciplines on the basis of empirical data. Data for the empirical analysis are provided by the reports of Corvinus University of Budapest (hereinafter CUB) for the period between 1 January 2011 and 30 June 2014. Since the various faculties of the institution run

training programmes in food sciences, horticulture, agrarian engineering, business management and social sciences, the analysis includes assertions in respect of these special areas.

### Revenue structure in the examined disciplines

*Table 3* shows the revenue structure of CUB by faculty between 1 January 2011 and 30 June 2014. The data show the average values of 3.5 years, which helps filter out the feature of the cash-based accounting method mentioned before, due to which the revenues are not necessarily realised financially in the period in which they actually should be in a financial sense, that is, based on the actual performance of the service rendered. The mean can largely filter out this temporal deviation and is at the same time suitable for “mitigating” the outliers that might arise, for example, from deviations between periods of state subsidy or some extraordinarily high revenue collected from a tender awarded.

When examining the revenue structure of the past 3.5 years it can be established that the revenues in the business management, economics and social sciences areas mainly come from teaching, while funding from tenders tends to have a more significant contribution to resources in the agrarian, food sciences and horticulture areas. Obviously, this difference should be taken into account when the content of the prime costs of training is specified for individual disciplines, as has been suggested before. In the business management and social sciences area, research activities are required to generate more returns on teaching activities, that is, on the total prime costs of training. Apparently, neither tender opportunities, nor direct corporate R&D&I orders can ensure the resources of research that is indispensable for the quality of teaching. It should be noted that typically limited basic and applied research is

being pursued in these areas and most of the research activities actually serves the provision of up-to-date knowledge in teaching, which requires less material and equipment and ensures more direct returns on training costs through the services provided in teaching than in the area of the sciences.

Accordingly, it can be safely said that the ratio between personnel and non-personnel costs to be built into the prime costs should be determined differently for each discipline and, following the principle of funding based on prime costs, it should also be decided what should be financed directly by the proprietor and the students participating in fee-paying training programmes.

### Cost structure in the examined disciplines

Chart 4 shows, as an average of the 3.5 years under review, the distribution of indirect costs directly assigned to the training programmes

of each training area, as well as the indirect costs of service provider units charged to training in cost allocation and the indirect costs of so-called functional units related to the administration; that is, the cost structure of the training programmes.

The table shows that the ratio of indirect costs is very high in each training area. The eligible costs that can be directly charged to the trainings represent a negligible share in their cost structure.

The non-personnel costs account for most of the prime costs for each faculty, followed by the indirect costs allocated from the service provider units to training, and finally by the indirect costs of financial and administrative areas.

The analysis of the cost structure shows that the definition of the prime costs of individual training programmes is largely dependent on the methodology used for the allocation of indirect costs, as has been demonstrated before, since the costs to be recognised by cost distribution represent a high share in total prime costs.

Table 3

### REVENUE STRUCTURE BETWEEN 2011 AND 30 JUNE 2014

Revenues	Faculty of Food Sciences %	Faculty of Horticultural Science %	Faculty of Landscape Architecture %	Faculty of Business Administration, %	Faculty of Economics %	Faculty of Social Sciences %
<b>State subsidy</b>	<b>58,55</b>	<b>62,33</b>	<b>68,81</b>	<b>42,63</b>	<b>54,76</b>	<b>58,50</b>
<b>Own revenue</b>	<b>41,45</b>	<b>37,67</b>	<b>31,19</b>	<b>57,37</b>	<b>45,24</b>	<b>41,50</b>
<b>– of which: education</b>	<b>16,58</b>	<b>11,51</b>	<b>7,74</b>	<b>49,38</b>	<b>40,98</b>	<b>30,41</b>
– of which: tenders	11,66	22,15	19,31	5,50	3,20	10,25
– of which: R&D	5,39	0,82	0,03	0,83	0,39	0,00
– of which: other invoiced revenues	4,04	2,16	2,80	0,30	0,20	0,17
– of which: other	3,77	1,03	1,31	1,36	0,46	0,68
<b>TOTAL REVENUE</b>	<b>100,00</b>	<b>100,00</b>	<b>100,00</b>	<b>100,00</b>	<b>100,00</b>	<b>100,00</b>

Source: own editing

This paper examined the cost structure of specific training areas and did not address the prime costs and the cost structure of individual training programmes. The legal regulation stipulates programme-level calculation, requiring that the institutions should treat the training programmes as independent cost bearers within each organisational unit, which underpins the significance of the method selected for

cost allocation and the projection bases (cost features) used in cost distribution.

## CONCLUSIONS

In order to ensure the implementation of prime cost-based task funding for training, which equally satisfies the needs of the propri-

Table 4

### COST STRUCTURE BETWEEN 2011 AND 30 JUNE 2014

Expenditures	Faculty of Food Sciences %	Faculty of Horticultural Science %	Faculty of Landscape Architecture %	Faculty of Business Administration %	Faculty of Economics %	Faculty of Social Sciences %
<b>Direct expenses of training (personnel, non-personnel, etc.)</b>	<b>5,1</b>	<b>4,8</b>	<b>5,9</b>	<b>10,8</b>	<b>16,1</b>	<b>7,6</b>
<b>Indirect personal expenses of the Faculty's training programmes</b>	<b>52,7</b>	<b>53,8</b>	<b>57,2</b>	<b>38,9</b>	<b>58,0</b>	<b>44,4</b>
<b>Cross teaching(+/-)</b>	<b>-0,5</b>	<b>-0,4</b>	<b>1,9</b>	<b>7,1</b>	<b>-16,0</b>	<b>4,7</b>
<b>Indirect non-personnel and accumulated expenses of the Faculty's training programmes</b>	<b>15,5</b>	<b>17,2</b>	<b>7,5</b>	<b>7,2</b>	<b>5,8</b>	<b>4,2</b>
<b>Maintenance of service provider units (indirect costs allocated to the faculty)</b>	<b>18,6</b>	<b>15,6</b>	<b>17,0</b>	<b>24,4</b>	<b>26,4</b>	<b>27,1</b>
– of which: Buda Campus operation, library	15,4	13,0	14,3	0,0	0,0	0,0
– of which: Financing the operation of the Pest campus	0,0	0,0	0,0	17,2	19,0	18,9
– of which: Central Library	0,0	0,0	0,0	3,7	3,1	4,0
– of which: IT Service Centre	2,4	1,8	1,7	1,9	3,2	2,5
– of which: Physical Education Department and University Sports Centre (Pest/Buda)	0,7	0,7	1,0	1,4	1,1	1,6
– of which: Printing Press	0,00	0,00	0,00	0,02	0,01	0,02
<b>Maintenance of central functional units (cost centres)</b>	<b>8,6</b>	<b>9,0</b>	<b>10,4</b>	<b>11,6</b>	<b>9,7</b>	<b>12,1</b>
– of which: General Economic and Financial Affairs Directorate	4,1	4,3	4,9	5,6	4,6	5,7
– of which: Centre	3,4	3,5	4,1	4,6	3,8	4,7
– of which: financing other indirect costs	1,1	1,2	1,4	1,5	1,3	1,7
<b>TOTAL EXPENDITURES</b>	<b>100,0</b>	<b>100,0</b>	<b>100,0</b>	<b>100,0</b>	<b>100,0</b>	<b>100,0</b>

Source: own editing

etor and the institutions, there are essentially three questions to be answered.

Can research as an independent cost bearer appear – and if it can, to what extent – among the activities identified for the institutions of higher education? The preconditions for this are the independent revenue sources which can be assigned to research activities and can finance the associated costs. This revenue may be market-based which, rather than being a matter of decision, is primarily determined by market demand. The other source, obvious-

ly, is the state subsidy provided for research, which is a component that needs to be specified in the funding concept of the proprietor.

The next challenge is to create a cost allocation methodology that can properly allocate indirect costs (which represent a very high ratio in the cost structure) to trainings, in line with the cost-benefit principle.

This requires a properly designed IT system necessitated by the organisational structure of the institutions and the large number of cost bearers, that is, training programmes.

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### NOTES

<sup>1</sup> Section 26(11)c) of Government Decree No. 4/2013

<sup>2</sup> Cf. Section 47 of the Act on Accounting and Sections 15–16 and Section 1(1)7) of the PF Decree

<sup>3</sup> Due to the nature of the training programme, this group may also include costs not identified here.

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### LEGAL REGULATIONS:

Government Decree No. 50/2008 (III. 14.) on funding higher education institutions based on an education, science and maintainer-dependent formula

Act C of 2000 on Accounting

Government Decree 4/2013 (I. 11.) on the Accounting of Public Finances