

# Interaction between management control and business intelligence in public economic companies of Tlemcen

(The role of turbulence of external environment and the relevance of information provided by the eve)

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**Abstract:** Business intelligence (BI) is a great help for the management control in two areas: search for information on the external environment of the company (collection and dissemination of information) and forecasting (detection of weak signals). So we can say that cooperation between these two systems is beneficial for the development of the strategy and decision-making.

This article presents the results of an empirical study which shows that the turbulence of the external environment of the company and the relevance of the information provided by the eve promote cooperation between business intelligence and management control.

**Keywords:** Business intelligence, Management control, public economic companies, quali-quantitative comparative analysis.

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## Introduction

The analysis of the environment is the basis on which the management controller builds his forecast for future business developments. We believe that the existence of an eve cell or more globally BI is a huge help for the management controller, it will on the one hand, facilitate his task, and on the other hand reduce risks relating to sensitive information. So these two essential functions for the continuity of the company prove complementary, this is what we can conclude by studying their processes, and their purposes. Regarding their processes, we can notice two points of binding: environmental analysis and forecasting; and regarding their purposes, we can say that these two devices play a role to assist in the definition of the strategy and decision making. We conducted a quali-quantitative comparative analysis within ten (10) public economic companies of the Wilaya of Tlemcen, in order to answer the following question: what are the elements that promote cooperation between management control and BI?

## Cooperation management control-business intelligence to decrypt the business environment

(BOUQUIN H., 2011) introduced to his book "the foundations of management control" with the following paragraph: "most of the companies, like other organizations, public and private, are facing, for a long time, an environment that they must anticipate, choose, otherwise attempt to influence, to survive and fulfill their missions. Their leaders need information of decision-making support and especially help to anticipation. This is a first mission of management control; it responds to a general need, which affects even very small companies: know where we are, measure and evaluate its economic performance, identify strengths, risks and the ways of progress, decipher the future, choose a solution, set a goal. The stake is to put in coherence the capacities of the organization and the potentialities of the environment."

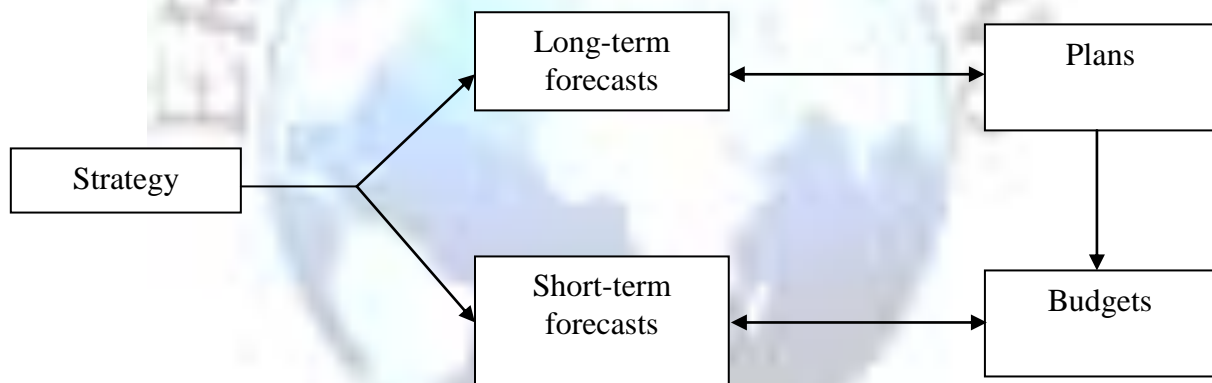
This paragraph gives us a clear picture on the role of management control as a tool for monitoring and anticipation of changes in the environment and thus helps in the formulation of the company's strategy. However, the classical management control did not answer these specific missions, and undergoes – by consequent - several evolutions affecting these tools as well as its process. In fact, according to the conception of CHANDLER (quoted by CHATELAIN-PONROY S., 2008) we can explain the emergence of the function management control as an answer of the organizational structures to the constraints of their environment. Besides, HALDMA and LAAS (quoted by TURKI O. 2006), noticed that the need for a detailed and relevant information (68 %) constitutes one of the main causes at the origin of the change of management control practices. Indeed, the information system must be adaptable and evolutionary in front of changes and of the uncertainty of the environment. It must be capable of detecting and of considering the new

needs of the organization in order to allow all the actors to encircle better the unforeseen and the environmental complexity. BI is the device which allows to monitor the business environment through different types of eve providing a vision on the evolution of each element of the environment (technological, legal, competitive,...). BOURNOIS and ROMANI (quoted by SALVETAT D. and ROY F., on 2007), define the economic and strategic intelligence as an organized approach, or service of strategic management of the company, to improve its competitiveness by the collection, the treatment of information and dissemination of knowledge relevant to the control of its environment (opportunities and threats). BI is a proactive approach which seeks control of know-how; detection of opportunities and threats, the ability to better align strategies, actions of influence to accompany the implementation of the strategies. It is a decision support system. Therefore BI provides, in a regular manner, all relevant information on the external environment of the company. Element "input" for the management control process.

### **Forecast between business intelligence and management control**

BI consists in revealing the weakest signals given by clients, competition, politics, jurisprudence or researchers, to anticipate future developments and adapt its own behavior. (BERTRAND B., 2002) BI is "both a process and a product. (...). The product is information that will allow organizations to predict the behavior of their "competitors, suppliers, customers, technologies, acquisitions, markets, products and services, and the general economic environment" with a degree of certainty. [(VEDDER, VANECEK, GUYES & CAPPEL, 1999) cited by (JOURDAN Z., RAINER R.K. & Marshall E.T., 2008)] On the other side, management control devotes more than a tool for forecasting. In fact, planning is not the only tool of management control dedicated to forecast. Indeed, (BURLAUD A., 2009) distinguishes between two instruments of formulation of the forecast according to selected time horizon (fig.1):

- The plan for the medium and long term
- The budget for annual forecast (short-term)



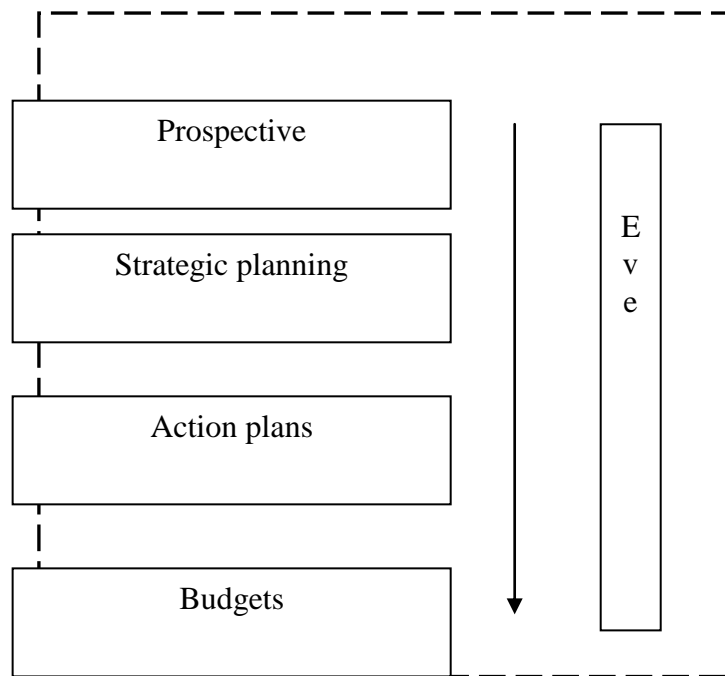
**Figure1: Interaction between strategy and planning, Source: (HORNGEN v., BHIMANI a., DATAR s., FOSTER G, LANGLOIS g., 2006)**

GERVAIS M. (cited by BURLAUD A., 2009) defines the planning "as a systematic and continuous process of preparation in the future including:

- An appreciation of the evolution of the environment;
- A just measure of the possibilities of the firm;
- A putting works choices made as well as control of their realization

The second prediction tool is therefore the budget which is a forecast calculated for a specified period and which ensues from the action plan.

The following diagram (fig.2) summarizes the projected management instruments, and underlines the role of BI and especially the eve to reduce the uncertainty that evokes the turbulence of the external environment; what helps the management planning.



**Figure 2: Instruments of management planning,Source: (GAUTIER F., PEZET A., 2006)**

We can say therefore that BI accompanies management control during all stages of projected management, by providing information concerning future developments in the environment, which allows the said control to formulate scenarios closer to reality.

### **Comparative method and justification of this choice**

This method developed in 1987 by Charles Ragin both as a method and a tool represents according to (RIHOUX & al. 2004) 'a third way between qualitative and quantitative approaches. It is "an original method since it borrows both from quantitative methods and qualitative methods, from variable-oriented approaches and from case-oriented approaches (Ragin 1987) It pull its origin of sociology and political science and spreads quickly in the social sciences, to the point that Rihoux (2003) listed already more than two hundred and fifty applications. "(CHANSON G., 2011)

As for the reason to the choice of this technique, De Meur and Rihoux (quoted by CABWIGIRI C, VAN CAILLI D., 2007), recall that the qualitative researchers analyze, very generally, a single, or even a few cases (2 or 3) while at the other extreme, the quantitative ones have at their disposal a large number of potential cases, i.e. a large population. Yet, they pursue, in many situations, the researcher may be situated, whether it's by choice, by constraint or both at once, in an intermediate zone in terms of number of cases - ranging between "a few" and "many" cases.

Therefore this technique offers according to (CURCHOD C., 2003) the possibility to "reflect the complexity of the phenomena by qualitative case studies, while providing a technique of data processing based on Boolean algebra, which makes possible, as quantitative methods, the generalization of results beyond the observed cases."

This method is based on a comparison of the cases by variables. To apply it, according to (RIHOUX B., 2004) after selecting a certain number of cases, it is necessary to identify a variable "result" (or dependent, or to explain). Also, it is necessary to define a series of variables said 'conditions' (or independent or explanatory).

### **Selection of cases and data collection**

At first, we inventoried the list of economic public companies at the level of Tlemcen from a list of legal persons active (2013) presented by the Direction of Commerce at the level of Tlemcen.

Then, we selected the companies following two criteria: the activity sector and the holding.

#### **A. data collection (semi-directive interviews)**

To understand the nature of the relationship between management control and BI in the public economic companies in Tlemcen, and to capture the elements that foster the cooperation, we conducted semi-directive interviews with managers of the sampled companies. Our guide of interview was centered on the question to know:

-What are mechanisms and management control tools used by the company on the managerial plan (systems of planning, budgeting, cost accounting, performance measurement)?

-What are BI tools used by the company, especially the practices of Eve (the tools of expression of information needs, collection, processing and dissemination of information to decision makers)?  
-If there is a relationship or, more precisely, collaboration between management control and BI regarding information exchange.

In this purpose, we interviewed management controllers, financial and accounting directors, internal auditors and managing directors, according to each case, We therefore conducted 12 interviews semi-directives. These interviews took place between December, 2013 and February, 2014 and lasted generally between 1 hour and 1 hour and a half. Their conduct was characterized by a detained climate and convenient to discussion.

### **Comparative Analysis**

#### **A. research variables and comparison criteria:**

The choice of the most relevant comparison criteria represents the most delicate stage in the analysis.

We made our choice by basing on the literature review and the theoretical results of our study.

As first, a list of eleven variables was selected. From this list, we proceeded to the reduction of the number of variables by eliminating less discriminate variables and by bringing together two similar variables in a single. After several return trips between the variable list and cases, five criteria were selected: turbulence of the environment, management control's strategic orientation, eve, relevance of the information provided by the eve, cooperation between management control and BI. These variables must be able to be expressed in dichotomous form (presence, absence). This step consists to operationalize the dependent variable and independent variables for the binary raw data: in situation of presence/absence, for example, the presence is represented by 1 and the absence by 0.

In the case of our research, the dependent variable that we refer (Cooperation MC & BI within Public Economic Companies) «comcbi» presents two possibilities i.e.:

-we attribute to the dependent variable the value 1 if the management controller:

- 1 participates in the expression of the needs for information
- 2 receives reports of Eve
- 3 uses these reports and find them relevant.

- We attribute to the dependent variable the value 0 in the reverse case.

As for the independent variables, we express them in binary form in the following manner:

#### **a. turbulence of the environment «turenv»:**

It is estimated by respondents to our survey. It therefore takes the value 1 when the perceived turbulence is strong or 0 otherwise.

#### **b. management control's strategic orientation 'mco ':**

In our analysis, we consider that a formal system of management control has a strategic orientation if long-term plans and/or strategic dashboards are part of the range of tools.

So in the presence of strategic plans/ long-term dashboards, the variable takes the value 1 or 0 if these tools are absent.

#### **c. relevance of information provided by the eve «rev»:**

This variable takes the value 1 if the management controller uses the information provided by the eve to form his forecasts (budgets plans, action plans, strategic plans), or the value 0 if he doesn't.

#### **d. eve «eve»:**

Is attributed to this variable: the value 1, if the company practices at least one type of eve even if this last is not practiced by a specialized cell or 0, if the company uses none of the Eve's tools.

#### **B. Encoding cases:**

So that, for the 10 cases studied, the characteristics at the level of the dependent variable and independent variables are reproduced in binary form in the summary table below, where each row corresponds to an observed case.

**Table 1: raw data of the analysis\* by using Tosmana version 1.3.1.2**

Independent Variables  
(conditions)

Dependant Variable  
(result)

	Case ID	turenv	mco	rev	eve	comcbi
▶	EATIT	0	0	0	1	0
	ECO	1	1	1	1	1
	SITEL	1	1	1	1	1
	SOGERHWIT	1	0	1	1	1
	SOREMEP	0	0	0	1	0
	ALZINC	1	0	1	1	1
	URBAT	1	0	1	1	1
	STARR	1	1	1	1	1
	MHT	0	0	0	1	0
	ETUST	1	0	1	1	1

✱

### C. results analysis and their interpretation:

#### a. The truth table:

Tosmana produces a table of configurations (or "truth table"). Each configuration is a combination of conditions and a result values. As much as it could attribute the value of result (1) or (0) to each case, the configurations table distinguishes then:

The configurations1: configurations with the result (1)

The configurations0: configurations with the result (0)

The possible contradictory configurations: configurations that have the same values of conditions, but whose result takes sometimes the value (1), sometimes the value (0). It is a logical contradiction, which has to be solved before proceeding with the analysis. (RIHOUX B., 2004)

This table insure according to CHANSON et al. (quoted by CHANSON G., 2011) the transparency of the QCA method, since it allows the reader to be aware of the cases coding.

In the case of our analysis the truth table shows three configurations:

**Table 2: truth table**

External environment's turbulence	management control's strategic orientation	Relevance of the eve's information	Eve	Cooperation MC & BI	Number of observations
0	0	0	1	0	3
1	1	1	1	1	3
1	0	1	1	1	4

This table allows us to distinguish three groups of companies:

-The first group includes (EATIT, SOREMEP, MHT) which is characterized by a stable environment, by the absence of strategic orientation of management control and who practice spurred eve, and as a result the absence of cooperation between management control and BI.

-The second group (ECO, SITEL, and STARR). This one is characterized by the presence of all the variables and therefore a positive result.

-The third is (URBAT, SOGERHWIT, ETUST, ALZINC) which is characterized by the presence of the independent variables except for the strategic orientation of management control, as well as the existence of cooperation between management control and BI.

**b. Boolean minimization:**

The central operation in the QCA is the Boolean minimization procedure: reduction, through Boolean algorithms, of a long and complex expression (corresponding to a series of configurations) to a more 'short', logically minimum expression.

At the end of this procedure, we obtain a minimum formula or 'minimum solution', which takes the form of a sum of products (or "terms"; each of these terms is a "first implicant"), for example, the following minimum formula:

Condition1 CONDITION2 + condition2 CONDITION3 = result reads: the result is observed when: [condition 1 is absent and condition 2 is present] or [condition 2 is absent and condition 3 is present]. (RIHOUX B., 2004)

The sign '+' (Boolean addition's operator) therefore corresponds to the logical 'Or', while the Boolean multiplication's operator corresponds to the logical 'And'.

Moreover, in a minimum formula, independent variables are expressed in uppercase or lowercase according to whether they carry a value of 1 or 0.

Finally, the process of minimization is a form of generalization in the context of small populations ('the small N') since it allows to extend the analysis on not observed cases, also called logical cases or simplifying assumptions, and therefore on a universe of cases larger than that of actual cases. Indeed, for "n" independent variable, the software always produces a table of ( $2^n$ ) configurations, and so, the researcher exceeds, in its analyses, the simple description of the only observed cases to register in generalization logic. (CABWIGIRI C and VAN CAILLI D., 2007)

Thus for example, our study integrating 4 variables focuses its analyses, not only on the 10 cases, but potentially on ( $2^4$ ) configurations, or 16 cases. However, this is a generalization not within the meaning of the statistics inference, but rather partial. In the words of RAGIN (quoted by CABWIGIRI C and VAN CAILLI D., 2007), it is a "modest" generalization that is only suitable for the specific case of small populations, such as those we are interested in our study.

It is important according to Rihoux and De Meur (quoted by Ryan M. 2010), to minimize the [1] and [0] configurations in two separate analyses because they assume in social phenomena that causal relations are asymmetric.

• **Minimisation of Configurations [1]**

In the language of the configurational methods, 'logical cases' are combinations of causal conditions lacking empirical cases. In QCA, the solution to the truth table depends on how these 'logical cases' are treated. The most prudent strategy is to include only the empirically observed cases. So ask the software to minimize configurations [1], excluding non-observed cases, we get the following minimum formula (Formula 1):

$$\text{turenv} \{1\} * \text{rev} \{1\} * \text{eve} \{1\}$$

$$(\text{ECO}, \text{SITE}, \text{STARR} + \text{SOGERHWIT}, \text{ALZINC}, \text{URBAT}, \text{ETUST})$$

This formula is 'descriptive'; it doesn't go beyond the empirical observed cases. It is compound by a single word, a combination of conditions related to the results [1]. Using Boolean notation, it can be read as follows:

Cooperation between management control and BI is observed:

- In the case that combine the presence of three conditions: the turbulence of the external environment, the relevance of the information provided by the eve, eve practices.

The term of the solution corresponds to seven observed cases (ECO, SITE, STARR + SOGERHWIT, ALZINC, URBAT, ETUST), those separated by a comma are similar cases both at the level of the independent variables and the dependent variable (they are a same configuration).

The (Formula 1) is still complex. To reach more parsimony, another strategy is to include non-observed cases in the analysis. Just indicate the software to take into account logical cases. In this case, we get the following formula (formula 2):

$$\text{TURENV} + \text{REV}$$

We note that this solution is more parsimonious. It may be read as follows:

The [1] result is observed:

- In the case of the presence of the condition "turbulence of the external environment"

OR

- In the case of the presence of the condition "relevance of the information provided by the eve"

The first term of the solution corresponds to seven observed cases and six logical cases and the second term corresponds to seven observed cases and six logical cases as well.

• **Minimisation of Configurations [0]**

Using the same procedure as for the minimization of configurations [1], we obtain the formula without inclusion of the logical case: (formula 3)

$$\text{turenv} * \text{mco} * \text{rev} * \text{eve} \\ (\text{HANG}, \text{SOREMEP}, \text{MHT})$$

This formula remains complex. As with the previous analysis, including logical cases in the analysis we get (formula 4):

$$\text{turenv} + \text{rev}$$

This formula may be read as follows:

- In ten cases, (EATIT, SOREMEP, MHT + seven logical cases) the absence of the turbulence of the external environment explains the absence of cooperation between management control and BI.
- Or
- In ten cases, (EATIT, SOREMEP, MHT + seven logical cases) the absence of the condition relevance of the information provided by the eve explains the absence of cooperation between management control and BI.

### **Results & Discussion**

Regarding these results, we can say that two main conditions are essential for cooperation between management control and BI. After a long process of analysis, we were able to reduce the independent variables up to the number of (4). But, Tosmana software has enabled us to minimize these variables up to (2), which have simplified things to have a clearer picture, which is the main objective of the use of this type of software. These two variables are the turbulence of the external environment, and the relevance of the information provided by the eve.

-Companies that coexist in a changing environment (especially in the legal field), and who are experiencing strong competition from the private sector, whether local or foreign, are those who practice the eve and take information from the surroundings into account in the forecasts, decisions... In fact, this conclusion fits with that of (COHEN v., 2007) ' environmental characteristics seem to play an important role in the existence and type of BI practiced: instability, the complexity, intensity and competitive aggression, the nature of the sector of activity. The practice of BI and its intensity would be greater when the degree of instability and/or perceived uncertainty is high, when the competition is high and/or global and in some innovative sectors such as communication, building and civil engineering, electronics... »

If we take the example of the U.S. companies which exist in a context of aggressive competition, and have the most efficient systems of BI, compared to French companies which remain a little more late in this area. Or even Algerian companies who lived in an economy protected by the State and which are far from being aware of the importance of such a system and who practice traditional and informal monitoring forms.

-The relevance of the information provided by the eve plays an important role in the cooperation between management control and BI. In fact, we are going in the same way with (COHEN v., 2007) to say that it is not enough to establish an intelligence cell without questioning about its effectiveness. It is necessary to ensure the quality of the system as well as its outputs, which is really difficult but indispensable for the proper functioning of the company. We can check this idea if we return to our truth table: the first group notes the presence of eve practices and the absence of relevance of the information produced by the eve, which influences in a negative manner the relationship between management control and BI.

-The main observation apparent from the comparison of formulae (2 & 4) i.e. the more parsimonious solutions, is the absence of the variable "mco: strategic orientation of management control. This implies that the strategic orientation of the management control system is not involved in the explanation of the existence of cooperation between management control and BI (both for the observed and unobserved but potentially possible cases). From our observations during the exploratory study, we can therefore infer that the role played by the strategic direction of management control appears better when it comes to explain the contribution of the collaboration between management control and BI in the definition of the company's strategy.

### **Conclusion**

The results of this empirical study therefore allow us to bring a solution to our problem of research.

The strong point of our research lies in the attempt to determine if other variables play a mediating role or moderator. So we tried to take into account all the essential elements that make up the overall image. It was important, because we

found that the moderator variable (turbulence of the external environment) in addition to the intermediate variable (relevance of the information of Eve) are deterministic for collaboration between management control and BI. Finally, on the methodological plan, we adopt a contemporary comparative technique that allows a modest generalization which must not be interpreted in the sense of statistical inference but within the logic of the used method. Future research could therefore extend our analysis on a larger number of companies and validate our results by adopting a different methodology. The limit of this analysis lies in the fact that we avoided the banker and insurance sector that which represent a special case of management control.

### **Bibliography**

- [1]. BOUQUIN H. (2011), Les fondements du contrôle de gestion, 4e éd., Paris, P.U.F. « Que sais-je ? », 128 pages. ISBN : 9782130590132. URL : <http://www.cairn.info/les-fondements-du-contrôle-de-gestion--9782130590132.htm>
- [2]. CHATELAIN-PONROY S. (2008), Le contrôle de gestion dans des bureaucraties professionnelles non lucratives : Une proposition de modélisation , Note de synthèse des activités de recherche en vue du diplôme d'Habilitation à Diriger des Recherches (HDR), Université Paris Dauphine, URL : [http://tel.archives-ouvertes.fr/docs/00/43/21/95/PDF/Le\\_contrôle\\_de\\_gestion\\_dans\\_des\\_BPNL.pdf](http://tel.archives-ouvertes.fr/docs/00/43/21/95/PDF/Le_contrôle_de_gestion_dans_des_BPNL.pdf)
- [3]. TURKI O. (2006), les pratiques du contrôle de gestion face au changement, comptabilité, contrôle, audit et institution(s), Tunisie, URL : [http://www.halshs.archives-ouvertes.fr/docs/00/58/10/76/PDF/Turki\\_olf.pdf](http://www.halshs.archives-ouvertes.fr/docs/00/58/10/76/PDF/Turki_olf.pdf)
- [4]. SELVETAT D., LE ROY F., (2007) « coopération et intelligence économique », revue française de gestion N° 176/2007, URL : <http://www.cairn.info/revue-francaise-de-gestion-2007-7-page-147.htm>
- [5]. BERTRAND B. (2002), Quelques fondements de l'intelligence économique, Revue d'économie industrielle. Vol. 98. 1er trimestre, 2002. pp. 55-74., doi : 10.3406/rei.2002.1816, URL : [http://www.persee.fr/web/revues/home/prescript/article/rei\\_0154-3229\\_2002\\_num\\_98\\_1\\_181](http://www.persee.fr/web/revues/home/prescript/article/rei_0154-3229_2002_num_98_1_181)
- [6]. JOURDAN Z., RAINER R. K. & MARSHALL E. T. , (2008): Business Intelligence: An Analysis of the Literature , Information Systems Management, 25:2, 121-131, URL:<http://dx.doi.org/10.1080/10580530801941512>
- [7]. BURLAUD A. (2009), « contrôle de gestion : le développement de l'intelligence organisationnelle », halshs-00405121, version 1 – 18 juil. 2009, p.9, URL : <http://halshs.archives-ouvertes.fr/docs/00/40/51/21/PDF/21.pdf>
- [8]. HORNGEN C., BHIMANI A., DATAR S., FOSTER G, LANGLOIS G. (2006), Contrôle de gestion et gestion budgétaire, Pearson Education, France.
- [9]. GAUTIER F., PEZET A. (2006), « le contrôle de gestion », Dareios & Pearson Education, France.
- [10]. RIHOUX B. et al. (2004), Une “ troisième voie? Entre approches qualitative et quantitative ? », Revue internationale de politique comparée 1/ 2004 (Vol. 11), p. 117-153. URL : <http://www.cairn.info/revue-internationale-de-politique-comparee-2004-1-page-117.htm>
- [11]. CHANSON G. (2011), Surmonter les difficultés de la méthode QCA grâce au protocole SC-QCA, Cahiers de Recherche PRISM-Sorbonne 11-11, URL : [prism.univ-paris1.fr/New/cahiers/2011/CR11-11.pdf](http://prism.univ-paris1.fr/New/cahiers/2011/CR11-11.pdf)
- [12]. CABWIGIRI C et VAN CAILLI D. (2007), le design des systèmes de contrôle de gestion adoptés au sein des spin-offs académiques de haute technologie : le rôle de l'incertitude perçue par les managers, dans 28ème congrès de l'AFC – « comptabilité et environnement », France, URL : <http://halshs.archives-ouvertes.fr/halshs-00543204>
- [13]. CURCHOD C. (2003), La méthode comparative en sciences de gestion : vers une approche quali-quantitative de la réalité managériale, Finance Contrôle Stratégie – Volume 6, N° 2, juin 2003, p. 155 – 177, URL : <http://leg.u-bourgogne.fr/rev/062177.PDF>
- [14]. RIHOUX B. (2004), Six applications d'analyse quali-quantitative comparée (aqqc) et des ensembles flous (ef) : mode d'emploi et originalités », Revue internationale de politique comparée 1/ 2004 (Vol. 11), p. 11-16. URL : [www.cairn.info/revue-internationale-de-politique-comparee-2004-1-page-11.htm](http://www.cairn.info/revue-internationale-de-politique-comparee-2004-1-page-11.htm)
- [15]. CHARFI M. (2010), « Les facteurs de développement démocratique dans le monde arabe : Analyse comparative configurationnelle », Thèse de doctorat : Univ. Genève, no. SES 730, URL : <http://archive-ouverte.unige.ch/unige:12789>
- [16]. COHEN C.(2007), Intelligence et Performance mesurer l'efficacité de l'Intelligence Economique et Stratégique (IES) et son impact sur la Performance de l'Organisation , Vie & sciences de l'entreprise, 2007/1 N° 174 - 175, p. 15-50. DOI : 10.3917/vse.174.0015, URL : <http://www.cairn.info/revue-vie-et-sciences-de-l-entreprise-2007-1-page-15.htm>

### **Biography**

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