The Role of IS in Performance Management: The Case of an Italian Public University

Riccardo Mercurio, Ernesto De Nito, Mario Pezzillo Iacono, Vincenza Esposito and Lucia Silvestri

Abstract The article investigates the relationship between Performance Management Systems (PMS) and IS in a single Italian Public University, starting from the gap that exists between what is declared in University policy statements—ostensibly oriented towards empowerment—and what is actually implemented by public managers. We are particularly interested in understanding how ICT could support PMS in the control process. In our empirical analysis we observed that the role of IS depends on the strategy adopted in planning and implementing the PMS.

R. Mercurio
Dipartimento di Economia, Management, Istituzioni, Università degli Studi di Napoli
Federico II, Naples, Italy
e-mail: mercurio@unina.it

E. De Nito
Dipartimento of Scienze Giuridiche, Storiche, Economiche e Sociali,
Università Magna Græcia di Catanzaro, Catanzaro, Italy
e-mail: denito@unicz.it

M. Pezzillo Iacono (✉)
Dipartimento di Economia, Seconda Università di Napoli, Capua, Italy
e-mail: mario.pezzilloiacono@unina2.it

V. Esposito · L. Silvestri
Dipartimento di Economia, Management e Metodi Quantitativi,
Università degli Studi del Sannio, Benevento, Italy
e-mail: vincespo@unisannio.it

L. Silvestri
e-mail: lsilvest@unisannio.it

1 Introduction

Public universities are under constant pressure to increase their effectiveness and quality with fewer resources, while simultaneously being expected to show greater accountability and transparency in their processes [1, 2]. Academic departments are among the institutions facing rapid change as a result of a need for more efficient utilization of human resources due to cut-backs in basic funding, as well as the introduction of new accountability measures by government [3, 4].

New Public Management [5, 6] proposes that public organizations should introduce managerial processes from the private sector, following the success of such practices there. In particular, this approach emphasizes operational efficiency driven by the rationality of managerial systems, showing how both the concept and the practice stemming from private companies can be used in the public sector.

Adopting a critical perspective, this study focuses on the role of Information Systems (IS) in the process of implementing a Performance Management System (PMS), a managerial tool recently adopted by many Italian public universities and here interpreted in terms of power of control. We investigate this relationship starting from the gap that exists between what is declared in university policy statements and what is actually implemented and enacted by public managers. More specifically, we reflect on the impact of IS on the process of control and power centralization.

We set out to explore the following two research questions: (1) Is there a difference between what is formally declared in the design of an Italian University PMS, ostensibly oriented towards empowerment and accountability, and what is actually put into practice? (2) How does the design and use of IS in PMS influence control processes?

The empirical focus of the paper is the recent changes in PMS reflecting the "modernisation agenda" of the Italian public sector. We made an in-depth analysis of a specific case study, showing the distance between the PMS design goals and the implementation results. The analysis concentrates exclusively on the performance of university managers, excluding other categories (i.e. academics).

The paper is set out as follows: the following two sections offer a literature review concerning (a) the role of PMS in public universities and (b) *the issue of control* in Critical IS Research. In Sect. 4 the research context and the methodology adopted for the empirical study are described. Lastly, the results of the empirical research will be discussed, summarising the conclusions and the main findings of the study.

2 The Role of Performance Management Systems in Public Universities

PMS are a complex tool, comprising various parts and with different goals, typically adopted by private and public organizations as a means for engaging in policy and management organizational change. They present an attractive

proposition to politicians, citizens and public spending supporters, opening up the black box of public organizations and greatly enhancing their transparency and manageability [7]. Over the past decade public management scholars and practitioners have taken a growing interest in the use of performance management tools to increase government accountability and effectiveness.

Nonetheless, the literature typically suggests that public-sector applications of PMS are limited and have been implemented with only limited success, primarily due to inadequate performance evaluation methods and underfunding of data management systems and rewards for performance [8]. Prior researches on public sector performance management [9, 10] typically describe shortcomings in both the design and the results of these systems. Moynihan [11], for example, states that, with the implementation of PMS, public managers have been more likely to realize the "symbolic benefits" of creating an impression that "government is being run in a rational, efficient and results-oriented manner".

Recent public sector reforms (in Italy, for instance, the "Brunetta Reform") have aimed at improving public organization performance: the achievement of program outcomes reflects the approach to measuring, evaluating and regulating performance [12]. As we said, under the umbrella of the new public management, public organizations have been engaged in a systematic attempt to control performance over the last few years. In the opinion of Cavalluzzo and Ittner [13] the basic assumption of these initiatives is that the strategic performance indicators can improve public efficiency and effectiveness by increasing the accountability and improving the decision-making of public administrators.

According to Broadbent and Laughlin [14], the University system is a specific area of the public services where this approach is needed and where there is a growing interest in performance measurement. Recently Corcoles et al. [15] conducted a study on the stakeholders' need for information in higher education organizations in Spain. The need for universities to have a greater involvement with their wider community and to ensure information transparency makes it advisable to present information on performance in their current accounting system. The academic departments competing for teachers, researchers, students and funds are getting used to managerial practices and producing reports which allow internal and external bodies to evaluate their performance [16]. Minelli et al. [17] identify and compare the structure and impact of control systems implemented in Italian public universities, showing that they have given rise to effective results particularly in the area of organisational learning: thus the evaluation experience has brought an increase in transparency and control. Finally, according to Secundo et al. [18], the increasing cooperation between universities and firms has resulted in the demand for similar processes of evaluation for both players.

In order to explore the concept of control and monitoring in public universities, a preliminary aspect is related to the conceptualisation of PMS. A PMS is "the set of metrics used to quantify both the efficiency and effectiveness of actions" [19] (p. 81). As stated by Otley [20], PMS provide the information that should be useful to managers "in performing their jobs and to assist organizations in developing and maintaining viable patterns of behaviour" (p. 364). Gruman and Saks [21] suggest

that although performance evaluation is at the heart of PMS [22], the full process extends to all organizational policies, practices and design features that interact to produce employee performance. Aguinis [23] has proposed a broader understanding of performance management that includes organizational planning, performance assessment and behavioral review. Consistently with the approach of Fitzgerald and Moon [24], we interpret Performance Management as a system concerned with defining, controlling and managing both the achievement of outcomes or ends and the means used to achieve these results at the organizational level.

Building on a previous enquiry, Ferreira and Otley [25] have compared the concepts of PMS and management control systems, building an empirical conceptual model by drawing on an analysis of control systems in a range of organizations. According to these scholars, 'management control system' has become "a more restrictive term than was the original intention and we prefer to use the more general descriptor of PMS to capture an holistic approach to the management and control of organizational performance. We see this term as including all aspects of organizational control, including those included under the heading of management control systems" (p. 264). PMS provides an integrating framework, both academically and practically, that goes beyond the traditional boundaries of accounting under the traditional banner of management control system. In other words, PMS is a new label for an old concept: it represents a way to describe a new theoretical framework, whose aim is the design and implementation of the "package of controls".

In this sense it could be interpreted as an integrated technical system to gather and provide information to help managers in their work and decision-making activities, in order to efficiently and effectively achieve the desired organizational goals, acting on both the employees' motivation and performance assessment [26].

3 Theoretical Background: Critical IS Research and Control

Information Systems (IS) are often described as a disciplinary technology intended to regulate the actions of workers and produce information to improve the ability of managers and/or organizations in monitoring the outcomes of those activities [27]. In particular, CISR aims at revealing, criticizing and explaining how the development and use of IS in organizations and society in the pursuit of efficiency and rationalization increase social and organizational control, with potential detrimental consequences for some stakeholders and society as a whole [28]. Adopting an inclusive view, Howcroft [29] encompasses critical research on IS as the branch of IS studies in opposition to technological determinism, which assumes that technological development is autonomous and that societal development is determined by technology. On the contrary, the critical approach seeks to challenge (rather than justify) technological imperatives as natural and inescapable, interpreting the adoption of IS by recourse to a wider social, political, historical, economic and ideological context [30].

CISR typically emphasizes the effects of ICT on people (on their thinking, working conditions and identities, for example), organizations and societies (e.g. by highlighting the fetish of statistics and preoccupation with targets which ICT facilitates and nurtures).

The basic assumption of this view is that technology—interpreted as both a body of artifacts and practices and a specific artifact/object—is not neutral but is "socially shaped". In other words, it has embedded beliefs, values, culture and perceptions deriving from both the designers and the consumers. In this context, technological artifacts can be viewed as culturally constructed and interpreted, not only in how technology is thought of but in its design and implementation [31]. In the opinion of Cecez-Kecmanovic [32], the main aim of CISR is to transform the social/organizational systems in terms of actors, IS and organizations (including their dynamic and relationships), by revealing and explaining how an IS, supposedly implemented in order to increase efficiency and effectiveness, actually increased power of control and decreased autonomy and human agency.

In CISR literature interpretations of power and control are significantly influenced by the post-structuralist approach [33], and our analysis is developed according this view.

The post-structuralist perspective bases its essential theories on social constructivism [34], subjectivist studies [35], and the theoretical elaborations of structuration theory [36]. Applying this approach, social reality is not objective (it is not a thing or a reification), but represents the interaction between individuals and emerges as a conflict of power and construction of meanings, in a logic in which the creation of meaning and organization are characterized as interchangeable concepts. The basic concept behind a post-structuralist approach is to be found in power of control as an interpretative key to processes, analyses and organizational design. These studies typically explore the shift from simple control to technical control to bureaucratic control and, most recently, to normative control [37–39].

The Foucauldian literature on IS and control [40, 41] suggests that the design and implementation of ICT can affect organizational control in at least two interdependent ways: (i) controlling the workforce and (ii) controlling the organizational processes/structures. Consistently with the purpose of our paper, we are interested above all in the latter issue. According to CISR, in fact, an important way in which IS affects organizational control is linked to the influence on organizational processes and/or structures, facilitating control and coordination of activities at different levels, simultaneously enabling and constraining those activities. This concept is based on the idea that the integration of information determined by ICT facilitates the process of standardization and centralizing of organizational power, increasing the polarization between a broad range of "controlled" actors and a tight range of "controlling" subjects. Moreover, this concept appears to be consistent with the Weberian approach that identifies the availability of data, information and skills as the primary source of organizational power.

Furthermore, in terms of control relating to organizational processes, it is worth noting Ciborra's [42] work. In contrast to the prevailing view in IS literature, he suggests that IS artifacts may drift, i.e. "they deviate from their planned purposes

for a variety of reasons often outside anyone's influence" (p. 4) and puts forward a notion "of technology with a certain degree of autonomy and inner dynamics; of technology both as a drifting system and as an organism to be cultivated" (p. 32).

In short, ICT infrastructures tend to have a life of their own: they drift as a result of their usages, design choices, organizational routine, human resource management, user resistance, and/or other unforeseeable behaviors of both systems and humans [43]. Building on this perspective, Rajao and Hayes [44] claim that this drift can be understood as a result of power relations and negotiations between diverse conceptions of controls [45]. According to this idea, the design and use of ICT artifacts tend to reflect the dominant conceptions of control [46]. In other words, ICT both creates new conditions of possibility, e.g. new ways of organizing, and is implicated in different control mechanisms, i.e. they enable and constrain what we do and how we do it. Introna [47], for instance, interprets the relationship between IS and organizations not only as an electronic panopticon but also as embedded in the "micro physics" of everyday life, power relations, discourse and knowledge

Finally we have to point out that some critical studies have shown that IS are designed to support existing structures and that their use tends to strengthen the structures and ways of organizing which are already in place [48]. In order to understand where the power of control is embedded (or where it should be embedded) in an organization, first the distribution of decisional power, or rather the level of centralization/decentralization, has to be analyzed. Conversely, evaluating an organization's level of centralization or decentralization requires discovering where the decisions that influence its characteristic activities are made.

4 Research Context and Methodology

The recent guidelines to reform the Italian public administration passed into law on 4 March 2009—Law 15/2009—approved with the Legislative Decree 150 (the Reform Decree), known as the "Brunetta Reform". The reform strategy rests on three pillars: (i) modernization of the public administration, (ii) innovation and digitalization within the public administration and the country at large, and (iii) improvement of the relationship between the public administration and citizens and businesses [49]. In coherence with the new public management, the overall purpose of the reform is to ensure the highest level of accountability for the state towards its citizens and to improve the efficiency and effectiveness of Italian public sector work by raising the quality of public services and boosting productivity factors. The reform emphasizes the need to reach these ambitious goals through a new management approach oriented towards a continuous improvement of performance, the adoption of the benchmarking method and the measurement of customer satisfaction. In the lawmaker's opinion this requires an integrated system of evaluation, incentives and rewards based on results. This view is consistent with the idea of competitive selection of the best individuals and organizational units,

who are rewarded in monetary and non-monetary terms on the basis of innovative capability and excellence in performance.

Under Law 15/2009 it became obligatory to adopt PMS concerning the performance of organizational structures, individual employees and groups of them. In the absence of these systems, the law prevents public administrations from funding and/or adopting important organizational policies such as hiring staff, providing monetary incentives for managers and awarding bonuses to employees.

In the university sector, in particular, a strong tendency towards change has emerged around the issue of performance assessments. Over the last 5 years the national government has invested in training projects that support organizational change so that universities adopt suitable performance assessment systems in relation to training and research.

Particular attention has been paid to the topic of evaluation, providing support for the development of broad nationwide systems for monitoring services offered to students (teaching and study support) and evaluation of the teaching (see the AlmaLaurea system for assessing teaching and the more recent VQR 2013 system for evaluating productivity of research structures).

Moreover, in the university sector the reform process has been heavily supported by the government. It financed two projects to carry out an analysis of the contexts and planning of the new PMS, which then came into force in the academic years beginning in 2010 and 2011. The two projects adopted different working methodologies and PMS designs that the individual universities subsequently adapted and implemented: the European Common Assessment Framework (CAF) and the Balance Scorecard (BSc) method.

The analysis focuses on the performance of university managers (excluding technical and academic categories) in the Italian public context. There were two reasons for restricting the study to the public universities: (a) the external (normative) pressure to adopt PMS was the same in all cases; (b) they have a more homogeneous experience in performance evaluation compared to private universities. The focus on the administrative staff is coherent with the idea that universities are moving from a traditional academic organization to new forms of useful knowledge to support cooperative activities and relationships with external stakeholders and funders [50]. In the opinion of Boyer [51], the increasing emphasis on integration—such as university-industry cooperation—calls for new forms of academic and administrative management.

The empirical analysis consists of a specific case study, carried out in the period April-December 2012, showing the distance between the PMS design goals and the implementation results. The collection of data was carried out using a heterogeneous plurality of instruments. Such pluralism is coherent both with the theoretical framework and with the differentiated nature of the information required by the multiple case studies method. The case study was developed, in the first phase, through 2 unstructured interviews (with the General Director and Evaluation Committee President), to investigate the purpose and rationale of design that characterizes the PMS. Subsequently, the investigation continued with participant observation in 7 different organizational units, involving two of the authors in all

stages of the PMS. During this period the authors have been actively involved with the management and employees in planning and communicating objectives (8 meetings with about 80 employees), as well as in the intermediate monitoring meetings (2 meetings and 20 monitoring talks) and in measuring and evaluating performance (2 meetings and 25 evaluation talks). In each of the phases of the PM process 9 interviews have been carried out (with the General Director, 4 managers and 4 employees) to discuss the main concerns raised by the implementation of the system.

5 Data Analysis and Discussion

5.1 Case Study

The university analysed in the case study is a small university (about 200 researchers and professors, 200 administrative staff units and almost 8.000 students) located in the South of Italy, founded in 1998 and organized in 3 Departments (Law and Economics, Engineering and Science). In the last 5 years this University has been committed to important programs of inter-university cooperation and internationalization of teaching and research.

As stated in the official approval document, the purpose of the PMS is to improve decision-making processes, the connection with the territory and enhancement of the skills of employees (Guide to PMS, p.11). To support the introduction and adoption of an effective PMS, the university body of governance decided to define a strategy to link PMS with IS. The basic idea was to facilitate the information management through the adoption of an IS coherent with the PMS design.

Information systems of these university are governed by a central administration unit (Sector Resources and Systems) interacting with decentralized structures dedicated to research and teaching (Departments). Among common management systems of overall structure the most important are:

1. Accounting management system—CIA;
2. Human resource management—CSA;
3. Student Management System—GISS.

All these systems, even if provided by a national consortium (CINECA) show characteristics of low integration. For example, the data processed by the Salaries Office can only "migrate" in aggregate form and in a specific moment into the management system responsible for accounting and payment activity.

In addition to these systems, there are other management information systems designed in-house: attendance of the staff, online payroll, services for students, part-time. In 2013 this university developed a road map aimed at developing and integrating IS dedicated to education and students careers management, currently

suspended due to lack of financial resources (€ 400 thousand) and to internal resistances.

Consistently with the NPM approach, the university adopted a PMS to manage information flows carefully and to improve relations with external actors and internal staff.

According to this interpretation the university considers the PMS as an effective tool to guide decision-making processes, communication activities and managerial systems towards relevant performance measures produced by independent organizational units.

This has meant concretely (a) defining and measuring performance using heterogeneous and complex information and (b) promoting interaction between organizational actors, especially for complex tasks and non-routine or innovative activities.

In this sense the PMS has been viewed in official statements as a tool able to create and foster interactivity and decentralization in decision-making (including the measurement and evaluation of job performance).

Official statements concerning the main purpose of PMS can be found in the introduction of the university Guide to PMS (p. 13):

> Through the design and use of the PMS, the Administration aims to create, in a participatory way with its employees, integrated sets of performance objects and measures that could support the institution's executive functions and development of human resources… the creation of integrated sets of indicators and a measuring range used for evaluating the salient aspects of the University's organizational life, which over time may become "standard" indicators, allowing, at the same time, employees to participate in the institution's decision-making processes and the Administration to compare the results obtained with the results obtained over time and those achieved by other universities.

5.2 Discussion: Interconnections Between IS and PMS

In line with official goals the University adopted a PMS model that is strongly focused on interaction between the subjects involved and

> fosters coherent processes for evaluating the Administration's performance; … fosters internal and external communication processes; … compares performance in terms of benchmarking, through characteristic indicators used by international and national universities.

The IS Manager participated in the designing of the PMS as a member of the Task Force responsible for defining the characteristics of the processes of planning and measuring operational activities.

The following are the main organizational solutions, identified by analyzing the official documentation, relating to the PMS and focalized on integrating information flows: orientation meetings on the criteria and techniques provided by the PMS, open database, individual and group interviews for the definition of objectives, individual and group interviews for the analysis of intermediate results, and individual interviews for assessing performance.

The idea stated in the official documents, which was confirmed during the interviews with the General Director and Evaluation Board, is that by using interactive methods, PMS can enhance the development of managerial skills and, above all, can support the onset and sharing of new knowledge that will lead to a better understanding of the characteristics, opportunities and constraints typical of the reference context. In fact, these skills and knowledge were considered essential for the survival of a small university in a competitive environment marked by strong national uncertainty and turbulence, as well as in a local context in which large universities with a venerable history constituted a strong and constant threat.

The decentralization of the decision-making power relating to the definition of operational objectives, consistent with overall policy objectives created by the governing bodies, and the active collaboration of employees in the definition of indicators and measurement of results have been interpreted as suitable organizational solutions to activate sharing of explicit knowledge as well as tacit support of innovation processes.

In general, the information system included in the PMS of the university is configured as a system designed to proactively manage information flows between different organizational units, both central and peripheral units (departments). Its specific purpose was to foster both the definition of performance targets in the planning phase and the collection and data analysis for measurement in the closing stages of the annual process.

During a PMS start-up meeting, the IS Manager said:

> It will allow effective interaction between different organizational referees, regardless of their hierarchical position and their functional position in order to achieve strategic business objectives. Objectives and indicators must clearly indicate the different contributions of workers and be consistent with the strategic vision outlined in the three year strategic plan.

The IS Manager added:

> When we started to define the functions of the application dedicated to PMS, I immediately complained that there would be serious difficulties in design and implementation for two reasons: our major information systems to support operational management were very isolated; and people were not used to interactively managing computerized information flows arising from their specific activities. We had to push colleagues to operate actively in the definition of the objectives, work programs and especially indicators of achievement, breaking down existing barriers especially in the dialogue between different hierarchical levels.

In the absence of a common and integrated platform, data relating to specific work programs have been loaded in subsequent steps by the different groups of actors involved in a specific target.

In the planning phase, therefore, an effective interaction was sought between the organizational actors with varying degrees of responsibility that would participate in the realization of the strategic objectives.

During the first year of implementation, however, some characteristics of the IS dedicated to the PMS showed limits and produced a significant gap between official objectives and managerial behaviors.

At the end of the first year of operation of the PMS in relation to an investment project in university building, a worker from the Technical Bureau said in an interview:

> I have occurred permissions issues by public institutions to carry out some external work, and this has prevented me from spending the entire budget allocated. I informed my superiors in the course of informal meetings, but the information system was not able to record these facts. My boss had to justify, however, a financial figure that represented a failure.

In a different situation a worker from the Research Office revealed:

> In the closing phase of PMS we could just upload the raw data for the measurement of our performance on dedicated IS. Talks and other communication techniques used in the initial stages of PMS were not carried out. Yet I wanted to specify some things that led to my results. I suspect that my bosses did not want to deal with the direct comparison among workers when it came to the moment of evaluation. We always talk about quality and meritocracy and then…!

When this revelation is matched against our theoretical framework, a significant difference emerges. While the literature stated that the higher the level of integration, the higher the level of centralization, our case study shows how even when the IS is decentralized and isolated, the level of centralization could still be very high. This is due to the fact that what really influences the centralization versus decentralization process is the strategy adopted to implement the PMS and in particular, the way the information flow is built up and managed. In this sense the gap between the formal intention of the University and the real implementation of the PMS is clear for all to see.

The decentralisation of the decision-making power relating to the definition of operational objectives consistent with overall policy objectives created by the governing bodies and the active collaboration of employees in the definition of indicators and measurement of results have been interpreted as suitable organisational solutions to activate sharing of explicit knowledge as well as tacit support of innovation processes.

However, during the last phase of the PMS (measuring and evaluation of performances), in many cases the nature of the interaction mechanisms was forced or invalidated in favour of approaches and methods inspired by a strong centralisation and dynamics of power that were inconsistent with the purpose stated during the launching of the system.

In particular, we detected two types of dynamics or behaviours that contrast with the *interactive* approach and with the purposes meant to contribute, through the PMS, to the sharing of knowledge to support innovation and organisational development at the university analysed.

1. Interviews were not used for analysing results and their causes, and the score that the employee received was only communicated through formal channels, in order to avoid situations of conflict within the team. Measurements were not differentiated even in the presence of different levels of performance.
2. The PMS was used as an instrument to adjust the power distributed among the groups and organisational units: the team manager changed the way the

individual scores were used, making assessments that were not coherent with the actual performance levels in order to counter the risk of opportunistic behaviour by other groups.

In particular, in some cases, the evaluation interviews were not carried out and the discussion with the employee was replaced by a mere formal notification of the final judgment on his performance.

> "Every co-worker knows exactly the contribution he has made to our team. … I have the responsibility to make balanced judgments. … I can't communicate all the considerations I make during the evaluation of their performance", was the comment of the Administrative Staff Services manager.

In other cases, managers did not differentiate properly the judgments on the individual performance, even in the presence of different levels of achievement of employees, often due to differentiated organizational practices. The reasons given to explain this behavior were the difficulty of formally "justifying" the differences in score and the desire to contain the levels of conflict in a team. In this sense, the PMS has been interpreted as an instrument for consensus and regulation of power within a group.

During an interview carried out at the end of the evaluation a process manager from the ICT unit stated:

> Yes, this year we started working on the definition of meaningful performance indicators for measuring individual performance, but in the end I'm interested in the overall performance of the Area… I have a large number of collaborators and I manage many projects. I realize that a more careful analysis of the performance would be an interesting contribution to the development of our employees and for planning processes in the future, but I have to worry, today, about their willingness to be engaged, tomorrow, in new projects before I involve them.

In specific situations the PMS was used by the middle management to deal with power issues between different groups and organizational units. In the Economic and Financial resources Area, for example, at the end of the evaluation process the manager gave very high individual and absolutely homogeneous scores. During the talks with his employees and during the interview he said repeatedly:

> Everyone in this organization knows how much we are harassed, constantly trying to solve emergencies and to deal with all-important matters of economic management of our universities… My staff carry out this work as a mission… now everyone must accept an assessment consistent with this situation. Above all I have to avoid instances of injustice. Our organization is small and I can't allow my staff to be evaluated less than others who work with colleagues who are self-promoting and unscrupulous!

These two implications (the higher degree of centralization and the use of PMS as a way to manage power) are directly related to the real goal the management wanted to achieve: to have a higher level of control inside the organization. The centralization of data and the absence of an interaction process among the different members of the organization (even across different hierarchical levels) are clear signs of seeking new opportunities for monitoring and managing personnel performance.

6 Conclusions

The case study shows how the characteristics of IS dedicated to PMS from being an instrument of decentralization and integration came to be used instead as an instrument of control and centralization. In particular we underline two main aspects.

The University analyzed had to deal with specific design choices of IS in the process of wider design of its PMS. These technical choices were geared to a principle of interaction in information management needed to "conceive", measure and evaluate performance. The limits existing in the general architecture of the information systems of the University required the design of a specific and highly innovative application in-house compared to the existing ones, characterized by high degrees of connection between a variable number of operators for each specific strategic objective. The IS architecture still requires a major effort to improve the possibilities of interaction in the process of performance management. Currently the IS cannot support contradictory practices of centralization in the process of measurement and evaluation.

References

1. Borgonovi, E.: Il Diritto Dovere di Valutare e Premiare il Merito nelle Amministrazioni Pubbliche. Azienda Pubblica **22**(2), 199–204 (2009)
2. Riege, A., Lindsay, N.: Knowledge management in the public sector: stakeholder partnerships in the public policy development. J. Knowl. Manage. **10**(3), 24–39 (2006)
3. Minelli, E., Rebora, G., Turri, M.: Waiting for the market: where is the Italian university System heading? High. Educ. Policy **25**, 131–145 (2012)
4. Hellström, T., Husted, K.: Mapping knowledge and intellectual capital in academic environments: a focus group study. J. Intellect. Capital **5**(1), 165–180 (2004)
5. Hood, C.: A public management for all seasons? Public Adm. **69**, 3–19 (1991)
6. Vienažindiene, M., Ciarniene, R.: New public management: theoretical and practical aspects. Eng. Econ. **5**, 44–50 (2007)
7. de Bruijn, H.: Performance measurement in the public sector: strategies to cope with the risks of performance measurement. Int. J. Public Sector Manag. **15**(7), 578–594 (2002)
8. Rainey, H.G.: Reform trends at the federal level with implications for the states: the pursuit of flexibility and the human capital movement. In: Kellough, J.E., Nigro, L.G. (eds.) Civil Service Reform in the States: Personnel Policies and Politics at the Sub-national Level. State University of New York Press, Albany, pp. 33–58 (2006)
9. Heinrich, C.J.: Do government bureaucrats make effective use of performance management information? J. Public Adm. Res. Theor. **9**(3), 363–393 (1999)
10. Radin, B.A.: The government performance and results act and the tradition of federal management reform: square pegs in round holes. J. Public Adm. Res. Theor. **10**(1), 1–35 (2000)
11. Moynihan, D.P.: The Dynamics of Performance Management: Constructing Information and Reform. Georgetown University Press, Washington (2008)
12. Heinrich, C.J., Marschke, G.: Incentives and their dynamics in public sector performance management systems. J. Policy Anal. Manage. **29**(1), 183–208 (2010)

13. Cavalluzzo, K.S., Ittner, C.D.: Implementing performance measurement innovations: evidence from government. Acc. Organ. Soc. **29**(3–4), 243–267 (2004)
14. Broadbent, J., Laughlin, R.: Performance management systems: a conceptual model. Manage. Acc. Res. **20**, 283–295 (2009)
15. Corcoles, Y.R., Penalver, J.F.S., Ponce, A.T.: Intellectual capital in Spanish public universities: stakeholders' information needs. J. Intellect. Capital **12**(3), 356–376 (2011)
16. Sánchez, M.P., Elena, S., Castrillo, R.: Intellectual capital dynamics in universities: a reporting model. J. Intellect. Capital **10**(2), 307–324 (2009)
17. Minelli, E., Rebora, G., Turri, M.: The risk of failure of controls and levers of change: an examination of two Italian public sector. J. Acc. Organ. Change **4**(1), 5–26 (2008)
18. Secundo, G., Margherita, A., Elia, G., Passiante, G.: Intangible assets in higher education and research: mission, performance or both? J. Intellect. Capital **11**(2), 140–157 (2010)
19. Neely, A.D., Gregory, M.J., Platts, K.: Performance measurement system design: a literature Review and research agenda. Int. J. Oper. Prod. Manage. **15**(4), 80–116 (1995)
20. Otley, D.: Performance management: a framework for management control systems research. Manage. Acc. Res. **10**(4), 363–382 (1999)
21. Gruman, J.A., Saks, A.M.: Performance management and employee engagement. Hum. Resour. Manage. Rev. **21**(2), 123–136 (2011)
22. Cardy, R.L.: Performance Management: Concepts, Skills, and Exercises. M. E. Sharpe, Armonk (2004)
23. Aguinis, H.: Performance Management, 2nd edn. Pearson Prentice Hall, Upper Saddle River (2009)
24. Fitzgerald, L., Moon, P.: Performance Measurement in Service Industries: Making It Work. CIMA, London (1996)
25. Ferreira, A., Otley, D.: The design and use of performance management systems: an extended framework for analysis. Manage. Acc. Res. **20**(4), 263–282 (2009)
26. Canonico, P., Söderlund, P.: Getting control of multi-project organizations: combining contingent control mechanisms. Int. J. Project Manage. **28**, 796–806 (2010)
27. Doolin, B., McLeod, L.: Towards critical interpretivism in IS research. In: Howcroft, D., Trauth, E.M. (eds.) Handbook of Critical Information Systems Research: Theory and Application, pp. 244–271. Edward Elgar, Cheltenham, UK, (2005)
28. Cecez-Kecmanovic, D., Klein, H.K., Brooke, C.: Exploring the critical research agenda in information Systems research. Inf. Syst. J. **18**(2), 123–135 (2008)
29. Howcroft, D.: Information System. In: Alvesson, M., Bridgman, T., Willmott, H. (eds.) Oxford Handbook of Critical Management Studies. Oxford University Press, Oxford (2009)
30. Bednar, P.M.: A contextual integration of individual and organizational learning perspectives as part of IS analysis. Inf. Sci. J. **3**(3), 145–156 (2000)
31. McLoughlin, I., Harris, M.: Innovation, Organizational Change and Technology. International Thompson Business Paper, London (1997)
32. Cecez-Kecmanovic, D.: Basic assumptions of the critical research perspectives in information systems. In: Howcroft, D., Trauth, E. (eds.) Handbook of Critical Information Systems Research: Theory and Application, pp. 19–46. Aldershot, Edward Elgar (2005)
33. Avgerou, C., Mansell, R., Quah, D., Silverstone, R.: The Oxford Handbook of Information and Communication Technologies. Oxford University Press, Oxford (2007)
34. Berger, P.L., Luckmann, T.: The Social Construction of Reality. A Treatise in the Sociology of Knowledge, Garden City (1966)
35. Weick, K.E.: Enactment processes in organizations. In: Staw, B.M., Salancick, G.R. (eds.) New Directions in Organizational Behaviour. St. Clair Press, Chicago (1977)
36. Giddens, A.: Modernity and Self Identity, Self and Society in the Late Modern Age. Polity Press, Cambridge (1991)
37. Sveningsson, S., Alvesson, M.: Managing managerial identities: organizational fragmentation. Discourse and identity struggle. Hum. Relat. **56**(10), 1141–1193 (2003)
38. Alvesson, M., Willmott, H.: Identity regulation as organizational control: producing the appropriate individual. J. Manage. Stud. **39**, 619–644 (2002)

39. Alvesson, M., Willmott, H.: On the idea of emancipation in management and organization studies. Acad. Manag. Rev. **17**(3), 432–464 (1992)
40. Brooke, C.: Critical research in information systems. J. Inf. Technol. **17**(2), 45–47 (2002)
41. Martinez, M., Pezzillo Iacono, M.: Dealing with critical IS research: artifacts, drifts, electronic panopticon and illusions of empowerment. In: Baskerville, R., De Marco, M., Spagnoletti, P. (eds.) Designing Organisational Systems—An Interdisciplinary Discourse, Springer (2013)
42. Ciborra, C.U.: A Critical Review of the Literature on the Management of Corporate Information Infrastructure. In: Ciborra, C.U. (ed.) From Control to Drift: the Dynamics of Corporate Information Infrastructures, pp. 15–40. Oxford University Press, Oxford (2000)
43. Ciborra, C.U.: The Labyrinths of Information: Challenging the Wisdom of Systems. Oxford University Press, Oxford (2002)
44. Rajao, R., Hayes, N.: Conceptions of control and IT artefacts: an institutional account of the Amazon rainforest monitoring system. J. Inf. Technol. **24**(4), 320–331 (2009)
45. Fligstein, N.: The Transformation of Corporate Control. Harvard University Press, Cambridge (1990)
46. Martinez, M.: ICT, Productivity and organizational complementarity. In: Rossignoli, C., Carugati, A. (eds.) Emerging Themes in Information Systems and Organization Studies, pp. 271–281 (2011)
47. Introna, L.D.: Management, Information and Power. Macmillan, London (1997)
48. Orlikowski, W.J.: Using technology and constituting structures: a practice lens for studying technology in organizations. Organ. Sci. **11**(4), 404–428 (2000)
49. OECD: Modernising the public administration: A Study on Italy. Presented at public governance committee meeting at the ministerial level, Venice, 15–16 Nov 2010
50. Hunt, D.P.: The concept of knowledge and how to measure it. J. Intellect. Capital **4**(1), 125–142 (2003)
51. Boyer, E.: Scholarship Reconsidered: Priorities of the Professoriate. Carnegie Foundation, Princeton (1990)