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Cantele Silvia, Martina Martini, Bettina Campedelli

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Factors affecting the development of management control systems in Universities

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Abstract

The article investigates the diffusion of management control systems in Italian Universities, as a possible applications of New Public Management principles, stressing the differences among universities and trying to discover the existence of a relation between the universities features and the development of the control structure and tools.
The results highlight a medium-quality control structure and a general limited adoption of management tools, and suggest further investigations on the real determinants of the successful implementation and development of management control systems in universities, considering, for instance, the impact of cultural and human factors.

Keywords: management control, universities, New Public Management

1 – Introduction

The introduction of management control systems in universities meets the need of conducting management in accordance to the principles of efficiency, effectiveness and financial sustainability. The observation of these principles and, more in general, the implementation of models typical of the business world in public organization fall within New Public Management (Hood, 1991 and 1995; Kettl, 1997).

The adoption of these models could be seen as the answer to some factors recently affecting universities: the low availability of financial resources caused by restraint in public expenditure, the increasing competitiveness in research and teaching activities, and the admission in the boards of external members with the separation of academic roles and university management. These changes have caused the need for an efficient use of resources, the implementation of competitiveness schemes and wider relationships with external stakeholders, that in turn have required the introduction of managerial systems, appropriate organizational structures, suitable planning and control tools, and necessary forms of accountability.

This results in a new university model, from the traditional to the "entrepreneurial" one (Clark, 1998; Kerr, 1994; Minelli et al., 2002: 45), that is not exempt from criticism since it could lead to a "corporatization" or "commodification" of university (Lawrence and Sharma, 2002; Parker, 2011) through restricted and expensive access to education and the selection of courses and research areas driven by external sponsors.

Nevertheless, for the supporters of this new university model, the compliance with efficiency and effectiveness objectives is functional to the achievement of the university mission; as a consequence, the introduction of management control systems in universities

Silvia Cantele
University of Verona, Via dell'Artigliere 19, 37129 Verona - Italy
E-mail: silvia.cantele@univr.it
Martina Martini
University of Verona, Via dell'Artigliere 19, 37129 Verona - Italy
E-mail: martina.martini@univr.it
Bettina Campedelli
University of Verona, Via dell'Artigliere 19, 37129 Verona - Italy
E-mail: bettina.campedelli@univr.it

Even if the article is the result of joint work, paragraphs 1, 2 and 4 are attributed to Silvia Cantele, paragraphs 3 and 5 to Martina Martini and paragraph 6 to Bettina Campedelli.

is a process that can't be avoided, but that, for its effective working, needs to be drawn on the specific features of these organizations.

In particular, the implementation has to take into account the multiple universities' objectives and performance evaluation profiles (Campedelli, 2004; Rebora, 2002) and the difficulties in defining and measuring universities products as well as universities processes, given the interdependence between research and teaching activities, and the complexity of common support activities (Arnaboldi et al., 2004; Catalano, 2002 and 2004).

Starting from the awareness of these peculiarities, but also from the difficult financial situation of Italian universities, that amplifies the need to adopt models and tools for a more efficient use of resources, the present research analyzes the implementation of management control systems in Italian universities, the development of control structure and tools, stressing the differences among universities, and finally verifying the existence of factors, such as universities variables, able to influence their level of development.

2 – Literature review

The introduction of management control systems in private and public organizations has been analyzed from different perspectives to explain reasons, paths followed and results of their implementation. Neo-Institutional Sociology (NIS) states that organizations tend to have similar structures and processes to conform to prevailing values and models: under this lens, the adoption of structures and tools typical of business world in the public sector could be seen as the possible result of some forms of isomorphism, coercive, mimetic or normative (Di Maggio and Powell, 1983). From a different perspective, the Contingency Theory emphasizes the relationship between the characteristics of control tools and the environmental changes (Newman, 1975), while the behavioural approach shows that human factors are the key of the successful implementation of management control system (Flamholtz, 1979). In this sense, the introduction of a new management control systems encounters difficulties when it contradicts the existing culture (Malmi, 1997; Markus and Pfeffer, 1983; Scapens, 1994) and, if not accepted by people in the organization, it remains only a formal infrastructure that could also deteriorate services supplied and staff welfare (Wahyudi, 2009). From the Actor-Network Theory perspective (Callon, 1986; Latour, 1987 and 2005) the success or the failure in implementing innovation, such as the introduction of management control systems in universities, depends not only on the behaviour of individuals, but on the interaction between different "actors", such as human and nonhuman factors. The interaction between these actors explains the reason why organizations have different approaches and follow different paths in implementing innovation (Arnaboldi and Azzone, 2010; Pipan and Czarniawska, 2010).

Beyond these theoretical backgrounds, different studies focus on the organizational structure of control or on the specific management tools used in universities. Terzani (1999) considers a control system as made of three elements: process control (methodology of the system), accounting tools and organizational structure.

As regards the information system, Zaccomer (2001) focuses on the structuring of information flows, while Agasisti et al. (2004) on the availability of data and information relevant to decision-making. Many Italian studies (Arcari, 2003; Capodaglio, 2004; Catalano 2009; Catalano and Tomasi, 2010; Cinquini and Miolo Vitali, 2000; Cugini, 2007) concern the choice between different types of accounting in universities: cash accounting, accrual accounting or their joint implementation. Some authors analyze the organizational structure of control in universities, focusing on the organizational placement of the management control unit (Fici, 2001: 90) and on the identification and location of responsibility centres (Azzone, 2008: 173; Fici, 2001: 81).

Other studies focus on the use of management tools to support planning and control functions. In particular, economical and financial simulations in universities are used to quantify, in different scenarios, critical variables such as funds received from the Ministry, revenues from tuition fees, staff costs and investments, so predicting financial balance (or imbalance) and constraints in the definitions of long-term goals (Joiner, 1980; Massy, 1976). International comparisons studies demonstrate that Italian universities are still reluctant to formalize their objectives into strategic planning documents and, even more, to communicate them to external stakeholders (Armandi, 2003; Bronzetti et al., 2011; Cantele et al., 2009; Cantele et al., 2011; Martini, 2009; Pedron, 2006); only few articles present case studies on strategic planning (Bolognani and Catalano, 2007).

More studies, both Italian and international, concern costs' analysis and costing systems in universities (Arcari, 2003; Balderston, 1974; Cinquini and Miolo Vitali, 2000; Fici, 2001; Miolo Vitali, 2001; Ongaro and Rodolfi, 1998) focusing on the problem of allocating indirect costs of central structures (Cugini, 2007: 151; Pendlebury and Algaber, 1997), especially applying Activity Based Costing to specific cases or empirical studies (Arcari, 2003: 76; Cropper and Drury, 1996; Cugini and Favotto, 2006; EUA, 2008; Goddard and Ooi, 1998; McChlery et al., 2007; Mitchell, 1996); the budgeting process is described in general terms (Fici, 2001; Schick, 1985) or observing specific cases (Collini and Pedron, 2007; Ezzamel and Bourn, 1995; Zierdt, 2009).

Finally, as regards variance analysis and KPI and their possible inclusion in management control dashboards, previous research analyzed the use of performance indicators in the evaluation system of universities (Arnaboldi et al., 2004; Azzone, 2008; Biggeri, 1999; Borgonovi and Giordano, 2007; Cantele and Campedelli, 2013; Catalano, 2002 and 2004; Cugini, 2007; Cugini and Michelon, 2009; Cugini and Pilonato, 2007; De Toni et al., 2008; Guthrie and Neumann, 2007; Minelli et al. 2002; Rebora, 2003; Riccaboni, 2003; Turri, 2005), or they focus on the adoption and implementation of specific tools such as the Balanced Scorecard (Kaplan and Norton, 1992) in universities (Asan and Tanyas, 2007; Azzone, 2008; Beard, 2009; Del Sordo, 2005; Del Sordo et al., 2007; Drtina et al., 2007; O'Neil et al.,1999; Yee-Ching, 2007).

From a methodological perspective, previous research on management control systems in Italian universities were mainly conducted by the use of case studies (Arcari, 2003; Capodaglio, 2004; Catalano and Tomasi, 2010; Cugini, 2007; Maran, 2009; Ongaro and Rodolfi, 1998) or, less frequently, by the administration of questionnaires (Arcari, 2003; Miolo Vitali, 2001).

This last method was used in the present study to discover the level of adoption and development of management control systems in Italian universities, so highlighting the existence of differences among universities and, therefore, of factors, such as universities features, that could be related to the use of management tools.

3 – Research method

As stated before, this research was done through a questionnaire, sent via e-mail to the administrative directors (general managers) of 95 Italian universities, state and non-state, that could answer on paper or online.

The dispatch and collection of questionnaires took place over a period of three months, from January to March 2011. STATA software was used to process questionnaire data.

With regard to content, the questionnaire was about the implementation of management control systems in universities.

It was divided into two main sections: the control structure, that includes information system and organizational aspects, and the control processes, that refer to planning and control tools.

More specifically, questions about the information systems of universities concerned the use of management software, their level of development and integration into the university's data warehouse, and the type of accounting used, cash accounting or accrual accounting.

From the organizational standpoint the survey investigated the existence of an independent unit dedicated to planning and control activities, its position in the organizational chart, and the different levels of organizational decentralization, with associated responsibility centres.

As regards the second area, the survey considers use, features and level of development of the following tools:

- economic and financial simulations, such as systems which estimates future dynamics according to various scenarios;
- strategy formulation documents, which officially describe the mission and/or macro policy objectives of the university;
- multi-year business plans, which, starting with the strategies, identify objectives and programs, initiatives and projects, and sometimes set their roll-out schedules, project managers, allocated financial and human resources and targets to be achieved;
- managerial dashboards, which include performance indicators that can be used both for internal management and external communication;
- cost accounting, which quantifies the costs of certain objects of analysis (for instance, degree courses, research projects, activities and processes, responsibility centres);
- budget as a tool for operational planning;
- variance analysis, to measure the deviations of the actual values compared to the forecast.

These tools, presented separately in the questionnaire, were grouped for the analysis according to their purpose of use: in particular, simulations and strategy formulation documents were classified as "strategy definition tools" since they are intended to define strategic objectives and assess their feasibility; multi-year business plans, cost accounting and budget as "analysis and forecasting tools", characterized by a greater level of detail in setting goals and translating them into programs, including operational, and identifying and allocating costs to significant cost objects; finally, managerial dashboards and variance analysis were included in "monitoring tools", which, by the use of performance indicators and analysis of variances, monitor progress - ongoing and ex post - on the achievement of objectives.

This classification of tools in relation to their purpose of use was functional to the allocation of scores.

The questionnaire, in fact, was designed to allow the translation of the answers into scores, the sum of which expressed the degree of organization and evolution of management control systems.

The same score (100) was attributed to each macro-area of the questionnaire, that are, as stated before, information systems and organizational aspects, and control tools.

The scores of each macro-area were then divided among questions (so that the different number of questions in each area did not affect the overall score): responses indicating a greater degree of progress and development of management control structure and tools had higher scores (i.e., a full costing system had a higher score than a direct costing system), while in cases where multiple answers were possible, the full score for the question was divided by the number of afferent responses.

With regard to tool scores, the 100 points were not divided equally among tools, but a hierarchy was created between the three categories of tools, distinguishing between general or basic tools and more advanced or analytical tools.

Therefore, 20 points were given to strategy definition tools (simulation and strategy formulation document), 40 points to analysis and forecasting tools (cost accounting, multi-year plan and budget) and 40 to other monitoring tools (dashboard and variance analysis).

Moreover, the score given to each tool was weighted 100% if the tool was already in use, 50% if the tool was in introduction, while if the tool was not yet implemented the score was zero.

This model made it possible to assign an overall score to each university, the greater and more advanced the existing control system was, but also to attribute to each universities partial scores for the macro areas of control structure and control processes.

This allowed to define, in the first part of the analysis, the average level of diffusion and development of management control systems in Italian universities, but also to delineate differences among universities and among different groups of them, in relation to:

- their form, so distinguishing between state and non state universities, in accordance to the classification of the Ministry of Education (www.miur.it): more in detail state universities were considered in "strict sense" and so not including special institutions or schools for foreigners, that were considered in the group of non state universities;
- their location, identifying three different areas: north, centre and south-islands;
- their size, grouping universities into four classes: small, medium, large and very large universities (Table 1), in relation to the number of students enrolled in the academic year 2009/2010, as done in previous statistical analysis (e.g. Censis - La Repubblica, www.censis.it).

The second part of the analysis focused only on state universities to verify the existence of a correlation between the development of management control system and some key characteristics of these institutions.

Table 1 - *University size measured by the number of students enrolled*

University size	Students enrolled
small	up to 10.000
medium	from 10.000 to 20.000
large	from 20.000 to 40.000
very large	more than 40.000

The limitation of the observation field only to state universities in the strict sense was dictated by the need to compare homogeneous organizations, by the high rate of response that characterizes this category (78%) compared to other universities (below 28%) and, finally, by the greater availability of data to quantify the observed variables under analysis (unavailable or not applicable).

The characteristics of state universities that were considered relevant to the correlation, since probably able to influence the development of management system, were size-complexity, rigidity of expenditure and availability of human resources dedicated to administrative/accounting practices.

In particular, size-complexity was measured by the number of faculties in each university, while rigidity of expenditure was defined by the percentage ratio between the fixed staff cost (AF) and the Ordinary Financing Fund (FFO), that are, respectively, the total expenditures actually paid for basic wages and the income transfers from ministerial level (the main source of revenues in state universities).

Finally, availability of resources in the administration area was measured by the incidence of administrative staff out of total technical-administrative staff, the latter including the staff working in administration, and also staff working in libraries, general and technical services, social and health areas, and data processing areas.

The characteristics of state universities, the variables used for the correlation and their source were presented in Table 2.

We tried to avoid the use of both insignificant characteristics and of highly correlated variables.

For this reason, size-complexity was measured only by the number of faculties: size in fact can also be expressed through the number of students enrolled or by the total staff (teachers, researchers and technical administrative staff), but both these variables were highly correlated with the number of faculties (respectively 0.84 and 0.83).

Table 3 shows the correlation between the variables, with reference to 46 state universities that responded to the questionnaire.

Even if not totally "independent", we used the three variables since they refer to different characteristics, potentially able to differently influence the development of university control systems.

Table 2 - *Characteristics and variables used for correlation*

Characteristics of state universities	**Variables** (31/12/2009)	**Source**
size – complexity	number of faculties	*Eleventh report on the status of the University System* - National Committee of the University System Evaluation (CNVSU)
rigidity of expenditure	% fixed staff costs/pure FFO	https://proper.cineca.it/
resources in administration area	% administrative and managerial staff/total technical administrative staff	Ministry of Education (MIUR) statistical database of teaching and technical administrative staff http://statistica.miur.it/

Table 3 - *Correlation between the observed variables*

	N of faculties	**% AF/FFO**
N of faculties	1.0000	
% AF/FFO	0.3841 (0.0084)	1.0000
% Admin-man staff/tot TA staff	-0.4746 (0.0009)	-0.5431 (0.0001)

4 – An evaluation of management control systems in Italian universities

The questionnaire was sent to all general managers of the 95 Italian universities, state and non-state, which also include institutions and specialized schools, foreigners universities and online universities. 56 of the 95 administrative directors contacted returned the completed questionnaire, with a response rate equal to 58.95%, that grew to 77.97% considering only state universities. The composition of the universe, the sample of respondents, and the different response rate of each group of universities, were described in Table 4.

Moving from the descriptive statistics of the sample to the analysis of the answers, we firstly considered the degree of development of management control systems in all Italian universities and in the different groups of universities, built according to their form, their location and their size. For each group we considered:

- the number of respondent universities, as a measure of the attitude to answer and of the representativeness of the sample;
- the average score, that measures the average degree of development of control structure and tools in each group, compared to the hypothetical maximum, that is 100 for the information systems (IS) and organization systems (control structure) and 100 for management and control tools, so in total 200 for management control systems;
- the standard deviation, the minimum and the maximum scores achieved, that measure differences among universities included in each group.

Table 4 - *Composition of the population and sample*

	Universe		**Sample**		**%**
	n.	**%**	**n.**	**%**	**Response**
State "in the strict sense" universities	59	62.11%	46	82.14%	77.97%
Non state universities	36	37.89%	10	17.86%	27.78%
North	33	34.74%	25	44.64%	75.76%
Centre	36	37.89%	16	28.57%	44.44%
South-island	26	27.37%	15	26.79%	57.69%
Small	37	38.95%	16	28.57%	43.24%
Medium	19	20.00%	14	25.00%	73.68%
Large	19	20.00%	14	25.00%	73.68%
Very large	11	11.58%	10	17.86%	90.91%
not available	9	9.47%	2	3.57%	22.22%
Tot.	*95*	*100.00%*	*56*	*100.00%*	*58.95%*

Starting from the observation of all universities (Table 5) it was immediately clear how the average score obtained (67.76) was globally well below the theoretical maximum (200).

This means that the degree of advancement of management control systems in Italian universities is still rather limited. In detail, limitations affected more the implementation of control tools than the information systems and the organizational structure, as the average scores show (respectively 27.70 and 40.06).

Moreover, the minimum and the maximum scores achieved and the standard deviation indicate that universities were characterized by different degree of development of these systems, from the total absence of management and control tools and very rough IS and organization structure to a still weak implementation of tools and more advanced control structure: these differences suggest that isomorphic tendencies were not well-established in the universities management.

Comparing the average results to that of state and non state universities (including in this group all the institutions different from state universities in strict sense), you can see how state universities had a higher average score in relation to the control structure, while other universities appeared to be generally more advanced in terms of tools.

Table 5 - *Analysis of the rating of all universities*

All universities	N.	Average	St. dev.	Min	Max	Hyp. max
IS and organization systems	56	40.06	18.28	5	80	100
Management control tools	56	27.70	13.94	0	57.57	100
Management control systems	*56*	*67.76*	*25.34*	*10*	*119.78*	*200*

Such data must clearly be weighed against three aspects: the low response rate of non state universities (27,78%) that made the sample less representative, the different number of universities that were included in the two groups (46 state universities versus 10 non-state universities), and the low homogeneity that characterized the group of non-state universities (Table 6); these elements influenced the higher value of standard deviation as measure of variability in non state universities.

As regards location (Table 7), universities of the north Italy had, on the average, well developed management control systems, determined by a more advanced IS and organizational structure and by a greater use of management tools, even if, for the latter, differences among universities of the north were higher than in the other two areas (standard deviation respectively 15.88 and less than 12).

Table 6 - *Analysis of the rating: state and non-state universities*

	N.	Average	St. dev.	Min	Max
IS and organization systems					
State univ.	46	41.74	16.62	5	80
Non-state univ.	10	32.33	22.87	5	68.33
tot	*56*	*40.06*	*18.28*	*5*	*80*
Management control tools					
State univ.	46	26.62	12.99	3.44	52.75
Non-state univ.	10	32.64	16.76	0	57.57
tot	*56*	*27.7*	*13.95*	*0*	*57.58*
Management control systems					
State univ.	46	68.36	21.98	30	119.78
Non-state univ.	10	64.98	36.7	10	114.04
Tot	*56*	*67.76*	*25.34*	*10*	*119.78*

The average level of development of management control systems was similar in universities of the centre and in universities of the south and islands, but while the first presented better control structures, the latter were better equipped with tools.

In relation to size (number of students, available for 54 universities), table 8 shows that the total score grew in accordance to the universities size: the higher score was, in fact, achieved by large universities, closely followed by very large universities.

So universities' size seems to influence the development of management control systems, probably because it is a variable of internal complexity that need to be appropriately managed.

Anyway the observation of standard deviations denies, in part, these results since it suggests that inside each dimensional group there were different level of implementation of management control systems; moreover both the minimum and the maximum got higher values in medium size universities: this means that the better system among the worse universities systems belonged to a medium size university, as well as the best system among all is that of a medium size university.

Table 7 - *Analysis of the rating: north, centre and south-islands universities*

	N.	Average	St. dev.	Min	Max
IS and organization systems					
North	25	42.67	19.07	5	75
Centre	16	40	21.97	10	80
South and islands	15	35.78	11.87	15	58.33
tot	*56*	*40.06*	*18.28*	*5*	*80*
Management control tools					
North	25	30.62	15.88	3.44	57.58
Centre	16	23.38	11.92	0	41.99
South and islands	15	27.44	11.97	10	52.75
tot	*56*	*27.7*	*13.95*	*0*	*57.58*
Management control systems					
North	25	73.29	27.55	23.1	119.78
Centre	16	63.38	26.57	10	113.06
South and islands	15	63.22	19.12	30	111.08
Tot	*56*	*67.76*	*25.34*	*10*	*119.78*

Table 8 - *Analysis of the rating: small, medium, large and very large universities*

	N.	Average	St. dev.	Min	Max
IS and organization systems					
small	16	31.25	17.14	5	58.33
medium	14	39.05	18.11	5	75
large	14	44.05	17.13	20	80
very large	10	50.17	13.71	30	73.33
tot	*54*	*40.09*	*17.74*	*5*	*80*
Management control tools					
small	16	26.38	13.96	0	55.71
medium	14	30.9	15.22	7.5	57.58
large	14	29.96	13.42	3.6	49.96
very large	10	22.83	14.39	3.44	52.75
tot	*54*	*27.82*	*14.15*	*0*	*52.58*
Management control systems					
small	16	57.63	26.63	10	114.04
medium	14	69.95	25.58	42	119.78
large	14	74.01	23.87	38.6	113.06
very large	10	73	20.51	41.77	111.08
Tot	*54*	*67.92*	*24.9*	*10*	*119.78*

Looking to the two components, size seems to influence more the IS and the organizational structure than the use of management tools: in fact not only the av-

erage score achieved in the section of IS and organizational structure increased with the size of the groups, but also the minimum scores raised with the universities dimension. Different observations can be done as regards control tools: the use of tools in fact seems not to be linked to university size; in particular tools were less in use in very large universities followed by the smaller, while medium and large universities had a similar use of tools.

5 – Looking for factors affecting the development of management control systems in Italian state universities

For further discussion, we decided to dwell on state universities, as they are more consistent with each other, more numerous and more statistical representative (response rate 78%).

Furthermore, the variables chosen for the analysis (number of faculties, the ratio fixed staff costs to ordinary financing funds and the proportion of administrative personnel on total technical and administrative staff) were fully applicable and available only for state universities.

For each variable we considered three groups of state universities and we observed the trend in the average scores among the groups.

With regard to the 'number of faculties' (Table 9), used as an expression of size and organizational complexity, we observed that the average score increased moving from the first to the third group of universities: the average score passed from 65.87 for universities with up to five faculties to 75.67 for universities with more than 10 faculties.

Even in this case, however, the score was given more by the system's structure than by the use of control tools.

For the latter, the score in the three categories of universities was almost identical (26 for universities with over 10 faculties, just under 27 for those up to 10).

Table 9 - *Analysis of the rating: classification by size-organizational complexity*

N of faculties	N.	Average	St. dev.	Min	Max
From one to five	13	65.87	21.24	30.15	119.78
Six to ten	20	65.23	24.75	30	113.6
More than ten	13	75.67	17.59	51.15	111.08

In relation to the second variable, the rigidity of the expenditure (AF/FFO ratio, Table 10), the average score increased through the first and second categories (AF/FFO by or over 85%; average scores were 60.09 and 72.87, respectively), while scores decreased slightly in the third category (ratio over 95%, average score 70.13); in this case the trend of the total score was similar to that of the two sub-scores (structure of the system and tools).

Table 10 - *Analysis of the rating: classification by expenditure rigidity*

AF/FFO	N.	Average	St. dev.	Min	Max
up to 85%	13	60.09	21.37	30.15	113.6
over 85% and up to 95%	18	72.87	23.71	30	119.78
over 95%	15	70.13	19.64	50.25	113.06

Finally, with regard to the incidence of TA staff in administrative positions (Table 11), there were no significant differences in average scores as the overall category increased (about 68).

Breaking down the total score revealed, however, that the first category was characterized by the highest score in terms of structuring the control system and the lowest in terms of control tools.

The opposite was true for the intermediate category, which had a less developed structure but a greater use of tools than the others; lastly, for those universities with a percentage of staff with administrative functions of more than 55% (third category) the score of system's structures recovered (even if it was anyway lower than the score of the first category) while the score relating to tools lowered (although it was higher than the one of the first category).

In essence, it seems that the availability of administrative staff beyond a certain threshold did not necessarily guarantee a better distribution and use of more advanced management tools, or a better structuring of the system.

Table 11 - *Analysis of the rating: classification by administrative staff incidence*

Admin staff / tot TA staff	N.	Average	St. dev.	Min	Max
up to 45%	14	68.17	22.85	41.77	113.06
over 45% and up to 55%	20	68.51	19.25	30	111.08
over 55%	12	68.34	26.82	30.15	119.78

After observing the average score trends in the different classifications, we verified the existence of a correlation between each classified variable and the questionnaire scores, using the Pearson index (Table 12).

In the first two cases there was a weak positive correlation, meaning that the increase in size-organizational complexity (n. of faculties) and the rigidity of the expenditure (AF/FFO ratio) resulted in higher scores, representing an increase in the degree of progress of management control systems.

In the latter case, however, the administrative staff ratio had no correlation (index near to zero) with the questionnaire score.

However, considering the significance index, we found that the correlation in no case was significantly different from zero; in essence, it is not possible to claim that there was a statistically significant relation between the three variables considered and the degree of development of management control systems (as measured by the score on the questionnaire).

Table 12 - *State universities variables and development of management control system: correlation index*

	Overall Rating (management control system)
N of faculties	0.2135 (0.1542)
% AF / FFO	0.2318 (0.1212)
% Admin-man staff/tot staff	-0.0902 (0.5510)

6 – Conclusions and further research

Despite the theoretical acceptance of the principles of New Public Management, the implementation of management systems and tools typical of the business world is not a common practice in Italian universities.

The low development of management control systems seems to be the result of the combination of a medium quality infrastructure base (in terms of information and organizational systems) and a low use of planning and control tools.

Differences among universities can't be omitted since non-structured organi-zations cohabit with organizations characterized by advanced information systems, well-framed organizational structures and the adoption of integrated tools.

Furthermore, differences were observed in relation to universities' form, location and size: on average, state universities, universities in the north and bigger universities have more developed systems than, respectively, non state universities, universities in the centre and in the south-islands and small and medium universities.

Looking for factors that can affect the development of management control systems, we didn't find any result that can be generalized because only a very weak correlation seems to exist between the level of advancement in management control systems and the variables size-complexity and rigidity of expenditure; in other words internal factors, such as organizational complexity, financial constraints or administrative resources availability can't ultimately be considered the determinants of the degree of development of control systems.

Probably not a single factor but several factors, both internal and external, favor the introduction and implementation of management control systems in universities.

Also the recent Italian law provision (Law n. 240 of 2010) moves in this direction; but history tell us that regulation itself could not assure the successful implementation of managerial tools.

In these sense, corporate culture seems to be a crucial factor that can speed or slow down the adoption and development of appropriate models and tools for the efficient and effective planning, management and reporting of universities resources and activities (Malmi, 1997; Markus and Pfeffer, 1983; Scapens, 1994, Wahyudi, 2009).

Given these results, future research could consider different contexts, other than the Italian one, more numerous population and sample, or could be done by different research methods, so crossing limitations of self-administered questionnaires (Singleton and Straits, 2005), to understand the true factors of success or failure of management control systems in universities. In this sense, the analysis of management control experiences could stress the role of controversies' management to design the different paths of control systems' introduction and development.

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Questionario conoscitivo

Gli strumenti di pianificazione e controllo per il management universitario

Università[1]	
Cognome e Nome del compilatore	
Ruolo/qualifica	
Telefono e/o e-mail	

Il questionario può essere:

- **compilato on-line al link xxx**
- **compilato sul presente file word e restituito via mail all'indirizzo xxx o via fax al n. xxx (precisando all'attenzione della Prof. xxx)**
- **Per eventuali dubbi di compilazione contattare la dott.ssa xxx all'indirizzo mail sopraindicato o al numero xxx**

Note alla compilazione:

Strumenti di controllo: breve descrizione di cosa si intende con i vari strumenti sui quali verte il questionario.

- Simulazioni economico finanziarie: si intendono quei sistemi che permettono di stimare valori futuri sulla base di diversi scenari ipotizzati; esempi di simulazioni sono quelle relative al personale (stima dei costi futuri tenendo conto di pensionamenti, nuove assunzioni, passaggi di ruolo, aggiornamento contratti ecc.); alla contribuzione studentesca (stima iscrizioni e tasse sulla base di previsioni delle fasce di reddito); ad altre entrate, come FFO (stime come da modello); ad investimenti (impatto economico e finanziario degli interventi edilizi)…
- Documento di formulazione strategica: si intende un documento nel quale vengono esplicitati la mission e/o i macro obiettivi strategici dell'ateneo (una sorta di dichiarazione programmatica); potrebbe essere parte di una delibera di organi accademici o potrebbe anche prevedere una comunicazione all'esterno (es. piano strategico di tipo descrittivo, ovvero non un vero strumento di programmazione).

- Piano pluriennale delle attività: è un piano nel quale dalle strategie discendono obiettivi e programmi, e pertanto ha un taglio più operativo del documento di formulazione strategica, stabilendo iniziati-

[1] Precisiamo che il nominativo serve solo ed esclusivamente per l'identificazione del questionario; l'elaborazione dei dati avverrà in maniera aggregata e pertanto del tutto anonima; i dati del compilatore servono solo ed esclusivamente per eventuali chiarimenti sulle risposte.

ve/progetti e possibilmente relativi tempi di realizzazione, responsabili del progetto (e quindi strutture organizzative coinvolte), risorse finanziarie e umane destinate, target da raggiungere. Potrebbe rappresentare la formalizzazione degli obiettivi di programmazione triennale stabiliti dal MIUR.

- Cruscotti direzionale (indicatori di performance): con tale strumento si allude ad un catalogo più o meno ampio di indicatori di performance, raccolti in modalità tali da renderli fruibili per diverse finalità, che potrebbero spaziare dalla gestione interna alla comunicazione esterna; gli indicatori di performance permettono la quantificazione degli obiettivi del piano pluriennale e il loro controllo a consuntivo; potrebbero anche essere utilizzati per misurare le performance di specifiche aree gestionali o di specifiche unità operative.

- Contabilità analitica: sistema di contabilità (detta anche contabilità dei costi) che permette la quantificazione dei costi di oggetti definiti (es. corsi di laurea, progetti di ricerca, attività e processi, centri di responsabilità) attraverso un sistema di imputazione dei costi diretti e di ribaltamento/ripartizione dei costi indiretti; la ripartizione dei costi indiretti può essere basata su un metodo "tradizionale" (contabilità per centri di costo) o activity based (ABC). Quando agli oggetti si imputano solo i costi variabili (diretti) si parla di direct costing (evoluto), negli altri casi si ha un full costing, che può prevedere come criterio di ripartizione una base unica (es. tempo lavorativo) o basi multiple a seconda del tipo di costi (es. tempo per i costi del personale, metri quadrati per i costi delle utenze ecc.); nel caso di activity based costing le basi sono multiple, diversificate per ciascun tipo di attività individuata e prendono il nome di cost driver.

- Budget e analisi degli scostamenti: in questa sede intendiamo il budget economico, non il bilancio previsionale redatto secondo criteri di contabilità finanziaria; con il budget si assegnano obiettivi e risorse finanziarie ai diversi centri di responsabilità; è uno strumento di programmazione operativa avente un arco temporale di breve periodo (l'anno) e un'articolazione infrannuale. L'analisi degli scostamenti serve per misurare a consuntivo e motivare le deviazioni dei costi e dei ricavi rispetto ai valori pianificati.

Sistema informativo

1. Quali software gestionali utilizza l'ateneo?
   a. Contabilità
   b. Stipendi
   c. Gestione carriere studenti
   d. Gestione anagrafe ricerca
   e. Gestione progetti di ricerca
   f. Gestione offerta formativa (carichi didattici, incentivazioni,…)
   g. Altro (specificare)_____

2. L'ateneo ha un data warehouse?
   a. Si
   b. No

3. Se si, quali dei software gestionali sono integrati nel DWH?
   a. Contabilità
   b. Stipendi
   c. Gestione carriere studenti
   d. Gestione anagrafe ricerca
   e. Gestione progetti di ricerca
   f. Gestione offerta formativa (carichi didattici, incentivazioni,…)
   g. Altro (specificare)_____

4. Che tipo di contabilità tiene l'ateneo (una sola risposta)?
   a. Solo finanziaria
   b. Finanziaria ed economico-patrimoniale
   c. Solo economico-patrimoniale

5. Se sono presenti entrambe le contabilità (risposta b), quale delle due viene effettivamente utilizzata per la gestione dell'ateneo (una sola risposta)?
   a. Finanziaria
   b. Economico- patrimoniale

Aspetti organizzativi

6. Nell'ateneo esiste un ufficio autonomo dedicato alla funzione di pianificazione e controllo (controllo di gestione, controllo direzionale)?
   a. Si
   b. No

7. Se si, dove è collocato?
   a. È una direzione che risponde alla direzione amministrativa/generale
   b. È un'unità della direzione (specificare quale es. bilancio/contabilità, valutazione…) _____
   c. È un ufficio in staff alla direzione amministrativa/generale

8. Il decentramento organizzativo (amministrativo-contabile) prevede l'articolazione in Centri di Responsabilità[2] a livello di (possibili più risposte)?
   a. Polo
   b. Facoltà
   c. Dipartimento
   d. Centro
   e. Singole unità dell'amministrazione centrale
   f. Altro (specificare) _____

Strumenti di controllo

9. Quali di questi strumenti[3] sono attualmente in uso presso l'ateneo, sono in fase di introduzione[4] o mancano[5]?

		In uso	Introduzione	Manca
a.	Simulazioni economico-finanziarie			
b.	Documento di formulazione strategica			
c.	Piano pluriennale delle attività			
d.	Cruscotto direzionale (indicatori di performance)			
e.	Contabilità analitica			
f.	Budget			
g.	Analisi degli scostamenti			

<u>Simulazioni economico-finanziarie</u>

10. Che tipo di simulazioni economico-finanziarie prevede il sistema sulla base dei diversi scenari ipotizzati?
    a. Costi del personale
    b. Contribuzione studentesca
    c. Stima FFO
    d. Piano degli investimenti edilizi
    e. Altro (specificare) _____

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[2] CDR sono qui intesi come unità operative/enti con autonomia contabile e contrattuale.

[3] Si veda la nota alla compilazione all'inizio del questionario.

[4] Nel caso di strumenti in corso di introduzione le successive domande vanno riferite a come gli strumenti sono ad oggi progettati/ipotizzati, posto che non è possibile rispondere con riferimento al presente.

[5] Si prega di usare la massima attenzione nel rispondere a questa domanda; nel caso in cui lo strumento effettivamente mancasse non è possibile rispondere alle domande della sezione relativa.

Documento di formulazione strategica

11. Il documento di formulazione strategica è approvato da quale Organo interno:
    a. Senato Accademico
    b. Consiglio di Amministrazione
    c. Non è soggetto ad approvazione
    d. Altro (specificare)_____

12. Com'è comunicato all'interno dell'ateneo?
    a. Non è comunicato
    b. E' inviato a tutti i referenti dei centri di responsabilità dell'ateneo
    c. E' inviato a tutti i dipendenti dell'ateneo
    d. Altro (specificare)_____

13. È oggetto di comunicazione anche all'esterno?
    a. No
    b. Si, è presente nel sito web dell'università
    c. E' presentato in occasione di (specificare in quale evento o occasione_____)
    d. Altro (specificare)_____

14. Quale utilizzo viene fatto dello strumento?
    a. Individua gli obiettivi da inserire nel piano pluriennale
    b. È uno strumento di indirizzo generale
    c. Altro (specificare)_____

Documento di pianificazione pluriennale delle attività

15. Il piano pluriennale delle attività copre un orizzonte temporale di anni
    a. Tre
    b. Cinque
    c. Altro (specificare)_____

16. Da quale organo interno è approvato?
    a. Senato Accademico
    b. Consiglio di Amministrazione
    c. Non è approvato
    d. Altro (specificare)_____

17. Viene diffuso fra il personale responsabile?
    a. Si
    b. No

18. E' comunicato, almeno per estratto, all'esterno?
    a. Si
    b. No

19. È articolato per obiettivi?
    a. Si
    b. No

20. L'articolazione degli obiettivi ricalca la suddivisione delle attività dell'ateneo (ricerca, didattica, servizi alla didattica e alla ricerca, attività amministrative)?
    a. Si
    b. No (precisare le principali articolazioni) _____

21. Prevede per ciascun obiettivo l'identificazione di un soggetto (o unità operativa) responsabile del raggiungimento?
    a. Si
    b. No

22. Prevede per ciascun obiettivo la realizzazione di iniziative o di programmi?
    a. Si
    b. No

23. Prevede la correlazione delle iniziative con gli stanziamenti di bilancio?
    a. Si
    b. No

24. E' prevista la gestione contabile dei singoli progetti/iniziative?
    a. Si
    b. No

25. Agli obiettivi sono correlati degli indicatori di performance?
    a. Si
    b. No

Cruscotti direzionali e sistemi di reporting

26. Come viene gestito il catalogo degli indicatori (cruscotto direzionale)?
    a. Con software specifico, alimentato automaticamente dai vari gestionali
    b. Con software specifico, con alimentazione mista
    c. Con l'utilizzo di fogli elettronici
    d. Altro (specificare)_____

27. Che utilizzo si fa di tali indicatori (possibili più risposte)?
    a. Sono utilizzati per gli adempimenti di legge
    b. Sono utilizzati per la gestione interna
    c. Sono (almeno in parte) utilizzati per comunicazione esterna (specificare modalità) _____

28. Nel caso di gestione interna, quali utilizzi se ne fanno (possibili più risposte)?
    a. Monitoraggio variabili strategiche (scopo informativo)
    b. Decisioni strategiche (scopo decisionale)
    c. Benchmark con altri atenei o strutture interne
    d. Comunicazione interna
    e. Altro (specificare) _____

29. Per quali report interni si utilizzano gli indicatori (possibili più risposte)?
    a. Report agli organi di governo
    b. Report ai presidi di facoltà
    c. Report ai direttori di dipartimento
    d. Report ai dirigenti/responsabili delle unità dell'amministrazione centrale
    e. Altro (specificare)_____

30. L'ateneo organizza sottoinsiemi di indicatori in una Balanced Scorecard o strumento analogo?
    a. Si
    b. No

31. Se si, in quali prospettive si articola la Balanced Scorecard?_____

32. Se presente, che uso si fa della Balanced Scorecard (possibili più risposte)?
    a. Come report sintetico per gli organi di governo
    b. Per favorire la diffusione e l'implementazione degli obiettivi strategici nell'organizzazione
    c. Per valutare le performance dei dirigenti
    d. Altro (specificare) _____

Contabilità analitica

33. La contabilità analitica si basa su un sistema di centri di costo?

a. Si
b. No

34. Se si, i centri di costo ricalcano la struttura organizzativa dell'ateneo (una sola risposta)?
    a. Si, i centri di costo coincidono esattamente con i centri di responsabilità
    b. Si, ma all'interno di ciascun centro di responsabilità si possono avere anche più centri di costo (cdc più dettagliati dei cdr)
    c. Tendenzialmente Si, ma si individuano anche dei centri di costo che non sono centri di responsabilità (es. centri fittizi)
    d. No, i centri di costo sono diversi dai centri di responsabilità (specificare differenze_____)

35. Rispetto a quali oggetti si arriva a determinare il costo (possibili più risposte)?
    a. Dipartimenti
    b. Facoltà
    c. Corsi di laurea
    d. Progetti di ricerca
    e. Altro (specificare) _____

36. Quale metodologia di imputazione dei costi[6] si utilizza (una sola risposta)?
    a. Direct costing
    b. Direct costing evoluto
    c. Full costing con unica base di riparto (quale _____)
    d. Full costing con basi di riparto multiple (esempi di alcune basi di riparto _____)
    e. Full costing con ABC (esempi di cost driver/basi di riparto_____)

37. Avete individuato anche centri di ricavo/di profitto?
    a. Si (precisare quali)_____
    b. No

38. Per l'attribuzione dei costi del personale docente e ricercatore, il sistema prevede una qualche modalità di ripartizione del tempo lavorativo?
    a. No
    b. Si, tramite ripartizione con percentuali predefinite (es. 50% didattica, 50% ricerca)
    c. Si, tramite utilizzo di time sheet
    d. Altro (specificare)_____

Budget e analisi degli scostamenti

39. Quali articolazioni prevede il budget (possibili più risposte)?
    a. Per dipartimenti
    b. Per facoltà
    c. Per singole unità dell'amministrazione centrale
    d. Altro (specificare) _____

40. Com'è il processo di definizione degli obiettivi di budget?
    a. Top-down
    b. Bottom-up

41. È prevista un'analisi degli scostamenti tra budget e consuntivo?
    a. Si (precisare la frequenza)_____
    b. No

[6] Si vedano le note relative alla contabilità analitica.