

RESEARCH ARTICLE

## The Development of Managerial Innovations: From the Instrumental Approach to the Theory of the Diffusion of Innovations

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### Abstract

For several years, companies have understood that the main factor for creating value and improving performance is the ability to innovate. Studies in fact show that innovation in business of any kind achieves its strategy with regard to competition and development. Among these innovations, we can cite managerial innovation which corresponds to any new management tool invented by organizations. We then deal in this paper with managerial innovation, trying to show the main literature which analyzes the modes of design and exploitation of new management tools. Our theoretical analysis shows that the study of new management tools has evolved from the instrumental approach to the approach of the theory of the diffusion of managerial innovations.

**Keywords:** innovation, managerial innovation, management tool, the instrumental theory, the theory of the diffusion of innovations

### 1. Introduction

Management tools have been the subject of research in several works, old and new. This continuity refers to the incessant evolution of the configurations of management tools in organizations in various fields: management control, accounting, HRM, stock management, marketing, etc. Moreover, the theoretical frameworks that deal with these issues of development of management tools, also known as "managerial innovations" are multiple, and it is not only.

Argyris (1990) indicates, for example, that the implementation of control systems is the main subject of "the theory of implementation" with its two aspects: technical and human. In addition, Anderson and Young W. (1999) consider that all the studies carried out on ABC constitute a "theory of the process of implantation of ABC", close to that proposed by Rogers (1983, 1995). Wang and Berman (2001) believe that "theories of management reform" could be used to explain the conditions and challenges for implementing new management tools. Ittner and Cavalluzzo (2004) agree with these authors by distinguishing between three major theoretical frameworks: "the public sector reform", "the information system change" and "the management accounting innovation".

However, it should be noted that another theoretical framework constitutes the common thread of several writings on the development of management tools: instrumental theory. This theory

mainly deals with the modes of conception and the forms of exploitation of management tools in organizations. Therefore, this study answers the following question: how instrumental theory and the theory of diffusion of innovations treat the new management tools? For what reasons the differences exist between the two?

## **2. The Instrumental Approach (Theory)**

The instrumental approach (or the theory of management instruments) deals with the design, operation and different stages of the life cycle of management instruments. Marked by the founding work of Hatchuel, this approach describes their purpose and identity through management sciences. "The management instruments are not the simple exercise of an economic or social reason which overhangs them or precedes them. On the contrary, they are what we constantly renew what we understand by economic or social. This is how we recreate, for better or for worse, our reasons for acting and our actions themselves" (Hatchuel, 2005). The theory of management instruments introduces the study of the nature of these tools, their stages of life and their interactions with human behaviour;

This theoretical framework is based on "an analytical model" and describes the management objects, the management rules, the management tools and the management systems. Thus, De Vaujany (2005) evokes the interest of this framework, both academic and practical<sup>1</sup>.

Still from an academic point of view, this framework presents a continuity in the reflection and the theoretical conception marked in particular by the work of one of the founders of the field of management: Herbert Alexander Simon (1969, 1991) whose works deal with scientific production and insist on the emergence of new sciences centred on "artefacts".

Regarding the practical interest, De Vaujany believes that the professional world is increasingly interested in the management of processes within the framework of flexible structures (projects, networks, ...) and, in this case, it is interested in more and more to develop management tools.

### **2.1. Two Approaches to the Appropriation of Management Tools**

The development and appropriation of these management tools could be dealt with in two theoretical frameworks: the theory of "design for use" and the theory of "implementation" (De Vaujany & Grimand, 2005).

#### **2.1.1. A Theory of "Design for Use"**

In this vision of appropriation, the management tool sees its appropriation consubstantial with its design. It is through learning, conflicts for its control, the autonomy-control dialectic that the tool finally takes shape. At a higher level, the process of appropriation leads the collective to think about its own transformation or the trajectories in which it could embark. This approach deeply calls into

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<sup>1</sup> The author also believes that studies on management instruments are making a comeback, and they are taking an increasingly important place in theoretical constructions after decades of absence!

question the idea of stabilization of organizational functioning, even the objects and management tools (DAVID, 1996).

More broadly, we find this vision in the recent organizational theories suggested by Ciborra (1999), which extend the structuringist work of Giddens (1979, 1984). The action, the use of the management tool, is only an “instantiation” of the properties of the structural. Uses and tools are inseparable, confused in sociocognitive schemas;

### **2.1.2. A Theory of "Enactment"**

This second theoretical framework promotes interactions between actors and tools. Appropriation is here a vast interactive process which engages "reciprocal prescriptions" in the sense of Hatchuel (1996). This approach assumes the “unrealistic nature of the rationality assumptions integrated into the tools in relation to the interacting local rationality systems that organizations constitute” (Moison, 1997). It is this cycle of reciprocal prescriptions, between design and use, which authorizes the contextualization of the management tool and ultimately its appropriation.<sup>2</sup>

For what we have suggested to call the “theory of design in use”, the management tool is a property of the structural instantiated by the managers, a “memory trace”. The management tool and its technical substrate have no real exteriority in relation to the actions of the members of the organization. Only the sociocognitive scheme behind the management tool matters. Indeed, from a “pure” structuringist perspective, the tool has no exteriority or materiality in social action (Jones, 1999).

Still according to De Vaujany and Grimand (2005), in the “enactment theory”, the management tool regains certain exteriority, it is both a routine inscribed in a role system and an artefact (Lorino, 2002). In the case of the artefact, it is an element of what Archer (1995) calls the “conditioning context” of interactions. In a way, it precedes action and can initiate a spiral of reciprocal prescriptions between the users and the tool or the users at time "t" and those at time "t + n". The act of conception (understood as provisional and iterative) is undoubtedly more valued in this second perspective. But as Lorino (2002) underlines, “this vision is opposed to that of the actor-designer, whose design process, like that of the painter, is engaged in continuous action on the world, with recurrent feedback of action and more or less continuous modification of design through experience. This perspective is totally in line with the critical realistic scheme.

## **2.2. The Management Tool in Instrumental Theory**

The evocation of the instrumental theory for our research aims to show the utility of the analytical approach in the study of the management tool (or the management instrument). De Vaujany (2005) gives the definition of a management tool as “a set of management objects integrated in a systematic and codified manner in a functional logic or any other actor logic, and respecting a certain number of management rules. "And like" any reasoning scheme formally linking a certain number of variables from the organization and intended to instruct the various acts of management

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<sup>2</sup>“The knowledge, partly theoretical, held by the prescribers at the origin of the process, is only experienced in contact with the recipients of the expertise; it is during these reciprocal exchanges that they are contextualized and take on a concrete meaning for the operational staff. »(AGGERI and HATCHUEL, 1997).

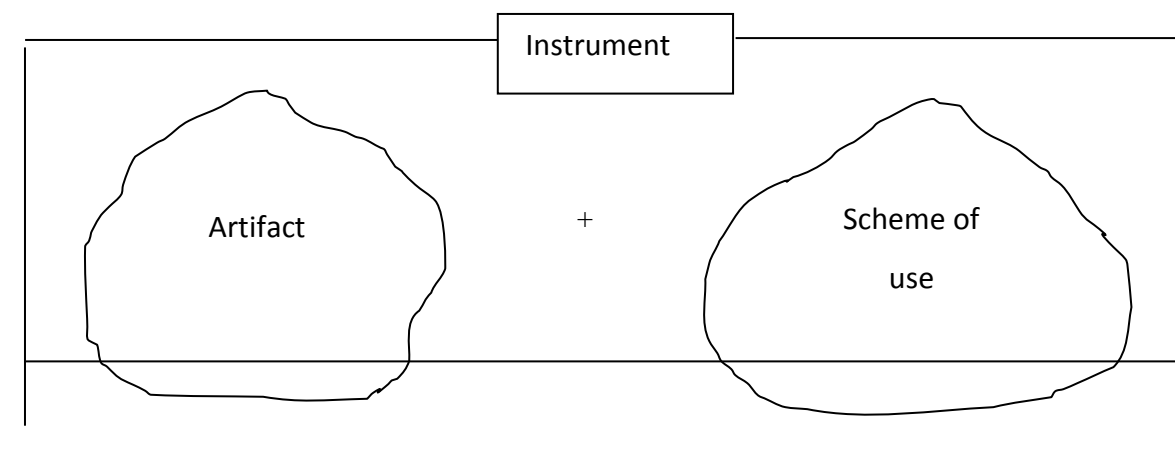
"(Moisdon, 1997). In all cases, the management tool is marked by its instrumental character, finalized and relating to a use activity, and the contextual character of its distribution in the organization.<sup>3</sup>

In the total of these approaches, management object, management rule, management device can be articulated in many ways in a vast analytical model. De Vaujany specifies the definitions of these concepts as follows:

- “A management object is any sign, technique or local and elementary know-how whose goal is to guide or facilitate collective and microsocial action. The indicators (IP) are as many of these management objects, "since they are considered as isolated supports in the organizational action";
- A management rule “Corresponds to the speeches or practices, internal and external, intended for the members of the organization and whose aim is explicitly normative”.<sup>4</sup> “The management rules thus obey a logic of regulation, codification, even reification of the social order”;
- A management system is “a set of organizational design elements driven by a strategic intention and which aims to integrate tools in a coherent way. Hatchuel and Molet (1986) evoke in this regard the inevitable interweaving of management systems and organizational forms.

Still, in this instrumental sphere, Lorino (2002) evokes several destinations: between pragmatics and semiotics, and between representationist and computational, to give a definition of the tool and the management tool as "a material or informational artefact accompanied by 'actor of a use scheme'<sup>5</sup>. The management tool has two components: the artefact and the usage scheme.

**Figure 01-01: The Management Tool: Object and Subject (Lorino, 2002)**



<sup>3</sup>Hatchuel and Weil (1992) show that any management tool is the result of three interacting elements: a technical substrate which is the abstraction on which the tool is based and which allows it to function, a managerial philosophy which reflects the spirit of the design and uses of the tool (and can therefore refer to management rules) and finally a simplified view of the role system underlying the tool. The latter designates designers, users, councils, controllers... ”

<sup>4</sup> Accounting rules, tax rules, internal regulations, managerial principles, various conventions carried by internal or external dominant stakeholders ...

<sup>5</sup>“The management tool can then be defined as a representation, a replica, of the organization and its behaviours (note that this is a “ second degree ” artefact, since an artificial representation of the organization, which is itself an artefact). ”

### 2.3. The Theory of the Diffusion of Innovations

This theoretical framework built in the 80s and 90s mainly analyzes the substance of innovation, its configurations, the influence of endogenous and exogenous factors of the organization on innovation, the influence of innovation on the organization, on its environment as well as its implantation process.

Questions of the process of implantation, adoption and design of new management tools are often addressed by: “the diffusion of innovations theory” (Lapsley, 2004). Examination of this field of research leads us to consider the work of Rogers (1983, 1995) and those of Abrahamson (1991), whose insight is decisive. Their work is focused on the study of the content of innovation, the stages of the emergence process, and the interaction between this process and the internal and external factors of organizations.

Admitting the definition of a managerial innovation as the implantation and implementation of new ideas or behaviours in companies (Damanpour, 1991), the innovation applies to a new management system. Innovation can be the product and result of an organization's own thinking and design process (local innovation), but it can also be imported from outside. This is the case with public organizations insofar as a large part of their innovations originate from innovative practices in the private sector (Hood, 1995).

The main object of the study of the processes of emergence of innovations lies in the understanding of the explanatory factors of the adoption, and the emergence of the variables of the success and failure of the process of implementation. Questions of the effectiveness and efficiency of management control tools, long criticized in the old control methods (Amintas, 1999), are explanatory factors for the emergence of new tools.

However, the emergence and development of management tools cannot be a simple operation of establishing synthesized and organized information. This process is a metamorphosis which supposes the endowment of financial and human resources, and which affects several organizational levels.

The study of the interdependence between the outcomes of managerial innovation and the organizational and contextual factors that condition them remains broad and multiple given the different organizations and contexts. In public organizations, for example, work has been recorded on these issues of the emergence of innovations (Wright and Lapsley, 2003; Hood, 1995; Bjornenak, 1997).

Managerial innovations are natural results of dynamic reality in organizations seeking to improve their operations, activities, products, and all that could lead to maximize their objectives. Innovation has become a central issue dependent on owned technology and skills. The notion of innovation, often dominant in the production function, relates to a product or a process, which increases performance. This dynamic is at the heart of the BSC in which the authors consider the innovations associated with the axis of internal processes as key factors of success and future

performance. Managerial innovation is of the same nature, for example the ABC method (activity-based costing), and cost reduction leads to an increase in the value of products.

### 3. Managerial Innovation

Scientific literature considers managerial innovation<sup>6</sup> in the sense of Rogers (1995) as “innovation is an idea, a practice or an object which is perceived as new by the actors, regardless of whether it really is”. And more precisely, in the sense of Kimberly (1981), “A program, a product or a technique which is perceived as new by the individual or the group of individuals considering its adoption and which, within the organization where it is put in place affects the nature, location, quality and / or quantity of information available for decision making (Alcouffe et al, 2003). Innovation does not require new material! It can be an original arrangement of a number of existing elements.

Godowski (2001) brings together these approaches: “A [managerial] innovation is a new idea that can be either 1) - a recombination of old ideas, or 2) - a scheme that changes the order of the present, or 3) - a unique formula or approach perceived as new by the individuals concerned. It contributes to increasing the stock of knowledge available to managers, which takes the form of improvements or additions to all management techniques, practices and methods, and therefore has a direct impact on the management style ” . The origins of these managerial innovations are in the internal processes of the organization, but also they can be external (Damanpour, 1991).

From these definitions, let us retain the main character of managerial innovation: the novelty brought to the life of an organization. What is important is the source of the novelty: internal or external; and consequently one could speak of two types of diffusion: the emergence of the innovation within the organization itself, and transfer of external innovation, often specific to the sector of activity.

Clegg et al. (1996) highlight the importance of networks in this diffusion of innovation: “networks encompass a loosely coupled cellular structure of value-adding activities that constantly introduce new materials and elements”. Internal and external networks tend to focus on relatively formal relationships between organizations, imply the flow of information through existing channels, where each actor has equal opportunities to initiate contact with other actors in the network.

However, while innovation can appear in a context of organizational change, it can also trigger the wave of change. Hartley (2005) considers that innovation is considered unless it generates a change and produces obvious impacts on the organization. Therefore, the author preferred the definition of innovations proposed by Moore et al. (1997) and which includes this condition: "those changes worth recognizing as innovation should be new to the organization, be large enough, general enough and durable enough to appreciably affect the operations or character of the organization".

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<sup>6</sup> “Managerial innovation seems to be of recent use” (Bouquin and Nikitin, 2003).

And in the public sector? Is there innovation? One wonders, for example, if public organizations are really “motivated and interested” in innovating? If money and profit mobilize companies, what mobilizes public organizations? Or, do public organizations only import from the private sector?

Several managerial innovations, in particular, those in accounting and CDG implemented in public organizations, originate from the private sector (Lapsley and Wright, 2003; HOOD, 1991, 1995). The authors defend the originality of the managerial innovations of public organizations. Lapsley and Wright (2003) indicate that performance measurement is the area that records the most innovation in the public sector with various tools, in particular key performance indicators which are present in local authorities for a percentage of 100% ! Among the innovations originating in the public sector, one can quote the M 14 in France, but also and especially the PPBS (the RCB) which originates from a public organization: the American army.

From this work, we cite a definition specific to the public sector of innovation, that of Albury (2005) gives the following definition: “Successful innovation is the creation and implementation of new processes, products, services and methods of delivery which result in significant improvements in outcomes, efficiency, effectiveness or quality. He joins the notion of success to the notion of innovation: there is innovation when the implementation is successful. He indicates that innovation faces two major challenges. Democratic succession can mean that an innovation could be abandoned by a new political team. The second issue, the concern for managerial innovation, does not take a central place in relation to the primary concerns of citizens whose needs must be met.

### **3.1. Factors Influencing the Emergence of Innovations**

The issues of diffusion of innovations and the question of their success in establishing them take a central place in the theory of the diffusion of innovations. This raises the questions of the factors that favour the emergence of innovations, as well as the constraints and challenges of implementing new tools and processes. We give to "diffusion" the meaning of Rogers (1983,1995), that is to say of deployment of a thing (something): procedure, process, idea, in a population. For emergence to be broad, innovation must carry "something new", have acceptance among adopters.

Diffusion is said to occur when an innovative technique has been adopted by an organization. Diffusion is not automatic, and the fallout from innovation and its ease of progress is subject to favourable factors existing in its environment (Rogers, 1995,1983). Therefore, the notion of diffusion is dependent on the notions of "favourable factors", constraints and difficulties!

It is therefore a question of studying the factors that influence the adoption of innovations in public organizations, and of analyzing the variables that make these organizations more innovative than others.

Rogers (1995) summarizes the factors that promote innovation in the following elements: the degree of benefit that the innovation will bring to the organization; consistency of innovation with existing values of adopters; the complexity of innovation; the potential of the idea to be implemented, and the ease of observing the resulting benefits.

The contributions of the theory of contingency commit to observing for each innovation, for each organization and for each context what are the specific factors. However, there are trials in the literature that synthesize these factors. Thus, Damanpour (1991) proposes a typology of influences of organizational factors on the development of innovations.

**Table 02-01**

*Influence of Organizational Factors on Innovations (Damanpour, 1991)*

<b>Independent variables</b>	<b>Expected relations</b>	<b>The reasons for the expectations</b>
Specialization	Positive	A wide variety of specialists will try to provide a broad knowledge base (Kimberley and Evanisko, 1981) and increase the fertilization of ideas (Aiken and Hage, 1971).
Functional differentiation	Positive	The form of coalitions of professionals in differentiated units (Baldrige and Burnham, 1975) develops and introduces changes in technical systems of units and influences changes in administrative systems.
Professionalism	Positive	Increases self-confidence, Encourages to cross activity boundaries, and to go beyond the status quo (Pierce and Delbecq, 1977)
Formalization	Negative	Flexibility and the low importance given to work facilitate innovation (Burns and Stalker, 1961; Thompson, 1965; Aiken and Hage, 1971). Low formalization allows openness that encourages new ideas and new behaviours (Pierce and Delbecq, 1977).
Vertical differentiation	Negative	Hierarchical levels increase the links in communication channels, making communication between levels more difficult and inhibiting the flow of innovative ideas (Hull and Hage, 1982).
Centralization	Negative	Concentration of decision-making authority prevents innovative solutions, at a time when the distribution of power is necessary for any innovation (Thompson, 1965). A participatory work environment facilitates innovation by increasing the awareness, commitment and involvement of members of the organization.
Managerial attitude towards change	Positive	A positive attitude of managers towards change creates an internal climate favorable to innovation. Managerial support for innovation is very important, especially at the implementation stage where coordination and conflict resolution between individuals and units is essential.



Manager satisfaction	Positive	The satisfaction of managers in their work provides legitimacy and knowledge in carrying out tasks, managing political processes and obtaining desired results (Kimberley and Evanisko, 1981).
Technical knowledge resources	Positive	The greater the resources of technical knowledge, the more easily the new technical ideas can be assimilated and the procedures for their development and implementation will be achieved (Dewar and Dutton, 1986).
Administrative intensity	Positive	A large proportion of managers facilitate innovation since successful adoption of innovations depends largely on the leadership, support and coordination that managers provide (Daft and Becker, 1978; Damanpour, 1987).
Fixed resources	Positive	Fixed resources allow the organization to afford innovations, absorb failure, bear the costs of instituted innovations, and explore new ideas ahead of current need (Rosner, 1968).
Internal communication	Positive	Facilitates the dispersion of ideas within the organization and increases their quantity as well as their diversity (Aiken and Hage, 1971). Moreover, it creates an internal environment favorable to the survival of new ideas (Ross, 1974).
External communication	Positive	Environmental monitoring and members' extra-organizational professional activities can provide innovative ideas (Jervis, 1975; Miller and Friesen, 1982). Innovative organizations exchange information with their environments efficiently (Tushman, 1977).

This involves studying the interactions between innovation and the organization as a whole at all its levels: the different stages of the emergence of innovation, and the different structural and functional levels of the organization. In this sense, the study of the obstacles which hamper the impetus for innovation has always given rise to debates, particularly in public organizations (Albury, 2005): constraints (Crozier, 1979), difficulties (Gibert, 1995), “The challenges” (Neely, 2002), obstacles or “the barriers” (Albury.D, 2005), rejection (Abrahamson, 1991).

### 3.2. The Process of Emergence of MI

The contingent nature of innovation<sup>7</sup> this process takes different forms depending on the innovation and the context of the adopting organization. This did not prevent Rogers (1983, 1995) from conceiving a standard process for the emergence of innovations: “the mechanism of diffusion”. It is a linear process which supposes the succession of five stages: knowledge, conviction, decision, implementation and confirmation. This breakdown highlights two major stages: the design and implementation of managerial innovation. The emergence of innovations explained by this linear vision is also understood by an interactive model, which assumes back and forth between the two

<sup>7</sup> The work of ABRAHAMSON (1991) was able to identify the elements of connection between “innovation” and “contingency”.

stages (De Vaujany, 2005). Lorino (2002) considers that one should not be frozen in the model of linear emergence of two stages: “generally, we distinguish between the two stages: design (planning) and implementation of management tools. But in a substitutive perspective (substitution of the actor by the tool) there is not a clear distinction between design and implementation.

The linear model is very important because it highlights the nuance between the different stages of emergence, which makes it possible to better understand each stage and to “dissect” the factors involved in each stage.<sup>8</sup>

We can identify several theoretical models which outline the stages of implementation of managerial innovations according to the particularity of the context, the innovation and the organization itself.

In addition, one can find “contingent” models which model the process of emergence of managerial innovations, from a generalist perspective. Among those models, that of Gosselin (1997) which distinguishes two phases of the emergence of managerial innovation: "the adoption" which consists in studying and deciding to implement the innovation, and "the implementation" which includes, according to the author, all actions included between adoption and routinization.

#### **4. Conclusion**

Managerial innovations are natural results of dynamic reality in organizations seeking to improve their operations, activities, products, and all that could lead to maximize their objectives. Innovation has become a central issue dependent on owned technology and skills. The notion of innovation, often dominant in the production function, relates to a product or a process, which increases performance.

Moreover, studying these innovations requires a theoretical positioning which consists in choosing between two perspectives: analytical which corresponds to the instrumental theory, and systemic which corresponds to the theory of the diffusion of managerial innovations.

Indeed, the analytical approach was understood to mean that which aimed to deepen the study of the elements that constitute the management tool and the elementary stages of constitutions. Godowski (2003) believes that we are on an analytical approach when we are focused on managerial innovation itself. This orientation embodied in fact a purely technical logic which aimed to establish answers intended mainly for professionals.

The analytical perspective assumes that the implementation of new management tools is done “mechanically” and produces the expected results if everything is “calculated” well, while this is not always so determined, with the influence of organizational factors and contextual. This is why we are moving in research work towards the systemic perspective.

In fact, the systemic perspective was more oriented towards understanding the interactions of these tools with other elements. In this diagram, we use the distinction of ANDERSON and YOUNG

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<sup>8</sup> Cooper and Zmud (1990) distinguish, for example, six stages: initiation, adoption, adaptation, acceptance, routinization and infusion, to show which factors influence which stage.

(1999) of the factors that influence the implementation of CDG: contextual and technical, to point out that an analytical perspective could focus only on techniques (the inner circle), whereas a systemic perspective could involve both aspects: technical (internal) and contextual (external).

This work was able to highlight the two main perspectives: analytical (the instrumental theory) and systemic (the theory of the diffusion of innovations), which constitute the avenues followed by the new research works on managerial innovations.

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