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**Non-technological innovations from organisational design and change perspectives in  
VSEs and SMEs: the case of management systems**

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**Abstract**

The aim of this article is threefold. First, it is to clarify the definition of non-technological innovations based upon a survey of literature mainly in management sciences; second, it is to investigate, using this definition, the link between this category of innovation and organisational design and change; and third, it is to outline implications for entrepreneurial development in very small enterprises (VSEs) and small and medium enterprises (SMEs). The case of the management system, seen as a new way of organising and controlling management processes, is chosen to illustrate the findings. The interest of the article is to propose a two-step approach, with the characterisation of non-technological innovations through a typology. This typology allow identifying more clearly the status, roles, and contents which could be considered and fall within this category of “non-technological innovation,” and by doing so, highlight its interests for entrepreneurial development in VSEs and SMEs.

**Key words:** managerial innovation, organisational innovation, management systems

## **Non-technological innovations from organisational design and change perspectives in VSEs and SMEs: the case of management systems**

### **Introduction**

What is a non-technological innovation? According to the OECD (2005), the family of non-technological innovation encompasses new types of organisational relationships within a venture and with external partners. The characteristics of these innovations are usually defined as modifications of workplace organisation with the implementation of new methods for distributing responsibilities and decision-making amongst employees (OECD, 2005). It is also the new structuring of activities, such as the integration of different business activities. It also encompasses the question of standards, including a broad set of possibilities ranging from sociotechnical to managerial ones (such as food quality management standards), and may include socio-political standards (such as Corporate Social Responsibility). Taking these different characteristics as the starting point, several authors have shown that in fact no real consensus exists about this notion. This shows the complexity of the concept, from a purely structural (adoption of innovations) to a procedural approach (continuous change in organisational aspects). Also, considering the objectives of these innovations, their roles are sometimes seen differently: in some cases as a precondition for setting up of technological innovations, in other cases, as part of a co-evolution of an organisational phenomenon, or as an output from other types of innovations. For Damanpour and Aravind (2012) a non-technological innovation is closely related to the topic of organisational change. Considering the wide variety of definitions and roles, and of the tautological aspects of some of the definitions, it is acknowledged that this lack of clarity creates ambiguity and confusion amongst researchers and managers. Consequently, the objective of this article is threefold. First, an overview of the literature concerned with the category of non-technological innovations is presented. Second, it is shown that the diversity of terms hides a multiplicity of research as well as practical concerns, that is, from the manager's standpoint and positioning. Thus, a typology for these approaches is proposed, based on two dimensions: the choice of the unit of analysis and of the sources of innovation. The interest of such a typology is clearly to evaluate the links between this category of innovations and organisational design. This aspect is usually not investigated jointly. Third point, this typology of approaches is illustrated through an example for VSEs and SMEs, that is, the management systems, to be considered as one type of non-technological innovation. The importance of management system standards for organisational design has been largely emphasised in the literature since the seminal work of Uzumeri (1997)

as a new management system. This approach makes it possible to clarify the links between organisational innovation and organisational design and change. This process of clarification also has interesting consequences for entrepreneurial development, in identifying specific cognitive resources needed by enterprises at an early development stage when questions of organisational design are quite pressing. As will be seen, according to the category of non-technological innovation considered, the nature of needs in terms of external resources and partnerships are not the same, as well as the balance between internal and external skills to be mobilised. As a practical consequence, the research sheds some light between the choices of organisational design at an early development stage of VSEs and SMEs. These influence their will to innovate in management designs such as in the adoption and implementation of management systems or managerial techniques in general.

## **1 Non-technological innovation: a clarification of terms and of conceptualisations**

The non-technological family of innovation encompasses a wide diversity of terms, found mainly in the management literature since the beginning of the 1980s (Fagerberg, 2004). In section 1.1, these terms are identified and the main characteristics of “non-technological” innovations are summarised. Then, a synthesis is outlined in section 1.2. Three notions are selected: administrative, organisational and managerial, and are examined with respect to their contents, scientific positioning and methodological approaches. Indeed, it is suggested that to clarify the category of non-technological innovations, it is important not only to consider the diversity of terms, but also the perspectives they provide.

### **1.1 A synthesis of main terms and definitions**

Multiple terms are used to define non-technological innovations: administrative innovation, organisational innovation, management innovation, managerial innovation. The identification of one clear definition, with possible variants and perspectives, is the first step of the analysis. Amongst the wide diversity of terms used by researchers who have dealt with this category of non-technological innovations, three terms were specifically identified and reviewed: managerial, management and organisational innovation, which are examined in what follows. The term “managerial innovation” coined by Mol and Birkinshaw (2009) usually refers to innovations which significantly alter the operation of the entire venture as it affects all management processes. Managerial innovation changes how managers seek to meet and exceed performance goals of the venture by introducing new management practices (Mol and Birkinshaw, 2009). For Damanpour and Evan (1984) managerial innovation tends to trigger

and amplify technological innovation, more than technological innovation triggers and amplifies managerial innovation management. This approach introduces the idea of a hierarchy between technological innovation and managerial innovation. Managerial innovation is sometimes seen at the top of the hierarchy of different types of innovations because technological innovation is less powerful than managerial innovation: The former produces only short-term competitive advantages while the latter produces long-term ones.

A second approach adopts a perspective referred to as integrative and can be summarised as follows: All types of innovations are combined simultaneously to improve the performance of the venture. When a venture innovates in product or process, it is more likely that it will implement managerial innovations simultaneously. Consequently, the combination of the positive effects of these innovations may improve overall performance (Robert and Amit, 2003; Damanpour et al., 2009).

For Hamel (2006), a managerial innovation is the foundation for the creation of a unique skill set for the venture. Indeed, it enhances the ability to develop managerial innovations that depend upon their performance. Managerial innovation, from this perspective, is intrinsically linked to the organisational design: It can provoke or anticipate organisational change because it requires a unique blend of competences and skills (Hamel, 2006; also Hamel and Breen, 2008).

Hamel (2006) strengthens the normative character of managerial innovation by defining it as the main source of competitive advantage for the venture. He suggests that "we have reached an obvious conclusion that great advances in management practice often lead to a significant change in the competitive situation and frequently confer lasting benefits to businesses pioneers" (Hamel, 2006, p. 19).

Hamel and Breen (2008) have analysed these types of innovation from a competitive approach and provide interesting insights: (i) Process innovation does not prove decisively competitive since the plan rapidly migrates from one venture to another although it is of great importance at the operational level (information systems, outsourcing, etc.); (ii) the product and service innovation are recognised for the development of significant changes within the organisation and are often quickly copied or improved from the original, provided that its success is based on the unique characteristics of the venture; and in turn; (iii) managerial innovation causes a break by resting on a complex combination of resources and know-how particularly difficult for a competitor to identify and duplicate because it causes a lasting rupture. It can be distinguished from other forms of innovation, being based on a complex combination of resources and expertise (Hamel and Breen, 2007, p. 13).

The diversity of terms used in this category of non-technological innovation does not provide a clarification of the connections between non-technological innovation and organisational change. Are organisational innovations antecedents of other categories of innovations? Are they concomitant or seen as possible outputs? This question can be explored further by considering the global approach of terms, definitions and perspectives.

Although non-technological innovations are poorly studied, Birkinshaw and Mol (2006) have identified over 12,700 scientific papers related to this topic, as reported by Le Roy et al. (2013). However, there is no consensus on these definitions (Lam, 2004) and several terms are used interchangeably. Indeed, the literature uses mainly the following terms: organisational innovation (Daft, 1978; Damanpour and Evans, 1984), administrative innovation (Evans, 1966; Teece, 1980; Damanpour, 1987) or innovation management (Birkinshaw and Mol, 2006; Hamel, 2006; Birkinshaw et al., 2008; Damanpour and Aravind, 2012; Damanpour, 2010; Birkinshaw et al., 2008; Le Roy et al., 2013). This ambiguity in also terms is revealed by Damanpour (2010): Sometimes managerial innovations are also mentioned as subcategories of organisational innovations, administrative and management innovations.

In order to summarise these notions, an operational definition of organisational (or managerial) innovation is proposed through a literature review. A summary of definitions is provided in Table 1 to track down the three main terms: organisational, administrative, and management (or managerial) innovations.

### *Organisational innovation*

The first definition of organisational innovation is attributed to an economist, Schumpeter (1983), as a new way to organise activities. The term organisational innovation was chosen by the OECD (2005) and defined as “the implementation of a new organizational method in business practices of the company, the organization of work or external relations” (OECD, 2005, p. 17). In both definitions, organisational innovation is related to the perception of novelty, and Daft (1978) judiciously stresses that an innovation that is new for a venture is not necessarily a new one for the market: “Even if an innovation has already been created in another context, when it is implemented in a company, it is an innovation because it changes the usual way of doing something” (Le Roy et al., 2013, p. 78). The variables used in the empirical literature on organisational innovation are mainly: teamwork, quality circles, just-in-time, the quality management, lean production, etc. (Armbruster et al., 2008).

### *Administrative innovation*

Evan (1966) defined administrative innovation as the implementation of a new idea or a new practice related to recruitment, allocation of resources, the definition of the type of work or hierarchical relationship implemented. Similarly, for Damanpour and Aravind (2012) the administrative innovation occurs in the social system of an organisation. These authors explain that the social system with rules, roles and procedures refers to relationships between individuals who interact to achieve a goal or a particular task. Damanpour (2010) highlights the link between innovation and the administrative management of the venture; and emphasises that innovation changes the structure of the organisation, its business processes and is immediately linked to management. Contrary to organisational innovation, administrative innovation focuses on the societal/social aspects. The examples discussed in the literature are mainly service planning and budgeting, the quality management improvement, and the establishment of new teams.

#### *Managerial (or management) innovation*

Birkinshaw, Hamel and Mol (2008, p. 832) define managerial innovation as “the invention and implementation of a practice, process, structure or management technique that is new under the state of knowledge and contributes to the achievement of organizational goals.” Due to their work in the research programme of the London Business School, managerial innovation gained a renewed interest after the year 2000. According to Damanpour (2001) the term “innovation management” has gained credibility in the literature and beyond the organisational and administrative meaning. In addition, Mol and Birkinshaw (2009, p. 1271) state that: “managerial innovation changes how managers seek to achieve the objectives of the company and refers directly to the introduction of new management practices to improve performance the company.” Examples of this type of innovation include Total Quality Management (TQM), quality circle, cost accounting, 360-degree feedback, and divisional (M-form) structure. Despite the different terminologies, these innovations have often been clearly defined, as opposed to technological innovations, and their definitions overlap considerably. The table 1 shows the contents and examples of different types of non-technological innovations.

Table 1: Managerial/management, administrative and organisational innovations: definitions, level of analysis, examples

The “non-technological innovation” family	Definitions	Unit of analysis	Examples
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Organizational innovation	<p>Production or adoption, assimilation, and exploitation of a value-added novelty in economic and social spheres; renewal and enlargement of products, services and markets; development of new methods of production; and establishment of new management systems (Crossan and Apaydin, 2010).</p> <p>New structures affecting rules, routines and tasks within an organisation (Ménard, 1994) Armbruster et al., 2008).</p>	Firm  Firm	Team work, quality circle, just-in-time, Total Quality Management, lean management
Managerial/management innovation	<p>Any program, product or technique which represents a significant departure from the state of the art of management at time it first appears and which affects the nature, location, quality, or quantity of information that is available in the decision-making process (Kimberly and Evanisko, 1981).</p> <p>The invention and implementation of a management practice, process, structure or technique that is new to the state of the art and is intended to further organisational goals (Birkinshaw, Hamel and Mol, 2008).</p> <p>A marked departure from the traditional management principles, processes and practices or a departure from customary organisational forms that significantly alters the way the work of management is performed (Hamel, 2006).</p>	Firm, industry, environment  Firm, environment  Firm	M-form, D-form, Balanced Scorecard, 360-degree feedback
Administrative innovation	<p>Are those that occur in the social system of the organisation, it also includes those rules, roles, procedures and structures that are related to the communication and exchange amongst people and between the environment and the people (Damanpour and Evan, 1984)</p> <p>A new idea, which may be a recombination of old ideas, a scheme that challenges the organisation established a formula or an original approach that is perceived as new by the individuals concerned (Van de Ven, 1986).</p>	Firm, environment  Firm	



	Innovations that change the structure of the organisation and more Damanpour, 2010).		
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The conceptualisation of innovations as organisational, managerial and administrative is constantly changing. Similarities in terms of definitions and variables studied in empirical work lead to the same concept: (i) the novelty dimension is dominant, (ii) the review of the literature examined leads to the same variables, and (iii) the variables are all defined as invention, adoption, implementation of best practices and new methods of management for the organisation.

Based on these definitions, and in order to clarify the debate, the term “managerial innovation” is selected as the adoption and implementation by a venture, of new management practices and methods which contribute to the goals of the organisation. The unit of analysis is the managerial innovation. Although the organisation and its characteristics (size, age, structure ...) play a role in innovation, and can also be considered as the unit of analysis, innovation is examined for all its components, from adoption to implementation, and from both the venture and the market perspectives.

In order to continue the exploration of the notion of organisational innovation, two different ways of classifying them are considered, which have usually been understated in the literature. This approach is related to the organisational design and change literature. Indeed, the suggestion is that the lack of clarity in this family of “non-technological” innovation concerns the lack of conceptualisation about the treatment of two key aspects in the organisational design literature: (i) the finality of the innovation; and (ii) the emphasis put on the analysis of the implementation process. From this, an original typology of perspectives is drawn. We will see that putting this category of innovation in the light of organisational change and dynamics allows for avoiding the difficulties of substantialist definitions, that is, based upon intrinsic and permanent characteristics. The meaning of such an approach is to consider that non-technological innovations cannot be defined by constitutive characteristics but instead by the conditions of their constitution.

## **1.2 Approaches to non-technological innovations from the perspective of organisational design and change research**

The research strands on non-technological innovations also differ in the way they are studied. The works of Greenwood and Hinings (1988) and Greenwood and Miller (2010) provide an interesting perspective over non-technological innovation in a sense that the organisational

change (either incremental or disruptive) is identified through what is called “organisational archetypes.” By doing so, they emphasise not the change in itself, as is usually seen in the innovation management literature, but rather the trajectories or paths of change. By focusing on the roles of external agents, Foss and Lyngsie (2014) show that the question of organisational design is intrinsically linked to the uses of external knowledge sources by the venture, mainly at the exploitation phase. The role of organisational design is seen as a combination of coordination and decentralisation that impacts the levels of interaction for knowledge appropriation needs. This approach adds a perspective to the links between organisational design and the management of innovations. For Foss and Lyngsie (2014), organisational design is an antecedent to innovation, either technological or non-technological: Consequently, it positions organisational innovations at two levels of the process, that is, simultaneously at the antecedent and at the output levels, of the innovation process.

Tidd (2001) also acknowledges the limitations of traditional approaches to management innovation. In pointing out the relevance of organisational behaviour research, this author shows the importance of environmental contingencies: “the complexity and uncertainty of the environment affect the degree, type, organization and management of innovation” (Tidd, 2001, p. 180). Then he argues “the goal should be to identify the organizational configurations most suited to specific technological and market environment, rather than to seek a single ideal or best-practice model for any context.” (Tidd, 2001, p. 180). Similarly, but from another theoretical perspective, Van de Ven (1986, 1986, p. 604) put forward the idea of longitudinal studies “of the social and political processes by which people become invested in or attached to new ideas.” Finally, Nickerson et al. (2012), in the design science literature, also change the perspective to be addressed regarding innovation management issues, by focusing on implementations, that would “call attention to not only motivational issues but also the variety of impediments that could arise in different contexts calling for designing a range of alternative processes for different contexts” (Nickerson et al., 2012, p. 6).

Two perspectives have been delineated. The first one puts the focus either on processes or on outcomes of the innovation. The second perspective emphasizes the novelty dimension, that is, new to the venture (as an inventor), new to the market or to the world. By combining these two dimensions, it is possible to provide a typology of approaches, showing that the high complexity of managerial innovations requires clarifying the ways it has been investigated and defined.

*Innovation as a process and innovation as outcome*

Innovation in organisations was examined both as an outcome and as a process (Damanpour and Aravind, 2012). Some authors (Damanpour and Schneider, 2006; Kimberly and Evanisko, 1981; Li, Lee, Li, and Liu 2010) have studied innovation as an outcome and others (Rogers, 1995; Van de Ven et al., 2000) have explored the view of innovation as a process. In the latter case, the literature explores the origin, development and dissemination process.

For Schroeder, Van de Ven, Scudder and Polley (2000) innovation is defined as a process that encompasses several steps or phases. The innovation process can be one of generation or adoption. The process of generation and adoption differ significantly (Damanpour and Aravind, 2012). For Roberts (2007), the phases of process innovation include research, design, business development, marketing and distribution. Regarding the adoption process, Damanpour and Schneider (2006, p. 217) explore the question of “how an organisation becomes aware of new ideas, acquires and uses?” In this vein, Crossan and Apaydin (2010) develop the dimensions on innovation as a process which must address the question of "how." These authors highlight the importance of the two elements which are to be considered as an answer to this question. They are both the drivers and resources in this process and they can be both internal and external. Internally, the drivers can be acknowledged as resources, while the external drivers could be a market opportunity or a regulatory constraint. As for sources, the internal source is the process of creating innovation and the external source is the process of adoption of innovations created elsewhere. Birkinshaw et al. (2008) are interested in individuals involved in this process; insiders and outsiders as well. For them, two groups of individuals shape the process: change agents are internal employees of the innovative and proactive venture, and external change agents, that are similar to independent consultants, academics, and other proactive groups influencing the development and legitimising the effectiveness and long-term use of new practices. The magnitude of the extent of the innovation process is also important because it can be referred to a closed process when it involves the enterprise only and to an open process when external partners are involved. The perspective of innovation as a process is underdeveloped in the literature (Crossan and Apaydin, 2010). For Zbaracki (1998), the innovation process is generally complex, recursive and occurs in repeated cycles with variation. Several authors have identified phases of the adoption process and “stages of the adoption process innovation illustrate the interdependence organizational change and innovation” (Damanpour and Aravind, 2012, p. 432). The phases of the adoption process for an innovation mainly include: (i) initiation, (ii) the adoption decision and (iii) implementation. Birkinshaw et al. (2008) also proposed a four-phase managerial innovation process: (1) *the motivation* includes the facilitating factors that lead individuals to consider developing their own

innovation, (2) *the invention* is the emergence of new practices from an initial act of experimentation (3) *the implementation* is the technique for setting up the new values across the venture, and (4) *the theorising and labelling* is a social process by which individuals internal and external to the organisation validate the innovation to build its legitimacy (Birkinshaw et al., 2008).

Damanpour and Aravind (2012) explain that the conceptual model of the process of technical innovations and products have long been developed compared to the work on the process of innovation management that are rather scarce. They are trying in their work to discuss production processes and the adoption of managerial innovation by contrasting them with similar processes and technical product innovations.

### *Innovation as an outcome*

In this case, the authors have mainly explored internal organisational and external conditions in which an organisation innovates. According to Crossan and Apaydin (2010, p. 1160), “the distinction between innovation as a process and as a result is sometimes blurred.” They point to the lack of clarity between the two, particularly in cases where innovation outcomes are combined with market performance. Addressing innovation as an outcome leads to an answer to the “what” question. This reference dimension sets out the novelty of the innovation. As a result, it may be new to the enterprise and / or to the market. Other dimensions are also considered in this reference dimension, including the distinction between incremental innovation and disruptive innovation. Incremental innovation such as continuous improvement initiatives may be new to the company and for its radical innovation will be associated with the market. A radical innovation induces fundamental changes and a clear departure from existing practices within the organisation, while an incremental innovation represents a change in routines and in existing practices (Damanpour, 2010). Researchers tend to focus on radical innovation (exploration) leaving out incremental innovation (exploitation) (Damanpour and Schneider, 2006). The literature distinguishes different forms of innovation. Most studies are about technological innovations (product or service and process), but non-technological (such as managerial and administrative organisational, etc.) have also attracted a renewed interest since the year 2000 (Le Roy et al., 2013). The product / service innovation and novelty mean the introduction of new products on the market. Process innovation is the introduction of new production methods, new management approaches and new technologies to improve production. Damanpour and Aravind (2006) emphasised the complementarity that exists between these two types of innovation (product and process) in studying the effects of

organisational and environmental determinants on product and process innovations (Crossan and Apaydin, 2010). An important element concerns the capture feature (nature) of this innovation as an output. Daft (1978) defines it as a combination of new practices, techniques and processes that develop in the technical and administrative (or social) settings. According to Birkinshaw et al. (2008), this outcome can be theorised and labelled as in the example of the Toyota Production System, which has been analysed, and theorised (Dubouloz and Bocquet, 2013). It was labelled as "Lean Manufacturing" by Womack, Jones and Roos (1990) and more companies adopt this technical management method (Dubouloz and Bocquet, 2013). This system is even sold as a consulting service and organisations which often introduce within their walls these innovations produced by others are accompanied or supported by consultants.

#### *Differentiating generating organisations from adopting organisations*

Researchers usually consider that the unit of analysis is implicit and do not consider it has having important consequences, especially when it comes to the classification of issues. But, as shown by Damanpour et al. (2009) a distinction is necessary and must be established between the generation and the adoption of an innovation. Indeed, as soon as the unit of analysis is the organisation (a venture, an enterprise), the distinction between an innovation-generating and an innovation-adopting organisation requires categorising several types of innovations that differ in nature.

For the former, the generation process is a "(...) creative process in which new and existing ideas are combined in a novel way to produce an invention or a configuration that was previously unknown" (Damanpour and Wischnevsky, 2006, p. 274). For the latter, the adoption process is mainly concerned by two sub-processes, that is, the initiation and adoption. For Damanpour and Wischnevsky (2006) this situation is, generally a "problem-solving process in which an existing idea is adapted to address the recognized needs as identified problems within an organization" (Damanpour and Wischnevsky, 2006, p. 274).

This first distinction between an innovation-generating and an innovation-adopting organisation sheds some light on two specific situations, but the organisation remains the unit of analysis. Hence, the researcher can maintain that the unit of analysis is the innovation in itself, considered as a whole, in its intrinsic characteristics, contents, phases of implementation, relations to the market or to the sector as a whole, or to its environment.

Finally, by jointly considering these two perspectives, product/process, on the one hand, and the unit of analysis, on the other hand, it is possible to craft a complete table of innovation

situations, as applied below to managerial innovations. To help illustrate the notions further, an illustrative example, the innovative management system is used.

## **2. A tentative typology with an application to the management system type of non-technological innovation and implications for entrepreneurial development**

Despite its heterogeneity and a lack of clarification in terms, it was seen that it is possible to identify useful perspectives to delineate situations of non-technological innovations, especially from an organisational change perspective. It is proposed now in section 2.1, to illustrate these perspectives through an example of non-technological innovation, that is, the management system type, and well-represented in organisations by the ISO management system standards such as the ISO 9000, ISO 14000, ISO 22000 series. Then in section 2.2, the interests and implications of such an approach for SMEs and VSEs is highlighted. Indeed, the entrepreneurial development of these categories of companies frequently suffer from specific limitations in terms of relationships with external agents and lack of managerial knowledge about organisational change. The typology proposed in this article provides useful insights to overcome these limitations.

### **2.1 A typology of non-technological innovation in the light of organisational change**

Based upon findings in management system innovations (Pitsis et al. 2012; Westphal et al., 1997; Uzumeri, 1997; Zbaracki, 1998), Table 2 shows the relationships between one category of managerial innovation, that is, the management standard, and the typology of perspectives on organisational design and change. The table 2 distinguishes, at the first level, the unit of analysis. One could consider the organisation or the innovation in itself, thus putting the emphasis on the perimeter to be considered in the approach on organisational design.

Let us consider first the “organisational unit itself.” With this approach, the researcher adopts a holistic perspective, and organisational change finds its own dynamics within the organisation. For this category, at the second level, the organisation maybe categorised as either a generating or an adopting organisation. In the case of a generating organisation, the focus can be put either on the process or on the outcome. From the process view, the objective is thus to identify the origin of the organisational change. For instance, the change can come from specific antecedents, or from specific roles of leadership or from organisational structures. But the roles of environmental factors, such as relationships with professional bodies or research organisations, could also be emphasised. In the case of a focus on outcomes, organisational change is seen as a result, such as a specific managerial method (quality circles for instance),

managerial techniques (participatory management). In the case of an adopting organisation, the dimensions of what could explain the invention of new ideas, of new managerial techniques or managerial modes are minimised. To the contrary, this is the connection between the novelty and the way it is practically implemented that is at the core of the perspective. Let us now then consider the process/outcome focus. From the process outcome, the aim is to understand what are or could be antecedents to adoption. The emphasis is then put on the characteristics of the organisation, the type of sectors, the size or scope of its activities. With the focus on outcomes, the organisational change is seen as a consequence of the adoption and implementation of new managerial techniques or organisational modes.

Let us now consider the “innovation in itself” focus. In this category, the link between managerial innovation and organisational change is strong. Indeed, for instance with a focus on the process, an organisational change perspective usually identifies either the phases of innovation or the content of innovation. Clearly, this approach is also found in research on managerial and organisational innovation, for explaining the relative overlap of concepts found within the two perspectives. With a focus on output, the link with organisational change is less clear, as the approach is static. Subjects such as the categorisation of organisational innovations, the roles of environmental factors, the importance of market diffusion, and the impacts on the performance of the sector as a whole are frequent (Cohen and Levinthal, 1990).

As stated previously, the interest of this specific categorisation of non-technological innovations is especially relevant for ventures at the early development stages, such as VSEs and SMEs. Before developing the managerial implications for entrepreneurs, let us consider the specific context of VSEs and SMEs regarding these innovations. It has been widely acknowledged that these ventures face major challenges and issues when it comes to non-technological innovations. Amongst these are the relative isolation, lack of financial resources, of skills or specific competences and capabilities. But it is most likely what has been labelled as “cognitive gaps” (McAdam and McClelland, 2002) that is the most challenging for young entrepreneurs. Indeed, the support from the environment (for instance professional bodies, territorial and national policies) may help overcoming relatively simple problems such as financial incentives or access to the relevant and critical information. But the ability of a young venture to clearly identify what are its cognitive resources within its resource pool to solve highly complex problems such as management system designs necessitate a sophisticated diagnosis of capabilities, the ability to delineate the degree of newness and the dynamic aspects of organisational changes.

Table 2: A synthesis with an application to the “management system” type of non-technological innovation

Unit of analysis		Focus on process	Focus on output
Organisation in itself	Generating-organisation	Antecedents for generations Roles of leadership Roles of organisational structure Links between the organisation and professional bodies Innovation capacity in groups <i>Examples:</i> ✓ Roles of a company in the definition of the standard ✓ Implications for a company in the working group of standardisation organisation	Creation of quality circles Creation of new managerial techniques/methods  <i>Examples:</i> ✓ Creation of specific resources (controls, SI) linked to the standard ✓ Impact of standard implementation on differentiation or market performance
	Adopting-organisation	Antecedents for adoption Roles of internal/external agents Focus on implementation <i>Examples:</i> ✓ Roles of partners in the adoption process ✓ Factors explaining the adoption of the standard	Consequences on performance of TQM or quality circle Relationships with technological innovations  <i>Examples:</i> ✓ Impacts on performance ✓ Impacts on internal culture
Innovation in itself		Phases of innovation Content of phase  <i>Examples:</i> ✓ Delineation of phases in standard implementation ✓ Identification and roles of major partners	Definition Categorisation Diffusion of innovation on a market Replication/adaptation Roles of environmental factors <i>Examples:</i> ✓ Ratio of companies with certification ✓ Rapidity of diffusion across sectors

## 2.2 Implications for entrepreneurial development

Following this general statement, the categorisation proposed in table 2 can be examined from an entrepreneurial design perspective. These consequences and their managerial implications for VSEs and SMEs are detailed through three main topics of particular interests for these kinds of companies: (i) the role of consultancy firms (and more generally of external agents involved in the area of new managerial skills implementation) in the early stages of organisational definition, (ii) the balance between external and internal needs regarding non-technological innovations, (iii) the specific roles of managing director(s) when it comes to these management system innovations.

- (i) *Roles of external agents in entrepreneurial development.* The roles to be fulfilled by external agents are better identified as soon as the categorisation of the non-technological innovation has been conducted. For instance, in the case of a



generating organisation, the objective of the venture will be to directly craft and produce the innovation; with significant investments to be deployed. Questions such as the links with the competitive advantage of the venture and the protection of innovation (that is, intellectual property (IP)) puts forward the critical question of dependency towards external agents, which should be clearly questioned. On the contrary, adopting organisations may be more prone to external partnerships, with less critical IP issues or differentiation strategies. What is at stake in this situation is most likely the capability to set it up quickly, regarding the competition, new managerial techniques or specific requirements from customers (certification). Thus the mobilisation of external agents is preferable.

- (ii) *Balance between external and internal (managerial) needs for entrepreneurial development.* This balance brings back the previous point on the roles of external agents but also is directly linked to the product/process dilemma, as shown in Table 2. Indeed, the main problem for young entrepreneurs is not mainly to assess the level of this balance, but more importantly to figure out how to fine-tune the balance (between internal and external resources) over time. A clear focus on process issues will shed light on the level of dependency and of active partnering which is likely to occur. Interestingly, as an illustration of this statement, one of the main weaknesses of VSEs and SMEs that have been frequently emphasised by researchers is the lack of involvement of VSEs and SMEs in early steps of management system standard creation, which usually involves large companies and publicly owned firms (McAdam et al., 2007; Murillo and Lozano, 2006). Doing so accentuates the cognitive gaps that have previously been acknowledged that in fact innovative managerial technique and tools are being largely designed for multinational companies.
- (iii) *The specific roles of managing director(s).* The direct or indirect implications of managing directors, at the top-level management or at the operational level management also bring some lessons to our approach. Considering the situation of an adopting organisation with a focus on the process (cf. table 2), the manager's profile and its antecedent (background, previous experiences...) are arguably the key elements that would explain the capability to implement the new management system (especially in VSEs). Moreover, an output-oriented approach might associate the impact of the innovation to its financial and/or organisational

performance for the organisation as a whole with less emphasis on the manager's characteristics and profile.

The topic of organisational design is mainly impacted, in the cases of VSEs and SMEs, by the many ways of implementation given missing managerial competences. When it comes to non-technological innovations and changes, this tension between what is needed within versus what is expected outside the venture is even more accentuated and complex. What can be concluded is that organisational change is highly dependent upon the path that is drawn by the specificities of non-technological innovations. These important consequences have not been previously sufficiently highlighted by the traditional classifications.

### **Conclusion**

The overall objective of this article was to analyse the category of non-technological innovations and their connections to the organisational design and change, and to provide useful insights for managers, mainly in the context of inception stages of a venture design. Indeed, usually approached with different perspectives and concepts, these two streams of research have strong common underpinnings, but these are not clearly acknowledged in the current literature. When it comes to non-technological innovations, where the roles of external agents and of external skills are crucial, there are important managerial as well as theoretical gaps to be filled. This analysis was conducted in two steps. First, the definition of the broad category of non-technological innovations, sometimes labelled as organisational or managerial innovation was clarified. By doing so, it is possible to precisely define the meaning of terms and contents used by researchers in that field. It was shown these research findings encompass a wide variety of sometimes redundant and overlapping terms and definitions. Most importantly, doing so allowed for the identification of different perspectives in a multi-layered approach. Second, based on a family of managerial innovations, the management system of meta-standards, a grid with a typology of non-technological innovations and their links to the contents of organisational change was proposed. Given this clarification, it is now possible to enlighten the relationships between innovations that involve organisational aspects and organisational changes within the firm.

It was shown that these theoretical developments have important consequences for VSE and SME managers in the context of entrepreneurial development and design. The main points to be considered are the roles of the external environment. Entrepreneurs of such enterprises face difficulties in assessing the respective roles and positions within their own venture regarding

organisational development. Frequent questions that may arise are: To develop efficiently, to which extent should these ventures keep their autonomy and develop in-house new management tools and techniques? To which extent should they rely upon external partners and resources? Similarly, what are the critical factors that should be considered and which ones would affect their organisational design the most? As was seen these aspects are usefully enlightened due to the proposed dichotomous approach. In a sense, the categorisation of non-technological innovations in several subgroups is a necessary condition, probably not sufficient, to put forward the topics of dependency, autonomy and relationships of ventures and of their managers when it comes to the creation, adoption and implementation of managerial innovations.

As an exploratory research, these preliminary findings need substantial developments. Considering the research perspectives, two directions could be considered. First, the topic of organisational performance, and second, the impact of managers' profiles in the creation, implementation and adaptation (translation) of non-technological innovations would be worthy of further research. The complexity of these two complementary fields of investigation is too frequently underestimated. The question of organisational performance for instance, in the context of VSEs and SMEs, is of strong relevance. Strategic choices have to be made and a narrowly defined conception of what organisational performance really is insufficient; it necessitates contextual approaches. The categorisation and dichotomisations, as proposed in this article, could illuminate this subject. Similarly, research on the profile characteristics of managing directors in terms of age, antecedents, training backgrounds, etc. is also a promising, and a complementary field of research. Indeed managing directors in VSEs and SMEs always influence strongly the development of their venture, for obvious reasons of size, history and direct personal involvement. The need of future research to articulate these subjects is one of the challenges of this field at the intersection of organisational change, non-technological innovation and entrepreneurial development literatures.

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