

## **MANAGEMENT CONTROL SYSTEMS AND PERFORMANCE: ESSAY OF MODELLING**

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### **Abstract**

Our objectives through this research are multiple. The first objective is to analyze the evolution of management control concept in the scientific literature. The second objective of this work is to propose a general model of performance, which incorporates not only the traditional model of management control but also an interactive module that aims to shed light on the proper role of management control in the emergence of strategy; thus leading to a superior performance.

Key words : Management control diagnostic, interactive management control, strategy and organizational performance.

### **I- INTRODUCTION**

Our approach is based on the observation confirmed by professionals and researchers in Morocco that the environment in which companies have to evolve, was profoundly changed in a few years. Accustomed to a stable environment, they must increasingly act in an open market and rely only on the quality of their management and performances.

Indeed, the C.G.E.M. and the Ministry of Commerce and Industry anticipate that nearly of a third of firms may disappear from the consequences of the globalization following the opening of borders by 2010 if appropriate measures are not taken.

However, the contingency theory postulates that the survival and performance of an organization depends on the degree of alignment between its structural elements and various contingency factors such as environment technology or strategy.

Our research field is located in the area of management control, we also draw on the contingency theory. We will be interested in the role and the place of management in the strategy declination and the company performance

This observation has led to ask a main question :

To what extent do contextual variables to the company allow to explain :

- The emergence and evolution of management control systems ; the discrimination of companies by the performance considering the presence of the control systems of traditional and modern management.

A certain number of questions is raised from this problem

- What are one or several types of management control set up in Moroccan companies ?

- Are we in the presence of a traditional management control or of a “new management control” ?
- Do contingency variables such as : the strategy, the environment, the organizational structure, etc., affect the type of control in place ?
- Are companies that have a proactive system of control more efficient than those with traditional management control ?
- In this case, what is the most appropriate profile of a management controller to perform in these companies ?

## II - Conceptual approach of the models of control

We set out to answer those questions asked during a research in three stages :

- A conceptualization phase : this phase includes a review of the existing literature to identify the changes of the concept, these current founders, the criticism that has been submitted to it as well as the attempts of its modernization.
- A modeling phase : this second phase aimed to develop a model from a critical review of literature, from our personal contributions as well as a proposed a model with descriptive and explanatory targets of the systems of management control.
- A validation phase : this third phase consisted of comparing the model derived from the theoretical world with the reality of Moroccan companies in order to deduce a stronger model from it, and capture the reality of the lived of the management control systems.

### II.1 STATE OF THE ART

Located at the intersection of different fields of management sciences, the concept of management control is, by its very nature, difficult to understand though its main attributes invade organizations of all kinds.

A problem arises then, “how to identify the emergence of the concept and its evolution through these crises and attempts of its modernization ?”

#### II.1.1. EMERGENCE AND MANAGEMENT CONTROL CURRENT FOUNDERS

The management control has evolved significantly in the very definition of the concept. Originally with the definition of (R.N. Anthony, 1965). The management control appeared as the “Guarantee” of non wasteful use of resources entrusted to a manager. This definition stated that : “ the management control is the process by which the managers are assured that resources are obtained and used efficiently and effectively to achieve the objectives of the organization “. The efficacy connects objectives and outcomes. As for the efficiency , it makes sure that the resources were used in the best way to attain the results.

Later in the 80s, this vision of control was considered too restrictive. It led to a modification of the previous definition in order to clarify it and expand it as follows : “ The management control is the process by which managers influence the other members of the organization to implement the

organization strategies. But since its appearance, management control has continued to evolve and conceptualize in the USA and Europe. The review of the literature in this field allows us to notice that management control has been differently defined and interpreted by several authors. This traces the evolution of management control conception. Many typologies and definitions of management control have been proposed. Indeed, its traditional conception based on budgetary control and adapted to the stable environments, tends to evolve towards a proactive management control, still called “new management control” (Spang, 2002).

Nevertheless, there is a certain consensus around Anthony's (1988) second definition, the expanded character of this definition is the origin of proposals of multiple frameworks of analysis.

Ouchi (1979), Hofstede (1981), Macintosh (1994), Chiapello (1996) or also Simons (1995).

Ouchi (1979) considers the system of control as a process of measuring, evaluating and rewarding performance. According to the author, we can control the behavior (behavior control) and the results (output control). He then proposes a third mode of control that overcomes the shortcomings of the two first ones in some situations (knowledge of the process of the imperfect transformation and ability to measure low results) which is the clan control. It is about a mode of control by socialization aligning the interests of the individuals with those of the organization (Langevin P. and Naro G. 2003)

In front of constraints and threats facing the environment of companies, in front of the globalization of markets and of the new economy, the management control systems don't have only to ensure the internal regulation of the company, but they have to be also interested in the adaptation of the company to the fluctuations in its environment, and the systems of the management control were forced to change their conceptions in their tools, their missions and their roles.

In fact, from the evolution of the concepts of management control, we notice that this latter plays a much more active role in achieving the strategy set by the organization. Two important points are emphasized, on one hand the necessary relationship between strategy and management control and on the other hand the fact that the control is not limited to the process of comparing results with objectives.

Thus, we move from a purely mechanist vision to another one where influence of actors is important. However, the proactive aspect of the management control doesn't appear.

This new management control applies mainly to organizations whose environment is turbulent, many authors join this current.

Gervais and Thenet, (1998), in particular tried to redefine the roles of budgetary control when it confronted with a greater turbulence. This is the nature of budgetary control which is modified. We move from a conception of allocation and control of resources to a more oriented conception towards piloting.

For Berland.N. (2002), the budgetary control allows companies to be successful when the environment is routine. It first allows to optimize the internal flows because the activity of production is isolated from the cyclical variations and it reduces the internal uncertainty thereby extending the low external turbulence. It then allows a greater decentralization because the subordinates' control action is facilitated by the environment stability.

In fact, in a changing environment, the effective strategies (Barwise, 1997) tend to emerge in a series of decisions often introduced by executives of intermediate levels to the contact of markets and technologies.

The strategy gives an approximate management which will favor the actors' reactivity according to the environmental changes.

Then, in 1995, R. Simon, (1995) conceives management control of the future as "the processes and procedures based on information that managers use to maintain or change some settings of the organization activities".

A distinction is made between:

- Diagnostic control that is controlled by a number of indicators which aim to highlight the company's performance and the necessary information to managers. This is a traditional reporting system.
- Interactive control: It is about the managers' interaction with the operational to deal with strategic priorities and direct decisions. According to Simons, the choice of a tool for interactive control rather than another depends on the type of uncertainty which managers have to control and manage. This system control is an instrument of dialogue.

For some authors the concept of interactive control involves particular choices of tools that are adapted to the challenges of the company. (BerlandN, PonsardJ.P. et Saulpic O. 2005)

So, the renewal of the management control is crossed by a strategic reflection in order to take into account customers' wishes leading to a questioning of the organization and piloting systems. Physical or operational indicators were introduced together with financial or accounting indicators. The systems of control are now seen more as supports in the dialogue than as tools of control. We talk more about piloting than about reporting.

In his work of synthesis of the literature on the modes of control, Chiapello raises contingency factors present in typologies of control modes. These contingency factors are :

- The characteristics of the performed work or the used technology ;
- The characteristics of outputs, objectives or outcomes ;
- The characteristics of exchange ;
- The characteristics of environment
- Integrated models that handle multiple types of contingency factors.

In her article, she presents a summary table of the main types of control modes and their contingency factors, which we reproduce below. This article is, to our knowledge, the most comprehensive work on contingency factors of control modes.

The conclusions of E. Chiapello's article make of control modes and their contingency factors the foundations of a model of organizational control wider than the classical model of management control.

## II.1.2 CRISES AND MODERNIZATION ATTEMPTS OF MANAGEMENT CONTROL

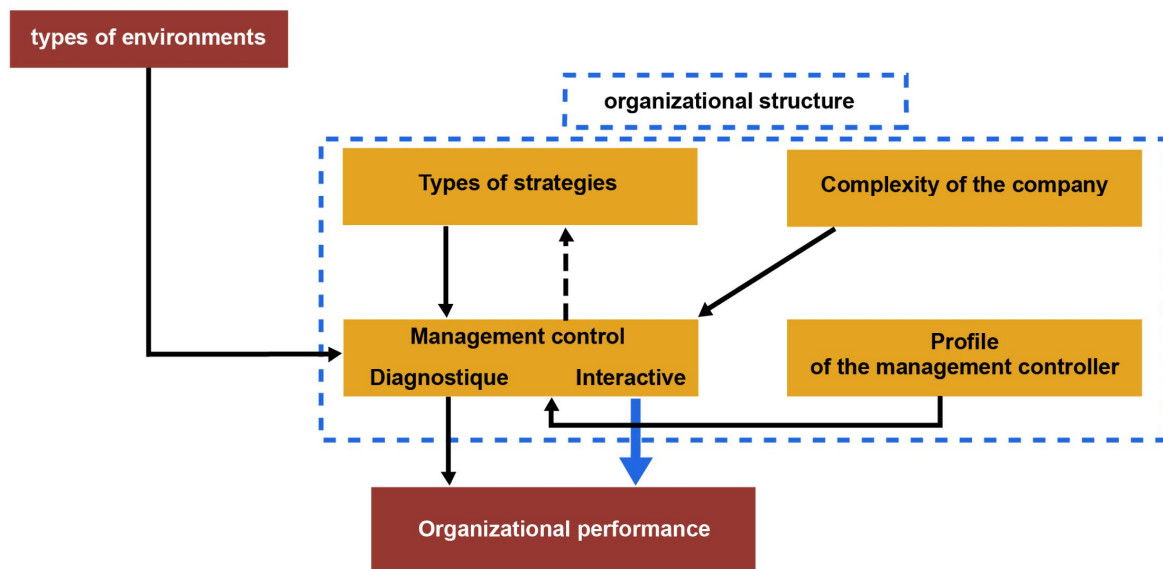
### A. CRITICISM OF THE TRADITIONAL MODEL :

The traditional approach of management control based on the sequence : Plan, program, budget – monitoring – control – punishment works properly only in very restrictive hypotheses. Also, the economic crises of the 80s of the last century in Europe influenced the questioning management And (Henry BOUQUIN, 1998) notes that “companies are increasingly faced with situations of partial ignorance. The main thing is no more to detect right now the distances due to a sophisticated accounting tool. What dominates is the research for the impacts which they will have, the diagnosis that is necessary to learn, the adjustments to be made in action plans, short term goals, but also increasingly in main areas of medium term management.

Such a perspective puts into question the traditional view of management control. It is no longer just for him to ensure that resources are well used in the sense of general objectives of the organization, but to provide decision-makers with the means to manage risks of all types which are the consequence of a large uncertainty.

Looking through the various writings on internal factors and external management control, and these different roles, we offer our explanatory model taking these factors into account in its construction.

This model was built using a hypothetical deductive approach. The model is presented as follows:



This model should be valid for testing so it is necessary to make assumptions that will be confronted by the reality of field by a quantitative procedure.

After the model presentation and research hypotheses, the different variables must be measured.

The concepts measurement will be made by the use of the items that we will consider interesting for our research process.

The measure establishes a correspondence between concepts and the empirical world (that is to say the indicator on which the concrete operations of measurement are related).

This quantitative approach seems more appropriate to us. Indeed, as pointed out by (Bollecker, 2001), "The main advantage of the quantitative study compared to qualitative one is that it provides quantified results which may lead to statistical analysis. The second advantage is that data analysis can determine differences between groups. The third advantage of this type of study in relation to the qualitative study is the ability to achieve in short times a large number of respondents.

But concerning our research, a quantitative survey allowed us to contact a greater number of companies than the qualitative approach.

So as Evrard et al, (1997) states "the sending of a questionnaire can be achieved on a large scale whereas the qualitative survey, especially in the form of individual interviews, is much longer and can query only a small sampling.

### III. MAIN RESULTS

We present the descriptive analysis results, then, the explanatory analysis results.

#### III.1 DESCRIPTIVE ANALYSIS RESULTS

The results of the surveyed firms will be discussed according to their main characters (structure, form, activity, size and the presence of the management control function).

### 1.1. SURVEYED FIRMS GENERAL ANALYSIS

The distribution of the responding companies will be explained in terms of their main characteristics:

Characteristics	Results
Legal shape	74% of firms are independent
Structure	The distribution of companies is fairly shared between the companies which have a centralized structure and those whose structure is decentralized.
Activity Sector	23% of companies are in IMM, 20% in the food processing industry, 14, 30% in finance and banking.
Size	47% of companies have a staff exceeding 500 and 53% have a workforce less than 500.
Presence of management control	The majority of companies (65.70%) possess a management control service, we observe the emergence of the function from a critical level of 500 people.

### 1.2 ROBOT PROFILE OF MANAGEMENT CONTROL SYSTEM

For (H. Jordan, 1988), the management control system average doesn't exist, the analysis will be based on the following criteria :

Criteria	Practices of Moroccan companies
Planning	66% of companies have a strategic plan
The budget	The budget was connected in one year to a strategic plan, it was jointly prepared by the Operational and the management controllers. Its duration is between 1 to 3 months.
Performance monitoring	This monitoring is done by traditional tools (dashboards, data analysis, etc...)
Managers evaluation	Managers are continually assessed and are willing to improve their outcomes.
Management controller profile	The management controller, a man around thirty , is connected to the financial and administrative management. He uses tools such as : the budget, the TDB, and variant analysis. Advanced training in management or accounting, he has less than 5 years of practice in the job.

### III.2 RESULTS OF THE EXPLANATORY ANALYSIS :

The explanatory analysis is going to be exposed through the test of hypotheses, then , we are going to move on to the overall analysis.

1.1 TEST RESULTS OF THE HYPOTHESES :

N	Hypothesis Title	Tested Variables	Results
1	“ The budget monitoring is more interactive at the prospectors and more diagnosis at the defendants”	Control and strategy	Rejected
2	“The management controller technician (diagnosis) has a technical training and the management controller has an interactive manager profile”	Management control and the profile of a controller	validated
3	The budgeting techniques are more sophisticated than the size enterprises is important”	Management control and size	Rejected
4	“The organizations most differentiated and structurally decentralized have the most developed planning and control systems”	Structure and management control systems	Rejected
5	“the greater the size of a company, the greater management control may emerge and grow”	Size and management control systems	validated
6	“In situation of environmental uncertainty, the budget monitoring is more interactive”	Environment and management control systems	rejected
7	“Companies that implemented a system of management control are more successful than those without any control system”	Existence of management control systems and performance	validated
8	“In situations of environmental uncertainty, companies that implemented an interactive control are more successful than those that have a diagnostic control system”	Differentiation of management control systems and performance	validated

RESULTS OF LINEAIRE REGRESSION

The organizational performance variable was explained by a general linear model with ten explanatory variables, we used step by step method software SPSS11.5, the reaped result allows us to confirm the control systems contribution in explaining the variance of the variable performance.

In fact the proposed model has an explanatory power of 73.3% of variance in performance, and it has no co linearity among variables.

Indeed, there may be different types of configurations that cover this model. These types correspond to contingent systems depending on the environment, the company complexity and its strategy.



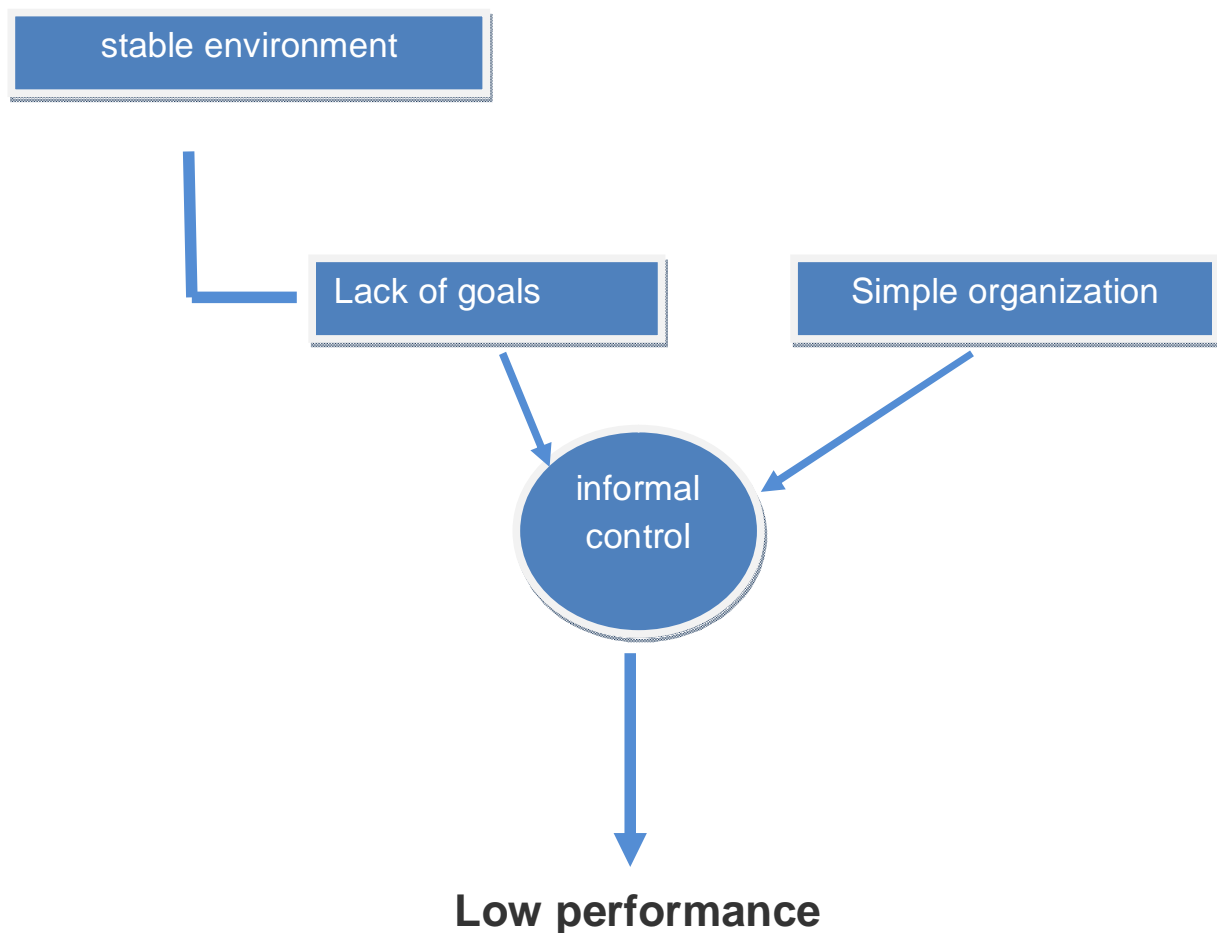
CONFIGURATION 1: Absence of management control:

All things being equal in this configuration, otherwise, the following variables, were set as follows:

- The environment is stable ;
- The organization is simple: a small size and a simplified structure.

We, therefore, have the following configuration with a low performance:

**Configuration1: Lack of management control system**

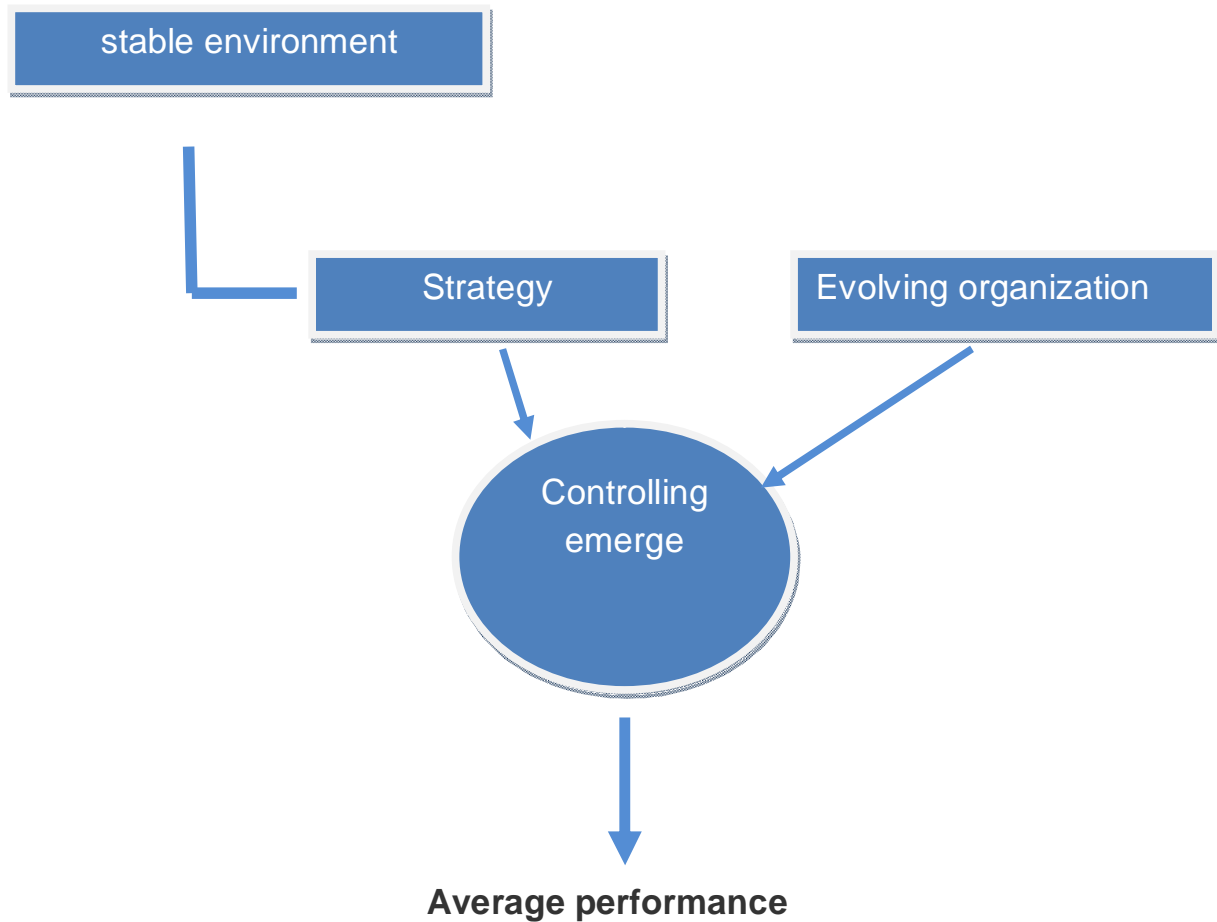


CONFIGURATION 2: Management control emergency

In this case, the following variables were set as follows:

- The environment is stable ;
- The organization becomes complicated: the size exceeds the critical level and the structure tends to be decentralized.

We, therefore, have the following configuration with an average performance.  
Configuration2: Emergence of management control



**CONFIGURATION 3: Our control theoretical model**

In this case, the following variables were set as follows:

- The environment is turbulent ;
- The organization is very complicated : the size and the structure tend to be developed ;
- The operational involvement in the strategic process ;
- Management controller profile further recommended.

We, therefore, have a theoretical model developed by ourselves, generating a superior performance.

CONCLUSION:

In this article, the contribution of contingency variables has been identified; the test of their power of discrimination highlighted the explanatory power of our theoretical model in terms of the empirical world.

Ultimately, we can say that, on the whole, our main results suggest that the introduction of management control systems is justified initially by the complexity of the company.

In fact, the larger companies' size is important (500 people), the greater the need for control becomes significant, and companies tend to implement such systems.

Similarly, the environment turbulence and manager profile of management controllers tend to favor the interactive systems development of management control. Also the empirical data analysis allowed us to observe the influence of these two variables on these systems development.

Finally, the modernization of control systems has the effect of providing higher performance than to that firms which have traditional control systems.

BIBLIOGRAPHY.

Rapport CGEM (1998).

Anthony R.N. (1988) « The management control function » The Harvard Business Press. (Traduction française : « La fonction contrôle de gestion » Publi-Union 1993).

SPANG Laurent (2002) « La modélisation de l'évolution du contrôle de gestion dans une organisation : le cas des caisses primaires d'assurance maladie (CPAM) » Recherche de doctorat, Université de Nancy 2.

Langevin P. et Naro G. (2003) : « Contrôle et comportements : une revue de la littérature anglo-saxone ». Congrès AFC-CCA.

Gervais M. et Thenet G. (1998) « Planification, gestion budgétaire et turbulence », Finance, contrôle, stratégie, Vol 1, n°3, septembre, p. 57-84.

Nicolas Berland (2002) « Fonctions du contrôle budgétaire et turbulence », cahier de recherche. PESOR, Faculté Jean Monnet

Patrick BARWISE. (1997) « STRATÉGIE délibérée ET STRATÉGIE ÉMERGENTE : La plupart des stratégies sont le résultat d'un ensemble de décisions émanant souvent de l'encadrement intermédiaire » Les Echos - Vendredi 25 et Samedi 26 avril 1997.

Langevin P. et Naro G. (2003) : « Contrôle et comportements : une revue de la littérature anglo-saxone ». Congrès AFC-CCA.

Gervais M. et Thenet G. (1998) « Planification, gestion budgétaire et turbulence », Finance, contrôle, stratégie, Vol 1, n°3, septembre, p. 57-84.

Nicolas Berland. « Fonctions du contrôle budgétaire et turbulence », cahier de recherche. PESOR, Faculté Jean Monnet

Patrick BARWISE. (1997) « STRATÉGIE délibérée ET STRATÉGIE ÉMERGENTE : La plupart des stratégies sont le résultat d'un ensemble de décisions émanant souvent de l'encadrement intermédiaire » Les Echos - Vendredi 25 et Samedi 26 avril 1997.

Simons R. (1987) « Implementing strategy : configurations in management control systems ». Meeting of the Strategic Management Society in Boston..

Simons R. (1995) « Levers of control : how managers use innovative control systems to drive strategic renewal ». Boston, Harvard Business School Press.

Berland N, Ponssard J.P. et Saulpic O. (2005) : « Une typologie des systèmes de contrôle inspirée du cadre théorique de Simons ». Cahier n° 2005-024, Septembre, Ecole Polytechnique.

Bouquin H. (1998) Le contrôle de gestion, 4e éd., PUF, Paris.

Bollecker M. (2001) « Systèmes d'information différenciés et contrôle des services opérationnels : une analyse empirique des mécanismes organisationnels de contrôle et du rôle des contrôleurs de gestion », Recherche en sciences de gestion, Nancy 2.

Evrard Y., Pras B., Roux E. et al (1997) « Market : études et recherches en Marketing » Nathan.

H. Jordan (1988) « Planification et contrôle de gestion en France en 1988 » H.E.C.