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# Modeling the Emergence of Management Control in Public Organizations: The Case of Moroccan Universities

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*Abstract— The performance of universities is justified through the quality or effectiveness of services rendered, but also through the optimization of resources. To meet these requirements (quality, efficiency, and optimization) and evaluate these results, universities are forced to have an effective system of management control. In this context, the object of our paper is to study the necessity of management control in the Moroccan Universities, organizations which are of public vocation and having for mission research and offer of formation. It is at this level that our problem could be formulated as follows: To what extent the system of management control would be necessary for the monitoring of Moroccan universities in the context of autonomy and contracting?*

*Index Terms— Autonomy and contracting, Management control, Moroccan universities, performance, public management.*

## I. INTRODUCTION

Most governments in Western countries have asked universities to change their management style (usually bureaucratic) to an undertaking management based on a long-term planning and strategic concepts and the use of modern and effective tools. This policy is dictated by two facts: first, the weight of the cost of state universities is very high. On the other hand, the market for higher education in the European space has become open, like the opening of the labor market. Therefore, the European Community is putting in place the European space of higher education to emulate the competition and also to boost the mobility of students, teachers and graduates. Hence, there is an increasing harmonization of clear standards, including License-Master-Doctorate (LMD) and credit system (ECTS) [1] European Credits Transfer System. Current trends in higher education policies all seem to converge to:

- Globalization and internationalization
- Improvement of competitiveness, with more autonomy to universities, and a more market-oriented offer;
- The use of NPM (New Public Management) and strategic planning techniques
- The development and use of new technologies
- The quality management and the culture of evaluation and control.

In this context, the Moroccan university is required to make changes in depth to cope with the changing environment both nationally and internationally to meet the requirements of its 'clients'. This mutation occurs inter alia by the requirement to change the university from a bureaucratic organization to a modern one. To meet this requirement Moroccan universities are engaged in a process of reform initiated in 1999 by the National Charter ([2]; [27]). Consequently, 17 university development contracts (Plan of emergency) have been signed committing the State and 15 Moroccan universities [3]. This contracting (which defines the relationship between the State-University) offers universities more liberty to effectively exercise their autonomy. The implementation of the contracts is accompanied by the emergence of new practices of management control (tracking device with 289 indicators, dashboards ...) ([2]; [3]). The objective is to ensure efficiency in management, to service students, to empower each one in his place while achieving transparency in the management of universities; in a word, the Moroccan University is called to be performing. This performance is justified through the quality and effectiveness of services, but also through the optimization of resources. To meet these requirements (quality, efficiency, and optimization) and accurately assess these results, universities are forced to adopt an effective system of management controls for monitoring its performance.



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In this frame, our paper will focus on **modeling the emergence of management control in public organizations including the Moroccan University**. However, the majority of works on higher education ignores the university as an organization. They encourage us to examine their functioning modes, taking into consideration the fact that this field of study seems practically uncharted and little visited by researchers. To do this, we will, at first deal with, the theoretical framework explaining the need of the control system of management in universities (II). In a second time, we would like to present the adopted methodological approach for the research (III) then we will try to present the results of our qualitative study (IV). Finally, we will end up with a conclusion.

## II. THEORETICAL FRAMEWORK

The progress of our thinking from the context of the study described above is based on a field of investigation at the intersection between private management and public management. Although our research is clearly positioned on the topic of management control<sup>1</sup> MC, it is particularly at the crossroads of several disciplines, namely public management, organization theory, sociology, economics and psychology.

This is a first step to define the concept of MC. It has known, in recent years, important changes. These changes alter the positioning of this practice in enterprises and in academia. Indeed, reading books and articles dealing with the control of management highlights the existence of a consensus around the idea that MC may appear as an ambiguous and ill-defined concept ([4]; [5]). For this purpose, the notion of MC is so prone to multiple interpretations. The causes of this ambiguity are multiple:

A translation error was committed when the term appeared in French in the late 60s [6]: "MC" of the Anglo-Saxons should have been reflected in management control. In fact, the control means in English mastery, whereas in French it means first checking like in expressions such as fiscal control, financial control

However, the inevitable definition of MC returns to RN Anthony (1965), a professor at Harvard ([4]; [5]; [7]): « Management control is the process by which managers are assured that resources are obtained and used effectively and efficiently to achieve the organization's objectives ». Three elements are to be learned from this definition. The first is purely instrumental MC, the second element is the fact that the control system relating to the effectiveness and efficiency, and the third brings up the control system as a follow-up, as a posteriori control and therefore this trait helps to differentiate between the MC and a priori control.

A few years later, the same author, Anthony (1988) has adjusted its definition while avoiding its overly accounting aspect: "Management control is the process by which managers influence other members of the organization to implement strategies of the organization". Two points in common with the previous definition, one at the explicit level that is the dependence of the control of strategy. On the implicit level, it is always a question of efficiency and effectiveness. A key point between the two definitions is that the first control is a management tool for monitoring, while the second control is a tool designed to influence the behavior of collaborators. With a simple monitoring tool, it becomes an instrument of action.

The third definition that we will consider here is that of R. Simons (1995), "The process and procedures based on the information that managers use to maintain or modify certain configurations of the activities of the organization." Information, therefore, according to this definition, is the raw material for MC. This can be financial and accounting, but also operational, quantitative or qualitative. The manager uses it to influence the members of the organization and to coordinate in his way the manner of cooperation ([8]; [6]):

We note, according to these definitions, that the MC is the tool for managers in business since the management controller is never mentioned and that its goal is identical. This is to ensure the implementation of the strategy of the organization. Finally, the authors refer to organizations which means that management control can be applied not only to private organizations but also to public ones.

Unlike the private sector, the public organization operates within a strict legal and regulatory framework defining the mission of the organization, the resources available to it (budget allocations) and, to some extent, how to distribute them. The choice of organizational structure and management systems are also highly constrained by the laws, regulations and mandates that legitimize its existence and operating conditions ([19]; [20]; [21]).

Therefore, with the introduction in Morocco of the principle of globalization and contracting credit in the budget from the Finance Act 2002 that the MC began to be introduced into the customs of the administration. Earlier political discourse spoke of "the rationalization of budgetary expenditure," inspired by the French practice of Rationalization of Budgetary Choices RBC, itself inspired by the Planning-Program-Budgeting-System PPBS method practiced in the USA ([9]; [10]; [11]; [28]; [29]). In this context, management control is again presented as

<sup>1</sup> Denote by MC: Management control.



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a "central role [...] which should enable managers to ensure their responsibility to control public policy and help to identify levers for improving the efficiency and the quality of their work." Moreover, by the autonomy and accountability of managers which is one of the pillars of the modernization of public administration, these reforms have led to a proliferation of centers of decision and, in fact, the emergence of demand management to support and assist these centers in their new responsibilities.

In this context, our study will focus on modeling the emergence of MC in an organization, especially in the Moroccan University. Accordingly, we have located our research in the general framework of systems. This framework will allow us to study the need for control as management information system in an organization, including an analysis in terms of "fit". The choice of the systemic approach is explained by the fact that the latter may, in contrast to the analytical approach, encompass the phenomenon in its entirety. In addition, the system can be defined as a set of elements interacting with each other to the extent that these interactions are very important for the elements. This is the case here, the MU<sup>2</sup> are complex organizations where the elements are varied, and many interactions are unstable and are dynamic. Thus, any change will result in an alteration of others. MC cannot be studied independently from other elements. Among with, the systemic approach will allow us to use system characteristics such as variety, adaptability, learning, feedback and degree of organization.

In this approach, the MU are considered as open, finalized and adaptive social systems. They are open systems because they make part of a MU environment. These systems counteract with the universities. This environment is composed, for example, of the political sphere, the national economic situation and local needs of the public, Ministry of Higher Education, Executive Training and Scientific Research, etc. The systems are finalized because they have goals that are missions which MU Law 01.00 (on the organization of higher education) has set. Adaptive systems, we believe, as pointed by M.GERVAIS (1997) ([12]; [13]), "have the ability to transform their structure to change their goals and means to harmonize with the changing environment." Thus, the implementation of MC in universities can be seen as a process of adaptation to new constraints.

To explain the need for MC in MU, we are left with an analysis in terms of "fit". This concept has been used, since the late 70s, under the contingency theory. In this theory, organizations are conceptualized as systems of information processing. The balance between need and capacity of information processing is called "fit", and "fit" determines the performance of the organization. In case of an imbalance need / capacity, the organization must find a solution for coherence.

According to this theory, we assume that the utility of management control as information system depends on the alignment between need and capacity of information processing. Thus, the implementation of management control is emerging as a solution to ensure coherence so as to address an imbalance need / ability. Given the existence of several models made, we have chosen the model Tushman and Nadler. This is a model that seems more suited to our research approach because it is synthetic, general and intra-organizational. Among with, it is a reference model of the contingency theory.

According to Tushman and Nadler [14], needs of information processing depend on three variables. These are the three sources of uncertainty that organizations face:

The degree of stability and uncertainty of the environment: the environment is more unstable or uncertain, the volume of information is higher and there is a need to treat them.

The level of interdependence of units: units (division, department, service, etc.). Highly interdependent require multiple exchanges of information to reach an acceptable level of coordination.

The characteristics of the activities within a unit: that is to say the level of complexity and interdependence between the activities of a unit. In other words, the more tasks are complex and variable, the more operation of the organization requires information for decision-making centers. To meet these needs, the organization implements capacity information processing in committing resources and therefore it may affect [14]:

- The structure, in order to influence on how coordination can create or delete hierarchical levels, meetings, establishes committees...
- Technologies and information systems. It may decide to use them intensively and / or introduce others.

The advantage of this model for our research is to explain the need for MC in universities due to the fact that the needs and capabilities of information processing are unbalanced.

On the one hand, the need for information processing is growing because the environment changes: a contracting process between the state and universities is introduced. It has permitted shift from the logics of medium to that of result. Today, universities are expected to be accountable to the supervision and are required to improve the quality

<sup>2</sup> Denote by MU: Moroccan universities



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of training while responding to the needs of job market. These changes cause an increase in uncertainty and complexity.

The characteristics of activities are evolving, in particular because of Information technology and communication (ICT): the internet, the intranet, Application For the Organization and Management of Students and Lessons (AFOMSL), Digital Work Environment (DWE), etc.. which increase the interactions between units (chair, academic institutions, services, departments) within universities. Furthermore, in addition to their core business and an increase in their independence, a new business has emerged: the training ([15]; [16]).

On the other hand, information systems in universities are sufficiently evolved to meet the needs of information processing. Despite the development of ICT, there is still an imbalance between capacity and fill needs. Thus, public accounting is not an effective management tool to the extent that its role is to justify the expenses without exceeding the credit. In addition, as mentioned above, the structure is not modified in universities.

This model therefore points to the need for new information systems (or systems development already present). This is why in some universities, there is an emergence of information systems, especially those with a dominant "control", we include for example: internal control, internal audit, certification procedures and quality assessment. These information systems carry and process information with an abundant variety. They are not fully substitutable.

We believe that MC will have its place and will develop namely, monitoring and control of the increased flows of information. In addition, it is more adapted to the constraints of the environment deriving from the tutelage which induces the establishment of a logic result. MC is a suitable tool for ensuring consistency of the system need / ability. This model shows that information systems (including audit) are contingent, that is to mean, there is a MC specific to universities. This justifies the interest of our research.

### III. METHODOLOGICAL ASPECTS

In this section, we will look at the methodology used in this paper. We will detail first our constructivist epistemological position that seems to be the most appropriate for both the new theme of MC in Moroccan universities and our research question. Secondly, we present the adopted research methodology, which is based on a qualitative approach. We will explain later the reasons of our choice for this qualitative approach.

#### A. *The epistemological position: the constructivist paradigm*

This is a first step to clarify the epistemological position adopted by the researcher. As recalled F.Wacheux (1996) [17], epistemology is the philosophy of scientific practice. All scientific work must be based on design and vision. Mbengue (2001), on his part, views epistemology as the status of the relationship between the researcher and what can be known. This relationship can take the form of independence or interdependence. According to Thiétart (2003). "The epistemology is the study of science. She questioned what science was by discussing the nature, the method and the value of knowledge ... Any research is based, in fact, on a certain vision of the world. It uses a method and provides results to predict, prescribe, understand, construct or explain ... ". The epistemological position depends on the nature of reality, the nature of the relationship subject/object and the nature of the researcher's context. The purpose of our research is part of a constructivist epistemological vision that aims to build a new emerging reality and produce results which can be used by interested people to improve their thinking and practice.

#### B. *The methodological research: an exploratory approach*

There are several methodological approaches in the social sciences and particularly in management science: testing and exploration. Since our goal is to explain and understand the reality and not to test hypotheses from existing theories, our raw material on which we will work is translated into speech, interviews, documents, annual reports, etc. rather than figures. We can therefore conclude that the methodology is a qualitative exploratory methodology with a constructivist paradigm ([17]; [18]).

**The choice for a qualitative method based on case studies:** Very often, the exploration is linked to a qualitative approach and a quantitative verification. In this context, we have chosen to use the qualitative method that, in our case, seems adequate for our research. In addition, the choice for this approach stems from the novelty of our research topic. Given the issues raised by the research and the complexity of the problem to be studied, we have chosen the case studies as a strategy for access to the real. To do this, we have conducted two analyses: an analysis of inter-universities from six exploratory case analysis and intra-university from an in depth case [18].

Among the 15 Moroccan universities involved in contracting, we have established our list of five universities in order to include the widest possible range of case diversity. We have also added to this list a public university but privately managed, the University Al AKhawayn. The sample size was therefore confined to six universities (see



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Table 1 below), which is relatively low, but additional universities would not have provided sufficient additional information, given the cost and time constraint. In addition, a qualitative sample does not need to be representative in a statistical sense, but it must be at the focus of the research.

**Table 1: List of interviews during the inter universities study**

university	city	Number of People interviewed	function
Mohammed V University Agdal	Rabat	2	secretary-general Responsible for budgeting and accounting
University Sidi Mohammed Ben Abdellah	Fez	1	secretary-general
University Al Khawayn	Ifrane	1	Service responsible
Cadi Ayyad University	Marrakech	2	secretary-general Head of Quality Management
University Hassan I	Settat	1	Vice President: service responsible for scientific research and cooperation
Ibn Zuhr University	Agadir	1	Steward of Economic Affairs Service
<b>Total</b>		<b>8</b>	

To deepen our empirical research, we have chosen the University Abdelmalek Essaâdi (see Table 2 below). This is due to our membership as an observer participant and our knowledge of the mentioned university. Consequently, the opportunities for access to information were easy and there was no confidentiality concern [15].

**Table 2: List of interviewees at UAE study**

University	Function of interlocutors	Number of interlocutors interviewed
University Abdelmalek Essaâdi-Tetuan	Secretary General of the Presidency	1
	General Secretaries of academic institutions	11
	paymaster	1
	Proxy	2
	economic Service	2
	Information System Service	1
<b>Total</b>		<b>18</b>

**Techniques of data collection and analysis:** There are several ways of collecting qualitative data. For our part, we propose two ways of investigation: the interview and documentary analysis. These techniques have seemed to be the most suitable to the requirements of our problem. In addition, as stated by F.Wacheux (1996), maintenance and documentation are "two essential sources when one is interested in actors, organization and in the behavior of actors in the organization." Of the four traditional forms of maintenance, we have opted for the semi-directive interview technique. At this type of interview, the degree of freedom given to the interviewee is based on information considered interesting for the researcher. In addition, the semi-directive interview can address several issues simultaneously. It is suitable for our insufficiently explored field of research.



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Within the framework of this research, we have focused on our category of respondents within the University. Due to our approach of questioning and concern for strategy, our respondents had to be people that oversee the functioning of the Presidency among others: the President, the two Vice-Presidents and the Secretary General as four acting people who share, at the top of the hierarchy, the power in the University. Reluctance on our part has disrupted this choice at the outset, but we were forced to opt for the senior person or people with more skills. It goes without saying that further discussions were held with other university officials (Head of Human Resources, responsible for budget and financial affairs, responsible for the data center, etc.) to collect information mainly for more technical points.

For the content analysis of the interviews, there are several techniques. Among them we find the thematic analysis. Therefore, we resorted to the latter which establishes a crosswise relationship (see Table 3 below). We have gathered all available information, interviews and eventually documents. This information is classified by themes or sub-themes and then subdivided into categories. At the end of each interview, a summary was made while generating possible links between themes.

**Table 3: The following topics have been the subject of the question**

Maintenance Guide	
Themes	Sub-themes
1- Autonomy, contracting and organization	Contribution of the new reform of higher education in general and universities in particular.
	New results-based management
	Contract State /University (commitment of the State and University)
	The reality of university autonomy with the new reform
	Organization of the university: Organization, decision-making services, tips, etc..
2- Management control and information systems	The controls within the university (Auditing, monitoring supervision, internal control, audit, quality control, etc.).
	Perception of management control within the university
	Control practice management (accounting, dashboard, etc.).
	Technology and information systems software, internet, intranet, networks, etc..
	Obstacles and conditions of implementation of management control.
	Factors for the emergence of the practice of management control
3- The role of different actors	The President, the authority (Ministry of Higher Education), the College Board, the Secretary General of the Presidency, the accountant, etc..
4- The interlocutor	Function within the university
	Studies followed

#### IV. RESULTS OF THE EXPLORATORY STUDY

In this section, we have analyzed within seven Moroccan universities, the current situation and existing practices of MC, especially with the adoption of the emergency program. This analysis has helped to update several lessons about the conditions and prerequisites for the establishment of a MC system best suited to the specificities of UM. This analysis will help us to identify several key variables, then this path will lead us later to propose a specific model to Moroccan universities.

##### A. Observations

During interviews with various stakeholders, we reached the following findings:

The MU do not have a dedicated MC. Without this service, the practices of MC are dispersed among the presidential team (President, two Vice-Presidents and the Secretary General), common services (Center for



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Computer Resources, Asset Management) and services at academic institutions (deans or principals, vice principals or deans and general-secretaries). Such practices of MC in place are manifested today in aspects of indicators and charts [30].

Internal control for MU is a legal obligation because under the law 69-00 [11] on the financial control of the State, MU must develop their internal controls. However, the internal control service is not present in the MU. The functions and organization of the institutions are not formalized. Each institution operates according to its needs and realities dictated by its requirements and specifications. The MU have a functional flowchart(not official) [15] to meet their requirements. Management procedures for all administrative tasks are not yet formalized with the exception of certain tasks including the management of education, library, contests, etc.. Some procedures, however, remain partially applicable, but there are manuals of legal procedures especially, for example, the procedure manual for operations carried out by the economic departments.

Interviews have shown the following barriers: resistance to change, lack of accounting system and ignorance of the importance of MC. This being the shift from a logic of means to that of results which has entailed on the part of some officials, resistance that can block or delay the development of an information system like MC. it is rather an inertia than a real opposition, in other words, it is a passive resistance manifested by the non-involvement of some management teams in academic institutions.

According to the interviews, there is no accounting or cost accounting, but a university accounting chart is developed. Currently, it is in the hands of the National Accounting Commission for validation. According to a party, there are two major obstacles that may delay the implementation of general accounting namely:

The transfer of the land: some properties of the University (buildings, land, buildings, ...) are still in the hands of guardianship (Ministry of Higher Education, Executive Training and Scientific Research) as the capital budget was centralized before the reform, that is to say, was managed by the Ministry of guardianship.

Depreciation of property: in order to identify all the elements that go into the property of the University, an issue was raised as to the lack of information on the dates of acquisition of fixed assets, their original values and sometimes even their identification numbers. These raise the problem of finding the impairment of property, that is to say, the difficulty of calculating depreciation [31].

The results of the interviews show that university autonomy is usually partial. At the pedagogical level, universities have the necessary autonomy. The university offers two types of training: national diplomas and university degrees. It has full freedom to offer university degrees in the form and manner that suit it. And as to financial autonomy, the University now has a fairly large margin of freedom, for example: the College Board, which annually adopts the budget and decides on the operating expenditure and investment. However, there are some complex issues that are cited as an example, the weight of the budgetary procedure. As a public institution, universities are subject to an a priori control which freezes budget execution. Finally at the administrative level, the autonomy is partial, since the University can recruit what it wants, but it remains subject to a set of rules. This device may feel uncomfortable in that the recruitment process can take up to 5 months. It is the lack of flexibility in the Human Resources Management in the Public Service as manifested by the laws that interfere with the operations of the University so that it is reactive with respect to requests.

### ***B. Identification of variables***

In the light of our field survey inter-and intra universities, several key variables have emerged from our interviews. However, these variables do not all have the same importance for our various interlocutors. These differences are probably due to the specificities of each university on the one hand, and perceptions of each of our partners for the problem studied on the other.

Therefore, we have chosen to divide the set of variables mentioned in two groups, representing decreasing levels from the most critical to the least ones.

The first group includes variables that have been cited by all of our interlocutors. Four variables are part of this group: the will of the President, contracting-autonomy, information system (accounting system) and internal control (quality management).

The second group of variables that have been cited more than once by our interlocutors. Indeed, the variables which partake of this group have not been mentioned by all our interlocutors, their repetition confirms the hypothesis that these variables can positively influence the implementation of MC. In this group there are two variables, which are: competition and cultural dimension.

**The most influential variables:** In this group we find the will of the President, contracting-autonomy, information system (accounting system) and internal control (quality management).



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The will of the president: First, the will of the president seems to be the first critical variable since it was mentioned in all universities. But what does explain this desire? Several reasons are actually behind this will.

In some cases, it is related to personal beliefs and convictions of the President himself towards the important function of MC. In other cases, the will is explained by the aspirations and personal ambitions of the Presidents in their University, seeking the label as an example to show that they wanted to do something.

- The contracting-autonomy: The results of the interviews we have conducted show that the link control / management contracts is undeniable. This confirms that the need for MC, among others, is born out of environmental change, especially a reform coming from the top of the state ([23]; [24] ([25]).

Contracting is mainly due to two wills: a desire to improve the management of the University and a desire to improve the public service. These latter constitute two reasons that may encourage managers to implement University MC. In order that agents may not deviate from the objectives entrusted with them, according to the agency theory, control mechanisms (including audit) and incentives are set out in the agency relationships between the principal (Ministry of Higher Education, Executive Training and Scientific Research) and agent (University). This shows, once again, that this variable is more important.

- The information system (accounting system): The third variable, discussed in our interviews is related to the information system. The latter seems to be a large number of interlocutors fundamental to the development of MC practices. Until today, there is no accounting or cost accounting in these Universities. This justifies the lack of MC in them. Therefore, the accounting system is a critical variable.

- Internal control (quality management): We note that the relationship between MC and internal control is ambiguous insofar as MC sometimes includes internal control while definitions of internal control include MC. To do this, P.Gilbert (2009) proposes a distinction based on the purpose of each of the two approaches:

- MC as a set of procedures which aim research performance (itself understood as the effectiveness and efficiency);

- Internal control as a set of procedures designed to avoid the risk of any kind (embezzlement, civil or criminal prosecution, loss of competitive advantage ...).

During our investigations, all of those interviewed believe that the presence of an internal control in the University is a favorable factor for the emergence of MC practices. This factor seems to be decisive for the implementation of MC.

**The least determining variables:** The second group of variables includes factors that have not been mentioned by all Universities. The two variables that make up this group are: competition and cultural dimension.

- Competition: During the interviews we conducted with seven universities, several interviewees raised the issue of competition. To do this, the variable, in our opinion, may, over time, have a strong influence on public universities because it is part of the duration in the sense that the evolution of new entrants is irreversible.

Potential competition between public universities, private schools and universities can be analyzed by transposing the Porter model to our field of research. Indeed, the State (supplier), students (the clients), new universities and private schools (potential entrants), the presence of political and legal barriers to entry. There is no substitute here. Potential competition from private schools and universities push public universities to adopt a strategy and then develop MC. This can be used by universities to cope with a possible increase in the intensity of competition. However, this variable seems now to be less critical [32].

- The cultural dimension: In our investigations, several interviewees mentioned the predominance of the public service culture in universities. This culture is characterized by a logic of means and not of result, a lack of client logic, a strong trade unionist presence, especially in this context where there are a lot of social demands and a tendency to stagnation and a marked resistance to innovation. These can slow or prevent the introduction of MC. However, with the adoption of a contracting system State/University, some respondents (in interviews) discussed the cultural shift taking place in the University, ie the culture medium is evolving towards a culture result [26]. This will help to prepare the ground for control management. To do this, the cultural change can be mainly done through: the university that broadcasts during its training, an increasingly managerial culture and education, the state that drives the overall objectives (such as, for example, quality) through contracts with universities and therefore this cultural change could be accelerated by the MC. There is therefore the interplay between cultural change and MC. Thus, this variable seems to be less critical ([23]; [24])

After identification of six variables as the most critical for the adoption of a MC system in universities, we will try to propose a theoretical model combining these variables. This model is thus presented as a set of assumptions.

### **C. Proposed Model**

The model proposed is contingent insofar as it is unique to Moroccan Universities. It should have an explanatory and a predictive aspect (i.e. allowing the action). As stated by H.BOUQUIN "model is choosing to focus on certain

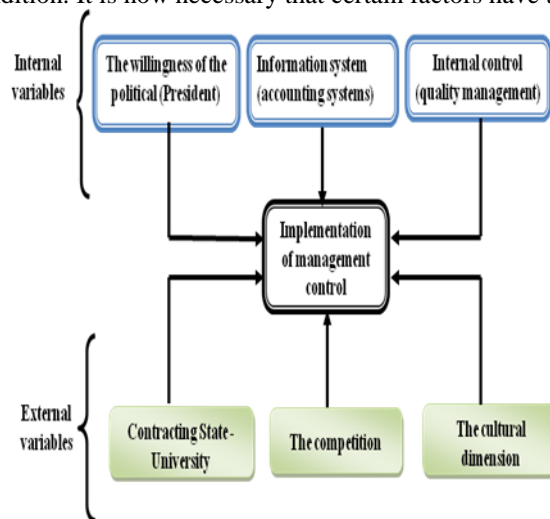


aspects of reality that is described in a formalized way to show relationships of interdependence, and where possible to predict the evolution of the selected variables and/or their relationships." [5] The methodology used for modeling is a multifaceted approach. Hence, it takes into account:

- Theoretical contributions to MC in the private and public sectors. The approach is deductive;
- Our experience in the field is derived from the study of seven cases. This study has allowed us to highlight in particular the influence of certain factors such as political will (Chair), internal control, accounting system, self-contracting, etc.. The approach is inductive.

The model of the emergence of MC in the MU is based on two levels: the need for MC, and emergence factors of MC.

The need for MC is a necessary condition for the implementation of MC in public institutions especially MU. But this need is an insufficient condition. It is now necessary that certain factors have to be present.



**Fig 1: A theoretical model for the determinants of implementation of MC in Moroccan Universities**

We believe that in the long term and under the influence of these factors, all Moroccan universities will adopt MC. Indeed, the favorable conditions for this are an increasing function of time. For example, over time:

- Internal control will grow;
- Information system (especially with the implementation of Enterprise Ressource Planning ERP "Sage X3" for financial management and accounting for Moroccan universities) will increase,
- The adoption of a contracting system state/university, the public service culture in universities will evolve into a logic of result, which can pave the way for MC;
- The creation of new private universities with a market logic, competition between public and private universities, will become an influencing factor for the adoption of MC;
- Contracting is becoming a reality today. This has led to the development of practices of MC in MU as indicators and dashboards as well as the development of a culture based on the logic of result, something that did not exist before contracting.
- The willingness of the political (President) is the only factor that we consider very important insofar as the ultimate single block could come from the personality of the President of the University. But in the long term, MC will be established because of the increasing pressures. Presidents will all end up adopting, either by choice or by coercion, MC.

We recall that in the second part, it has been established that using the analysis in terms of "fit" and that the existence of an imbalance between need and capacity of information processing gave birth in universities to a need for developing the systems of information and especially MC.

## V. CONCLUSION

To sum up, in the absence of an accounting system (general and analytical accounting) at the moment, dashboards are, in our view, the preferred instruments of MC in MU. They provide the synthesis and provide comments on the overall results of the analysis of management. Dashboards participate as a support device for mobilizing strategy and management teams who must be fully involved in the process of setting up the device MC of a university. In



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this sense, the dashboard of the President should not be disconnected from other tools implemented by the MC within the university.

Apart from MC tools, we believe that the implementation of MC, as shown by our investigations, requires:

- First of all, a willingness and political involvement of the Chairman and the management team; The introduction of an incentive system (lack of incentives, including financial, for managers and staff is a significant brake in implementing MC);
- Coordination of different information systems and external audits;
- Diffusion of standard procedures of MC by the Ministry of Higher Education, Executive Training and Scientific Research;
- Contracting of management control;
- The degree of standardization of MC (the Ministry of Higher Education, Executive Training and Scientific Research should not much standardize the MC and leave room for some diversity according to universities);
- Alleviation of an a priori control in favor of accompanying control (the University may be subjected to substitution due diligence, it justifies the implementation of an effective information system and management with a number of instruments. Among these, there is the internal control in the broadest sense and of course the management control).

Management control in public institutions in general and universities in particular is as much a matter of managerial culture as that of techniques and tools. In prospect, the introduction of MC will contribute to the mastery of the performance of Moroccan universities.

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