

**“Management information systems:
the Balanced Scorecard in Spanish Public Universities”**

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Abstract.

Organisations are becoming increasingly aware of the need for management information systems, due largely to the changing environment and a continuous process of globalisation. All of this means that managers need to adapt the structures of their organisations to the changes and, therefore, to plan, control and manage better.

The Spanish public university cannot avoid this changing (demographic, economic and social changes) and globalising (among them the convergence of European qualifications) environment, to which we must add the complex organisation structure, characterised by a high dispersion of authority for decision making in different collegiate and unipersonal organs. It seems obvious that these changes must have repercussions on the direction, organisation and management structures of those public higher education institutions, and it seems natural that, given this environment, the universities must adapt their present management systems to the demand by society for the quality and suitability of the services they provide.

Keywords: management accounting, balanced scorecard, public universities.

JEL Classification: M41, M49.

1. Introduction

Management information used as a planning and control system has become more important with the passage of time within the organisations, among other reasons due to a growing need to manage the actions of the different individuals who are part of the organisation (Merchant, 1982: 43), and also to be flexible and adapt to the new environments which are increasingly uncertain and variable. Among the main causes of

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that uncertainty are the constant changes in the environment, growing competition and the internationalisation and globalisation of markets. For all those reasons the directors and managers of the organisations need maximum information, in terms of quantity and quality, about the situation of the organisation at all levels (internal and external), and about the efficacy and efficiency of the use they are making of their resources. In order to survive, therefore, the organisations have to develop flexible and up to date information instruments or techniques, such as control systems, adapted to the new circumstances (Amat, 1994: 98), which must be linked to the strategic planning process (Palmer, 1992: 179).

Management information has evolved over time, adapting to the changes in the environment, so that now the information systems based on that management accounting must include, first, monetary indicators based on financial, cost, budget and planning accounting, but also non-monetary indicators which provide information about variables which are difficult to quantify but which condition, or can condition, the smooth running of an organisation (AECA, 1999). These information systems, based on monetary and non-monetary indicators, must serve to assess to what extent an organisation is achieving the goals it has set itself. Nevertheless, some authors (Hopwood, 1972; Merchant, 1982) have also asked to what extent management control is possible in increasingly changing and uncertain environments, and if its application compensates. In these circumstances the need for management accounting to progress in accordance and in consequence with the characteristics of the company environment is evident, and that is why this discipline is currently showing new developments.

The economic globalisation process which began in the 1980s and is at an advanced stage of consolidation requires the economic and social agents in general and the public sector in particular to make an extraordinary effort to improve their parameters of efficiency over the whole range of their activities, since that is the only way to secure the foundations of the economic and social progress of a country (López, 2000). Over the eighties public management grew strongly (Kapil and Kekkonen, 1990). Today, a worldwide movement that tends to improve public management through the use of management concepts, tools and techniques still persists with great force. Many of them were originally developed by and for the private sector, although it must be assumed that this extrapolation might not be sufficient (Metcalf, 1993).

The sphere of the universities has not escaped this globalising environment. At present, Europe is tending towards a new university model. In the next few years the Spanish university will have to adapt to the so-called European Space for Higher Education, but the problem is that in the European Union there is still no convergent university model, and no-one really knows where it is all heading. The Spanish government has provided in law for the adaptation of the university organisation to the future European rules and structures (LOU 2001: articles 87-89). It is thus thinking of adaptation to the system of levels, calendar, type of subjects, the length of the studies and the qualifications they provide. For the time being the aim in Europe is not to create a single type of university or higher education, but to respect all kinds of models in the member states within a space that allows for cooperation.

The other essential change in the Spanish University is that it must decide, in agreement with most European countries, if it is going to continue with the professional model of university or if it has to change to a universal, generalist system. At present, there is a mixed model, with most of the education professional, and some more general degree courses providing extensive, multifaceted knowledge. The meetings of European university chancellors at the end of the 20th century (such as the Bologna, Prague or Berlin declarations) serve to define that generalist model (De Miguel, Caïs and Vaquera; 2002). And so it is evident that the social and economic environment of the university

and higher education is becoming far more complex and dynamic than in earlier periods, where the predominant factors were stability and simplicity (Mintzberg, 1988). In that sense the present direction, organisation and management systems of the universities often become inefficient and inoperative because they were conceived to provide a response to a far more simpler and stabler environment. Governments' university policy instruments, on the one hand, and organisation and management of the university institutions on the other must be reviewed and improved to be more effective and efficient and to provide a suitable response to the new challenges of the environment (Vilalta, 1999). The environment demands strategic management of the higher education institutions and quality and adaptation of the university services, and so it is essential to define goals, inform society of them and be increasingly noted for the quality and suitability of the university service.

The aim of this study is to find out about the situation of the management control tools used by the Spanish public universities. To do so, it has focused on discovering the degree to which management control instruments have been introduced into these organisations and developed a descriptive analysis of the control systems used by the public universities globally and according to the size of the university, calculated according to the volume of revenue and the number of teaching and research staff.

2. Methodology used in the empirical research

The methodology used to carry out the empirical study has been based on the use of a standard questionnaire sent by e-mail to all the Spanish public universities. 20 valid questionnaires have been received, which represents a response rate of 40%. These response rates may be considered representative of the sample, since in Spain the most usual percentage in empirical studies can be set at around 15% (García Benau, Humphrey, Moizer and Turley; 1993: 281). The questionnaire used contains closed questions and to a lesser extent open ones. For processing the information obtained from the questionnaires we have chosen to tabulate the answers by means of a bivariable analysis, expressing their relations with the contingency tables. This type of study is very useful for studying the relations between variables taken two by two (Pedret, 1997: 31). For easier analysis of the results, the first step was to classify the universities as small and large according to two variables: the number of full-time teaching and research staff carrying out their activity in the university analysed and the number of students studying there. The reference value 1,200 has been used for the number of teaching and research staff and 25,000 for the number of students. And so the universities with up to 1,200 teaching and research staff and 25,000 students are considered small universities and the ones with more than 1,200 teaching and research staff and 25,000 students are considered large ones.

3. Management information in Spanish public universities

When the university managers were asked about the goals of management information (scaled from 5 to 1 according to their importance, from greater to lesser), in the university sphere it is seen (see figure 1) that for most of those polled the basic function of their management systems is focused on planning and control. As variables that come next in importance, they emphasise that the information should be useful for taking decisions and for the university, while the fact that this information can be used to calculate costs and results is relegated to second place. And so at first glance it seems that at present the cost information systems are underused and underdeveloped in these

universities.

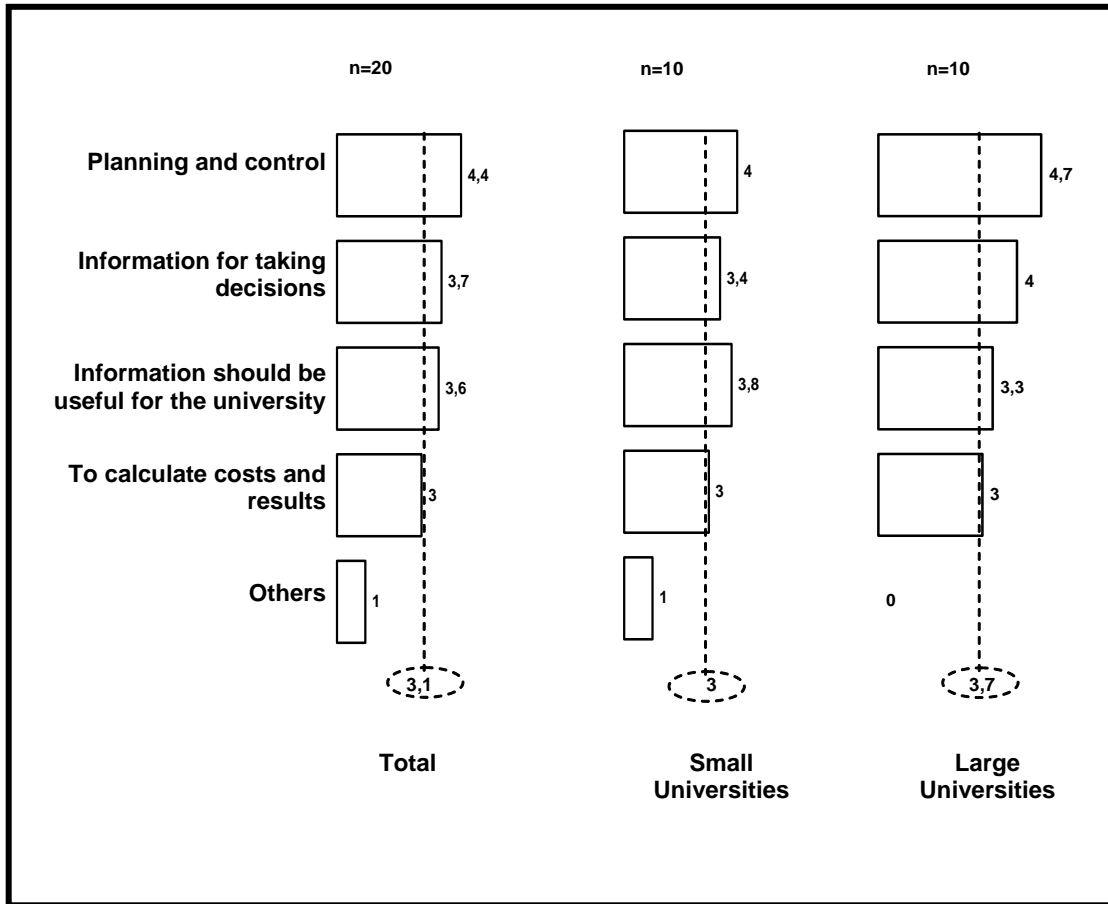


Figure 1. Goals of management information

3.1. Cost information

As one goes more deeply into the subject of cost systems and the managers are questioned about the use they currently attribute to the information coming from them, the intuition that cost information is poorly developed is confirmed. Indeed, we find that only a small percentage, 20% to be precise, of the universities included in the universe which is the object of study regard that the usefulness of that cost information as high at present. Meanwhile, 50% consider that its usefulness is low and there is even a 5% who consider that their cost information is of no use at all. Which seems to confirm the need for improvement of the cost systems, regardless of the specific one used at present by each of the universities included.

Indeed, in most of the cases dealt with, it seems that the problem in terms of cost information is the lack of developed cost accounting systems. Specifically, only 21.1% of the universities analysed have formal cost systems, which explains the evident current lack of usefulness of those information systems. However, we should mention that most of the managers who have taken part in the process have pointed out that the availability of these cost systems is one of the most evident needs that must be met in the short term; some are even now involved in developing and setting up tools of this type.

Of the universities which do have a cost system developed now, in none of them is there any integration between the cost accounting and the financial accounting. In terms of the generic operation of the systems used, all the universities agree that their systems use cost centres which coincide with the organisation structure of the university

itself, although none of them develops this initial classification between auxiliary and main cost centres (main centre meaning one that has a direct relation with the university services and activities, and auxiliary centre one whose function is to provide support for the university structure). And so, in practical terms, they usually stop at the identification and attribution of the costs classified as direct and indirect in relation the cost centres themselves, and in no event is there a later distribution from those cost centres to the activities included at each of the centres.

None of the universities uses opportunity cost calculation (opportunity cost meaning the loss caused by not using some resources for another purpose when taking a decision; or even real consumption which is not invoiced or paid for), and the periodicity of the calculation of the real costs is, in all cases, annual.

Thus, and to conclude with the use of cost systems, we can state that at present the vast majority of Spanish public universities obtain very little utility from cost information due mainly to the fact that the cost systems are not used or are at stages of very early development. In any case, we can state that an improvement in cost systems designed to improve the management of the services supplied by the universities is more than necessary.

3.2. Budget information.

Having analysed the situation of the information cost systems, the study focuses on an analysis of the other main tool used at present by the universities: the budget system.

When analysing the type of budgets used by the Spanish public universities, we discover that a very high percentage of them opt for the use of the traditional financial budgets, although it is also true that an increasing number of universities are clearly opting for the use of budgets by programmes. Indeed, a growing number of universities are beginning to use budgets by programmes, but due to lack of experience in their use, they opt for the partial adoption of budgets of this type, so that for a time some universities are using both budget techniques. Once the budget techniques used are identified, the study analyses, among the universities who do use budgets by programmes (65% of the total), the number of programmes included in their budget systems. The answer to this question obtains uneven results and, as can be seen in figure 2, at aggregate level, over 46% of the universities use more than six programmes for their budgets. When going into more detail for each of the categories established, it emerges that of the small universities only one third use more than six programmes, whilst the percentage in the case of the large universities rises to 57%.

That circumstance seems to indicate that it is the larger universities that have the more developed budgets by programmes, though that affirmation cannot yet be made categorically, since the mean values in terms of the number of programmes used show too high a standard deviation, which would make it advisable to try to improve the response rate obtained.

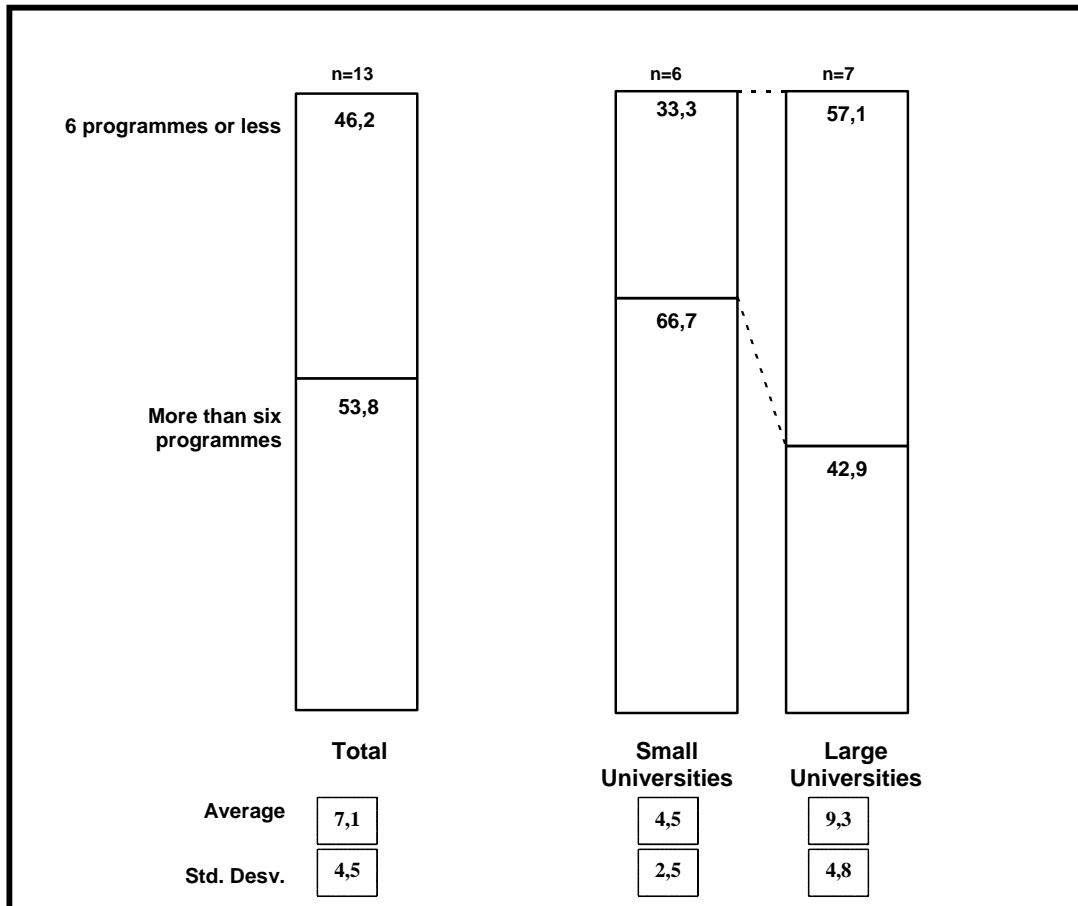


Figure 2. Number of programmes included in universities budget systems.

Continuing with this line of analysis of the characteristics of the budgets by programme, the questionnaire concentrates on finding out if the ones which are being used give details of goals for each of the programmes included. Here we detect that over 60% of the universities that use budgets by programme do detail their goals, whilst only 38.5% of the universe which is the object of the study do not do so. When analysing the results in more detail, we can appreciate that in the small universities that use this budget typology, only 50% detail the goals, whilst if we observe what happens with the large universities, we see that the percentage that detail goals rises to 71.4%. In the light of these results, the possibility mentioned before that it is the large universities that have the budgets by programme at the most advanced stages of use gathers strength.

3.3. Strategic planning systems

When tackling the subject of the use of strategic planning systems by the institutions included in the study, the managers of the universities polled are asked whether they have a defined strategic plan that governs the main lines of action of the organisation now (or whether there is one at the development stage). The answer to that question is very clear, since at aggregate level 85% of the institutions included in the study to have developed strategic plans. If the analysis focuses on the established categories, it can be appreciated that 100% of the large universities have a developed strategic plan, whilst among the small universities the rate falls to 70%. This circumstance seems to point once again to the possibility that the small universities may have less developed information and management systems than the large ones.

When going into the strategic planning systems in more depth, the study analyses whether the institutions at present have people in charge of analysing and maintaining coherence between the specific development plans of the faculties or departments and those of the university itself. The answer from all of them is fairly clear, since all the small and large universities have some person responsible for guaranteeing coherence between the organs that make up the university and the global strategy of the institution itself. Moreover, all these institutions go further, since the whole of the universe which is the object of the study with developed strategic plans state that they assign the goals according to the levels of responsibility existing in the university.

All the universities that claim to use strategic plans also carry out the necessary reviews and updatings to ensure that the basic premises in the content are fully valid and applicable to the university it refers to, even though the environment is in a state of continuous change.

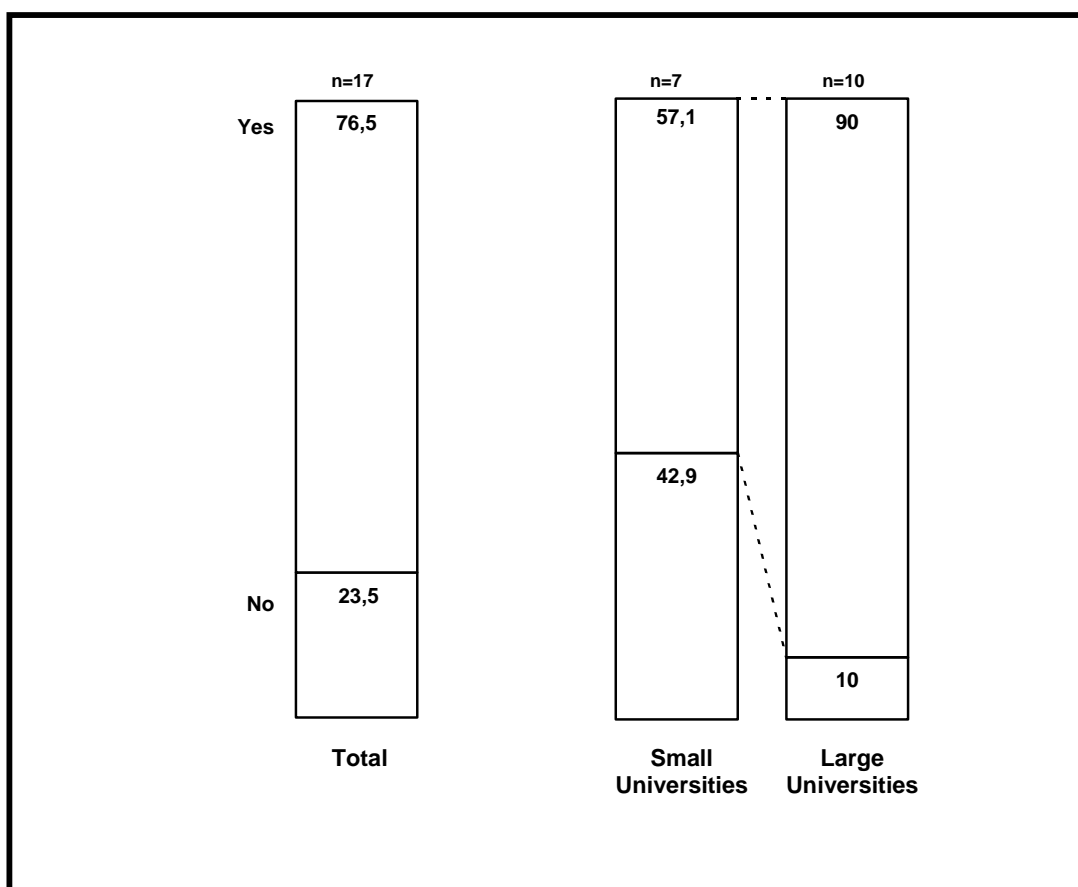


Figure 3. Strategic plans and Universities

Likewise, when questioning the managers about whether the members of the university community are involved in and informed about the content of the strategic plan, as well as taking part in and being committed to the achievement of the goals contained in it, the answers show a worrying tendency. As we can see in figure 3, at aggregate level over 76% of the universities answer the question in the affirmative. However, when the breakdown of this answer is analysed in detail according to the two established categories, it can be clearly appreciated that whilst 90% of the large universities do have strategic plans which involve the vast majority of the university community in an active way, only 57.1% of the small universities are in the same situation. All this suggests the possibility which is recurrent at this stage, which is that it seems evident that the

universities grouped as small in the present study seem to be using management (costs and budgets) and strategic planning systems which are currently at less advanced stages than the ones used by the large universities. Despite that possible evidence, when we analyse whether the universities studied do or do not use indicators to measure and analyse the evolution and management of the university (see figure 4), everything seems to indicate that the degree of use of this kind of indicator by the universities is highly homogeneous and at high percentages, though it is true that the large universities continue to be ahead in terms of the use of these information systems.

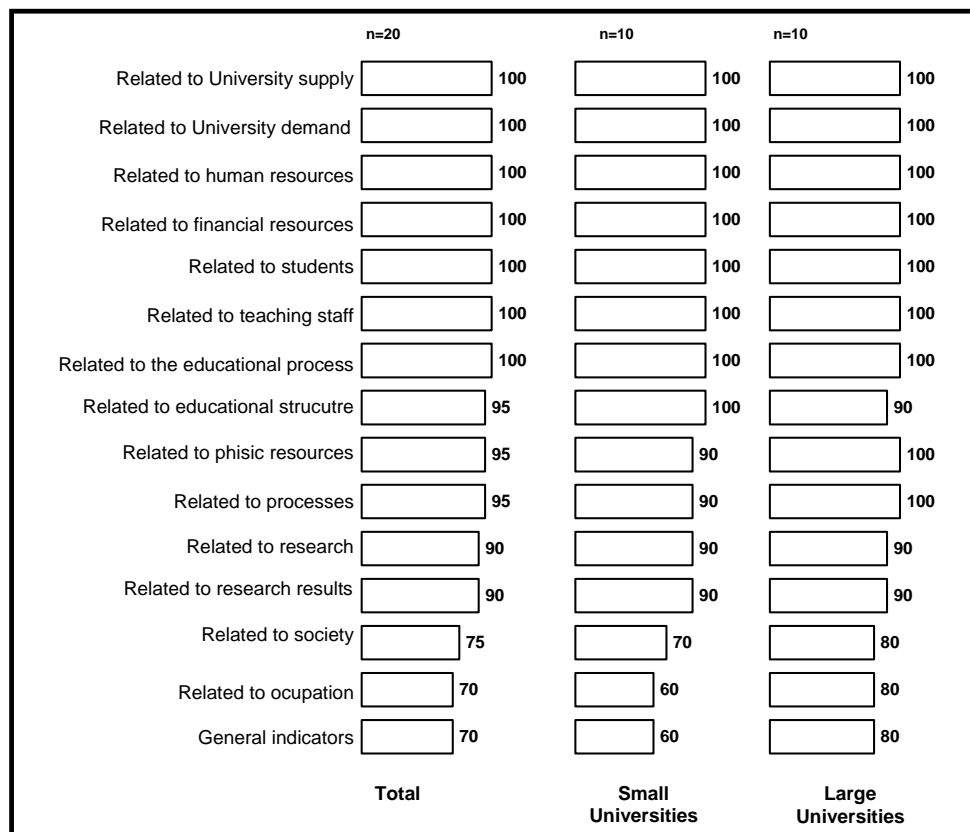


Figure 4. Indicators used in Spanish Public Universities

Indeed, everything seems to indicate that there is a whole series of management indicators that are massively accepted by the universities analysed. Specifically we can appreciate up to seven indicators accepted by all the small and large universities: the ones related to university supply and demand, to human resources, to financial resources, to the structure of the student body, to the structure of the teaching staff and to the development of the educational process. Nevertheless, it must be said that the use of indicators is not limited to the ones mentioned since, as can be seen in figure 4, there are a wide variety of management indicators used by a high percentage of large and small universities which in practice can turn out to be very useful.

And to end with the strategic planning systems, the study analyses whether the universities in the survey use tools such as the balanced scorecard, which allows them to link their strategic planning with their management planning, the result being that only 15% of the institutions analysed use tools of this type. Having reached this point and in the light of these last results, we need to ask whether the management planning systems currently used by the universities are really operative. This circumstance, together with everything we have said so far in relation to the cost systems, budget systems and

strategic planning systems seems to indicate the more than evident need for evolution and improvement in the management control information systems used by the Spanish public universities.

3.3.1. Universities that do not use the balanced scorecard (BSC)

In the light of the results commented so far, it is more than evident that a high percentage of the universities analysed consider the information currently supplied by the management information systems insufficient or of poor quality. Despite that, the majority of the universities are opting or have opted not to adopt tools like the balanced scorecard.

Thus, and with the aim of discovering the reasons why tools of this type are not generally adopted, the next phase of the questionnaire focuses on the managers of the universities who claim not to have a BSC to discover what factors have influenced them not to adopt it. As we can see in figure 5, three of them have stood out from the rest as the main motivations for choosing whether or not to adopt a BSC. First, with 29.4% of the universities considered at aggregate level, the first explanatory factor that stands out is the fact that the university assessed the possibility of using a balanced scorecard, but it was discarded when the resources required for it were analysed, which a priori seems to indicate that a large number of them are aware of the need to improve their information systems and initially considered the BSC a valid option. The second most important factor, mentioned by 23.5% of the universities, in not adopting a BSC seems to be the lack of support for the project by the university management. That lack of support may be due to two factors, among others. First, that the university management does not assume leadership of the project (making its success fairly unlikely), or that the management initially did support the project (since otherwise it would be impossible to set it in motion), but there is no real perception of the need for evolution of the information systems related to management, which is worrying if we take into account what has been said above. As the third factor in order of importance mentioned by the university managers, with 11.8% of answers indicating this option, we find the fact that the pilot test done at the time did not produce the results hoped for, and so the full implantation of the balanced scorecard was rejected. This third one is particularly important, and is related to the second one mentioned, since the fact that the pilot test was not successful may be due to quite different factors. The first would be that the BSC has not met the expectations initially aroused in the university, which would be totally legitimate if everyone involved in the leadership of the project really knew about the BSC (have received suitable training) and were aware of the improvements that can be introduced into their management systems. However, the worrying part may come from the fact that a BSC does not meet the expectations aroused simply because, since no-one knows the operation and possibilities of tools of this type exactly, a major error is made in terms of expectations. The second factor related to the failure of the pilot test is connected to the lack of support for the project by the university management who, when they saw that no results are obtained in the short term and were not aware of the needs of their information systems, chose to consider that the project was not a priority and decided not to go ahead with developing it.

Once the factors that have contributed to the non-adoption of the BSC by a large number of public universities have been analysed, it only remains to mention the factors that have had some influence, though to a lesser extent in the opinion of the managers.

	Small Universities	Large Universities	Total
Discarded when the resources required were analysed	22,2	37,5	29,4
Lack of support by the university managers	33,3	12,5	23,5
Pilot test done did not produce the results hoped for	11,1	0,0	11,0
Not considered the implementation	11,1	0,0	5,9
Not convinced of its usefulness	11,1	0,0	5,9
Not accepted by the whole university organisation	11,1	0,0	5,9
New managers do not believe in BSC	11,1	0,0	5,9
Impossibility of involving the whole organisation	11,1	0,0	5,9
Lack of training and information	11,1	0,0	5,9
New management systems not accepted	0,0	0,0	0,0
Other factors	0,0	0,0	0,0

Figure 5. Factors related to the non-adoption of the BSC.

As we observe in figure 5, there are up to six factors also mentioned by university managers which also influence the non-adoption of the BSC. Specifically, six factors occur, all with 5.9% of answers at aggregate level (11.1% if we observe the small universities category), which are, first, the fact that the university has not considered the implementation of a balanced scorecard at any time, since it is not convinced of its usefulness. This factor would tend to reinforce the perception that some of the university managers either see no need to improve their management systems or do not believe that a BSC is the answer to their inefficiencies. Second, there is mention of the circumstance that the project managers did not manage to reach a balanced scorecard that would be accepted by the whole university organisation. Which would indicate that although they are not using it at the moment some universities initially considered that the tool would be useful in their organisation. Third comes the circumstance that the entry of new managers into the university governing bodies who do not believe in tools of this kind has meant that adoption of them is discarded. Once again, we need to analyse whether that rejection is due to a lack of professionalisation in management issues by the members of the governing bodies. Fourth, certain cases have been detected in which the non-adoption of the BSC is due to the impossibility of involving the whole organisation, and specifically, as a basic reason, the lack of motivation of the teaching and administrative staff appears. Fifth, the lack of training and information in the organisation concerning the operation and implementation of a BSC. Indeed, without training and informing the organisation, it is very difficult to introduce management tools (which require changes in the present management systems) without having gone through the necessary information stages, which are an indispensable factor in the successful introduction of tools of this kind.

3.3.2. Universities that use the balanced scorecard

Once we have analysed the factors that have influenced the non-adoption of the BSC by the majority of the universities included in the present study, the next and last phase focuses on the universities that have chosen to use this type of management tools, though it is true that the number is very small (only three). Nevertheless, the study goes on to analyse the development and process of implementation of the BSC in detail to find out, first, the factors that have motivated the implementation and, second, to find out which ones are regarded by the managers as key factors in the successful implantation of this system of management.

In this line of analysis, the study focuses on discovering the opinion of the university managers in terms of the goals pursued in the implementation of a BSC. As we see from figure 6, the answer is quite clear, since there are three basic points mentioned by 100%

of the managers; specifically, the first goal pursued refers to a greater understanding and integration in a single management tool of all the strategic indicators used by the university. The second goal pursued and picked out by all the managers stresses the improvement in the internal communication of the organisation of factors included in the strategic plan. And the third factor mentioned by all the managers is that a BSC enables them to align the individual goals of the university employees with its own strategic goals.

Nevertheless, there is a whole series of goals mentioned by some of these managers which should also be taken into account. Specifically three goals mentioned by 66% of the managers and a fourth mentioned by 33%. The three goals mentioned by 66% of the managers refer to aspects such as improving the management information available so far, increasing the degree of transparency in the management of the university (a particularly important goal if related to the goals of efficacy and efficiency demanded by society today) and achieving a more efficient allocation of the resources of society. And to end, it only remains to refer to the goal pursued in the introduction of the BSC, mentioned by 33% of the managers, which is designed to achieve a better adaptation of the university to its changing environment. Indeed, although this last goal is supported by 33% of the answers, it seems to be one of the main reasons for developing the current management systems, regardless of whether or not they choose to use a BSC.

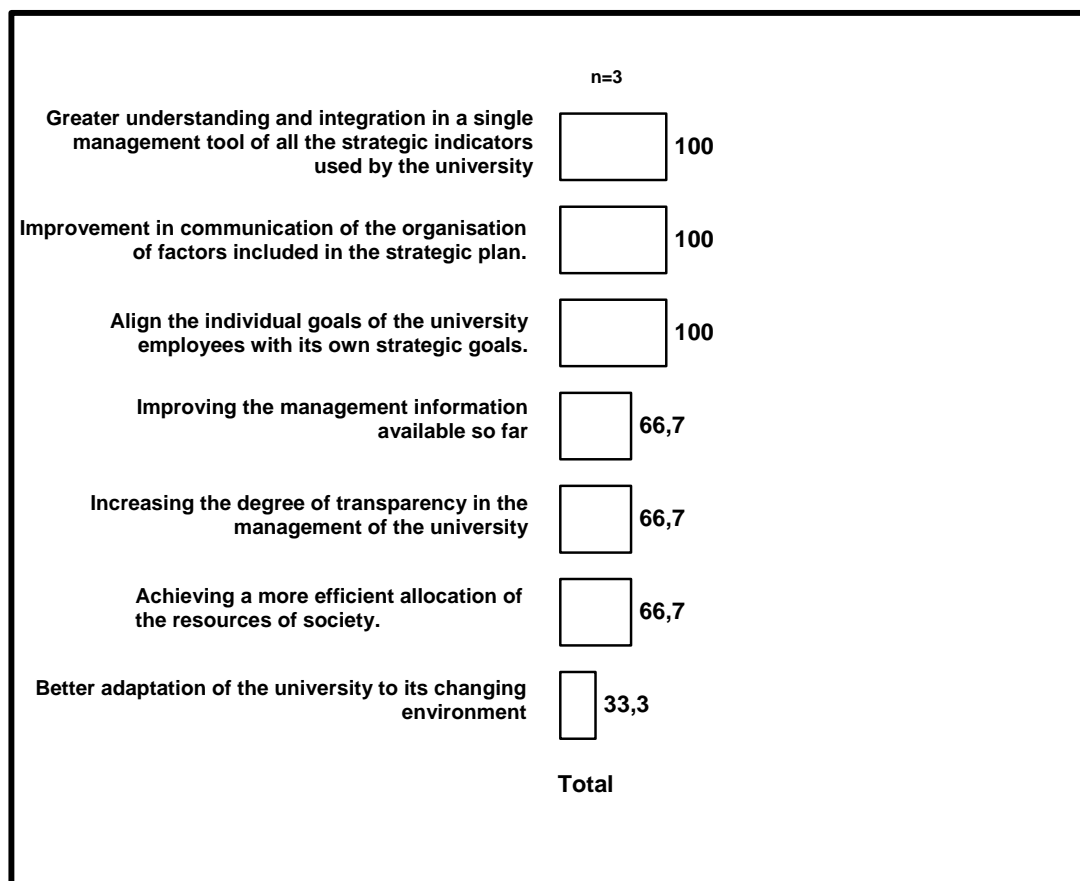


Figure 6. Goals pursued in the implementation of a BSC.

Continuing with this in-depth analysis of the development of the BSC, the next question in the study focuses on finding out the number of key success factors included in the BSC defined in each of the institutions. 66% of the centres have included more than 10 key factors in their management tools, whilst the remaining 33% have a lower number.

This datum is of vital importance when it comes to analysing whether the BSC which are being constructed will be sufficiently detailed to cover the most sensitive variables (from a strategic point of view) in the organisation. Indeed, if excessive key factors are defined, the result will be an inoperative BSC, whilst if too few are identified, the BSC will be too simplified and could overlook important aspects for the institution. This last seems to be the case of the universities which have fewer than 10 key factors identified in the structure of their respective BSCs. If, regarding the number of key factors to be included in a BSC, we observe Kaplan and Norton's proposals (1992), they recommend the use of between 15 and 25. And so we can appreciate how one of the most important points in the construction of these BSCs lies in the correct identification of the key factors and their correct proportion, depending on the complexity of the institution in question. In that way the characteristics those factors must have to be regarded as 'key' are analysed. As we can see in figure 7, and in the opinion of the university managers polled, the most important characteristic of those key factors is that they must be able to explain the success or failure of the university (understanding success as the accomplishment of the goals included in the strategic planning of the institution), granting them an average score of 9.7 (out of 10). The next characteristic in importance, with a score of 8.3, is that it should be representative of the changes in the environment. Third, and with a score of 7.7, that it should give rise to immediate actions when there is a change in the factor; and with 7.3, that it can be measurable or quantifiable, directly or indirectly.

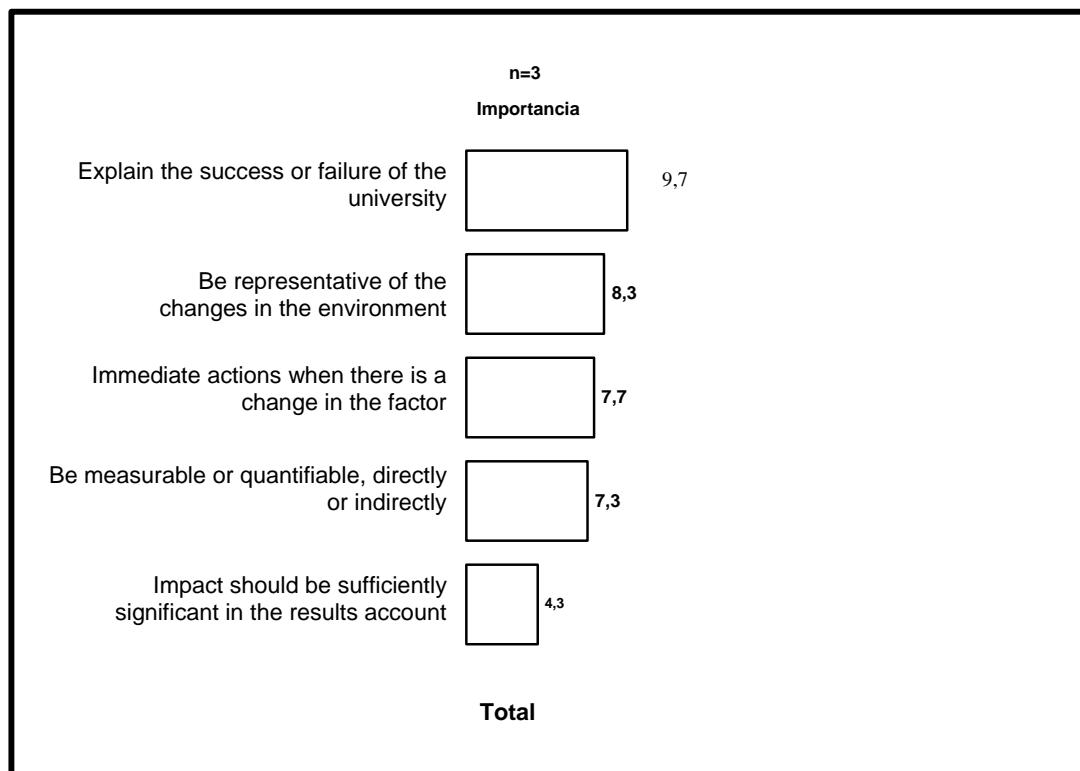


Figure 7. Characteristics of key factors.

As the last characteristic of the key factors indicated by the university managers we find, with a score of 4.3, that its impact should be sufficiently significant in the results account. The fact that this characteristic of a key factor should have such a low score is a very important datum, given that the context of this survey is the public universities, since it shows that the variables related to the economic and financial results are secondary in the case of these public institutions.

Once the necessary characteristics of the key factors have been analysed, the next step concentrates on selecting, bearing in mind the characteristics we have already commented on, a whole series of key factors that can be included in a university BSC (indeed, this information will be extremely useful for future approaches to BSCs applicable to the Spanish public universities).

As we see in figure 8, there are three key factors that have been considered the most important by those polled; first, and with an importance of 8.3 out of 10, to analyse and ensure the coherence of the management structure and policy or, which comes to the same thing, to see that the long-term goals included in the strategic planning are coherent with the shorter-term goals included in the management planning systems (for example, the budgets).

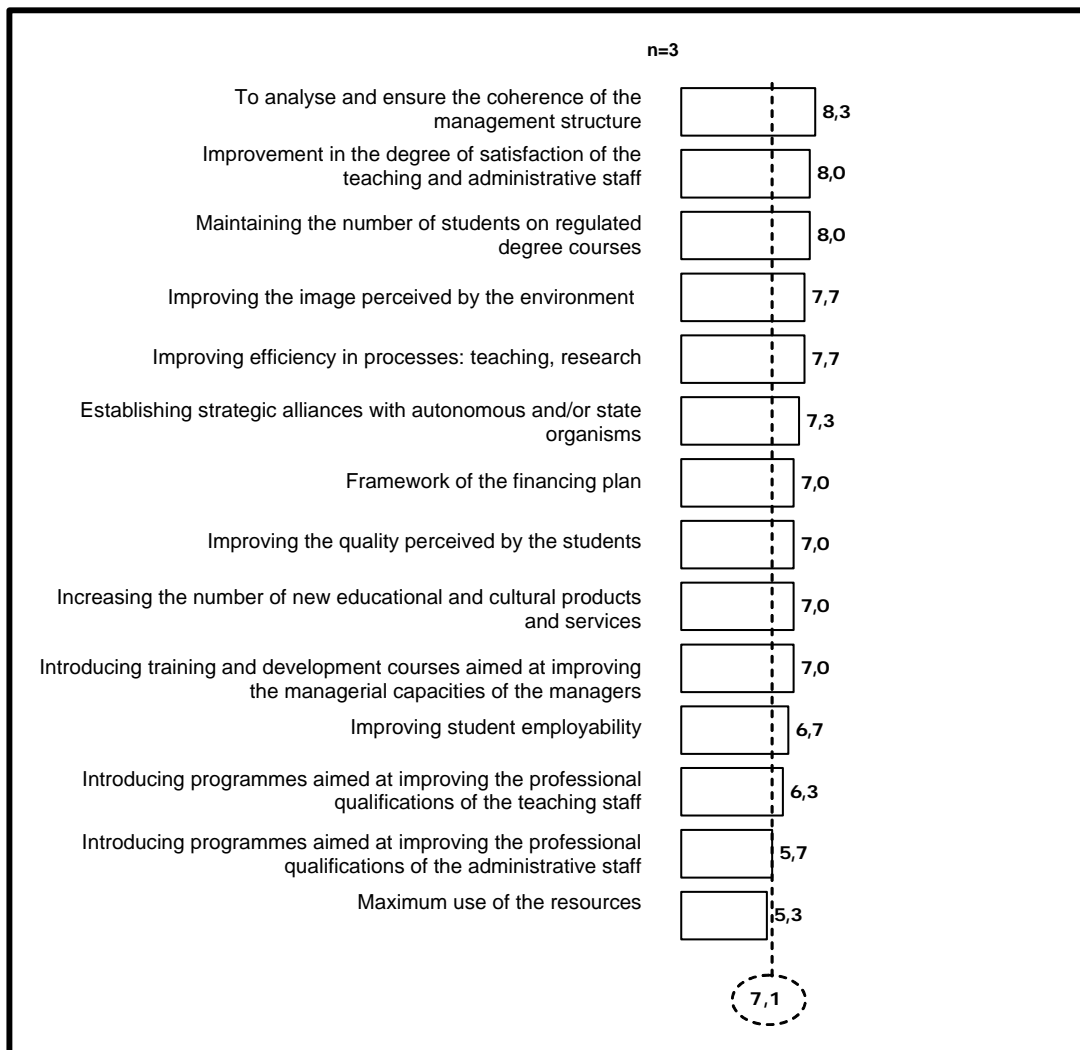


Figure 8. The most important key factors in Universities BSC's.

Second, and with an importance of 8.0 out of 10, we find an improvement in the degree of satisfaction of the teaching and administrative staff, which is highly coherent if we bear in mind that this has already emerged as one of the possible reasons for choosing not to adopt a BSC. Third, and also with an importance of 8.0 out of 10, we find maintaining the number of students on regulated degree courses. This third factor is also of vital importance, since one of the factors to be taken into account by the universities focuses on the fall in the number of potential students in recent years.

Continuing with the list of key factors that can be included in a BSC according to their importance, figure 8 shows a whole series of factors with an importance that ranges from 7.0 to 7.7: improving the image perceived by the environment, improving efficiency in processes: teaching, research, establishing strategic alliances with autonomous and/or state organisms within the framework of the financing plan, improving the quality perceived by the students, increasing the number of new educational and cultural products and services and, last, introducing training and development courses aimed at improving the managerial capacities of the managers. When analysing all these proposed key factors, it is evident that they are all aimed, first of all, at improving the efficiency of the universities, second, at achieving an improvement in adaptation to the environment, and particularly in meeting the needs for quality training and research demanded by society and the users. And to end with the proposed key factor, there remain four with importances between 5.3 and 6.7 which, although their levels of importance are not as high as the previous ones, are very interesting. They are: (a factor directly related in turn to satisfying one of the oldest social demands), introducing training and development programmes aimed at improving the professional qualifications of the teaching and administrative staff (in order to halt, as far as possible, the lack of motivation and rejection of the adoption of new management tools) and, last, to make maximum use of the resources through the supply of services to third parties and here, as was the case when identifying the necessary characteristics of these factors, the ones related to economic and financial aspects were the ones considered of least importance.

And to end it only remains to analyse the successes which, in the opinion of those polled, have been brought by the use of the BSC, and to comment on which factors they think have had a decisive influence on the successful implementation of this management tool. In this aspect, those polled do not show unanimity in any case, and the result of this question is a range of possibilities. First, they pick out having managed to improve the degree of service for the users. Second, a better academic supply thanks to the increase in the efficiency of the organisation and a better perception of the changes in the environment (and a better reception of the training requirements of society). Third, an improvement in the training of all the organisation staff, from teaching and administrative staff to management. Fourth, better communication, especially thanks to the publication of the results obtained with the use of the BSC. Although it is also true that, due to the lack of experience in its use, it may still be early to consider the successes achieved as a result of its implementation.

As far as decisive factors in the successful implementation of this management tool are concerned, the answers obtained indicate as basic ones for a successful implementation, participation and support from the directors of the institution and the commitment of the staff or, which comes to the same thing, the active participation and motivation of teaching and administrative staff, though it is true that these factors have to be considered with caution given the small percentage of answers from the universities which are currently using tools that link their strategic planning with their management planning.

4. Conclusions

The present study has analysed the management accounting instruments which the Spanish public universities use, and could use, to control their management, paying special attention to the use of the BSC. The public universities have been undergoing major changes at all levels for three decades, both demographic and economic and social, and in recent years we have to add the convergence of qualifications in the different European countries. It is evident that those changes must have repercussions on the direction, organisation and management systems of these public higher education

institutions, and it seems natural to think that in the face of this environment of sweeping changes, the present university management systems (traditionally unreliable and inoperative in a changing environment) should evolve. The environment requires of this type of institutions quality and adaptation of the university services to the demands of society. That is why it is indispensable to decide goals, make them known and be increasingly noted for the quality of the actions and the capacity to respond to social demand.

The management information systems currently used at Spanish public universities are in need of urgent improvements to enable them, first, to adapt to the changing conditions of their environment, among them the process of European convergence in education and, in the case of Spain, the highly significant variations in demand, which has moved in just a few years from an overcrowded university to a university aiming at quality of teaching and research. Moreover, meeting the requirements society makes of the public administrations effectively, efficiently and economically. Given this situation, we detect that in terms of management, over the last twenty years there have been few real advances in the context of the Spanish public universities. Indeed, in the vast majority of the universities, their management systems are limited to the budget process, the use of management indicators, aimed at easier comparison between universities (often overlooking the fact that in order to make such a comparison it would be necessary to compare only universities that 'compete' on equal terms in resources, structure, etc.), and a definition of strategic planning systems, which in most cases are not related to the management indicators through tools such as the balanced scorecard. And it is that very management tool that could make a significant contribution to compensating for many of the deficiencies in management information at the Spanish public universities. Thus it seems of undoubted importance for the universities to use a suitable management model which will enable them to exercise the economic and financial autonomy granted them by the current Organic Law of Universities of December 2001.

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