Controlling creativity: Design and use of management accounting and control systems in creative environments

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Abstract

Using an in-depth case research extended with multiple case studies in the fashion industry, this paper examines the role of management control systems in creative environments. The data collected indicate that these systems are deeply embedded in the work environment of creative people playing a significant role. Yet, this role is not associated with traditional goal divergence concerns but rather they activate dialogues between different communities, each characterized by its own mindedness, to guide behaviour towards the intended goals. These dialogues are representative of alternative dialogical forms of control focused on organizational complexity, product excellence or cultural identity. The study suggests that creativity and control do not have contradictory purposes and both are deeply integrated in organizations competing on creativity.

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1. Introduction

Management control systems play a significant role in creative environments. Despite its relevance, control has been associated with the idea of optimizing and adapting (through motivation and coordination mechanisms) processes in the pursuit a given organizational objective. Yet, control systems play a significant role in the process of creation where the objective is ill-defined. They are not intended to motivate people or coordinate actions. Their role is to structure the environment to and control is used to guide and structure the environment

Early formulations relied on simple feedback mechanisms (Anthony, Ashby) evolving into strategy centred mechanisms to towards systems that allow quick reactions Creativity is more important today than ever before. The reason is that creativity is an effective mean to respond to evolutionary changes. Together with its role in the problem-solving process, creative ideation provides individuals with the possibility to remain flexible, giving them the ability to face the stimuli and opportunities deriving from the environment. This implies that creativity is reactive, and acts as a response to problems and challenges, but it is also proactive in that it operates as one of the triggers of cultural evolution and change (Flach 1990; Mumford et al. 1991; Runco 2004). The basis for such change results from the generation of original ideas that are useful or influential (Paulus, and Nijstad 2003). However, creativity is not only a concern and an interest for individuals; it plays an important role also in social and organizational phenomena, and in technological advance. Because of its role in the competitive advantage of firms, creativity has started to be the focus of attention of business and organizational studies (Runco 2004).

Management accounting literature has never directly dealt with the issue of creativity. It has only recently started to investigate related phenomena such as innovation and entrepreneurship, by developing new theoretical concepts that challenge the traditional control paradigm, offering a different view consistent with these more uncertain phenomena (Davila, Foster, and Oyon 2009; Bisbe, and Malagueno 2009; Revellino, and Mouritsen 2009). However, entrepreneurial and innovative processes do not necessarily share entirely the same logics of creativity. The objective of this paper is, therefore, to study how to control creative environments with the following purposes: on the one hand, to introduce creativity and its determinants as major explanatory variables of management accounting systems. This will expand the range of dimensions to consider when designing control systems; on the other hand, the objective is to move a step forward the problem of simply identifying which general environmental conditions allow creativity performance, and to understand the characteristics of specific management accounting systems in highly creative settings. In fact, while it may seem quite intuitive that such factors as more freedom and autonomy are beneficial to the work in creative environments and that it is hard to imagine organizations functioning without formal control systems, *the real problem to face is how to configure these systems in a way that does not stifle creativity.* Additionally, organizations may want to avoid remaining passive in the hope that creativity will happen spontaneously and may want to introduce mechanisms that alter creative behaviour to make it conducive to the specific goals of the organization.

Some premises are necessary to introduce our work. First, while the literature on creativity has generated a wide spectrum of definitions ranging from characterizing it as a

characteristic of a person or as a process (Ford 1996; Amabile 1988), here we adopt the definition that has been mostly adopted in the empirical research (Shalley, and Gilson 2004; Oldham, and Cummings 1996), focusing on creativity as 'the creation of a valuable, useful new product, service, idea, procedure, or process by individuals working together in a complex social system' (e. g., Woodman, Sawyer, and Griffin 1993; Amabile 1988). These creative outcomes can range from minor adaptations in workflow or products to major breakthroughs and the development of new products or processes (Mumford, and Gustafson 1988). To be creative they must satisfy two conditions: (1) they have to be novel or original and (2) they have to be potentially relevant for, or useful to, an organization (Oldham et al. 1996). Second, we concentrate on the creativity process as the focal level of analysis and we stress project-level results that link the talents of team members into project-level efforts (Drazin, Glynn, and Kazanjian 1999). Third, consistent with most of the creativity and innovation literature (Drazin 1990; Drazin et al. 1999) we adopt a functionalist perspective to study creativity. In doing so, our objective is not to criticize or supplant important contributions deriving from other perspectives (e.g. Drazin et al. 1999), but just to use a theoretical framework that we consider more relevant for our research purposes. Consistent with this logic, and in line with other previous contributions in the management accounting field (e.g. Jönsson, and Grönlund 1988; Jönsson 1998; Malina, and Selto 2001; Ahrens, and Chapman 2004; Granlund, and Taipaleenmäki 2005), we conduct a qualitative field study with functionalist leanings (Ahrens, and Chapman 2006). Finally, differently from previous contributions in the creativity area, we adopt a multiple case study methodology to unfold the creativity processes over time, from the development of the idea to the generation phases of innovation. This is in line with the claim of Drazin et al. (1990) related to the need to study the creative performance of individual employees in organizations and of adopting qualitative methodologies to study the creative engagement at work, given that extant contributions have mainly developed theoretical frameworks to illustrate major components of the work context that affect creativity (Drazin 1990; Woodman et al. 1993; Ford 1996; Shalley et al. 2004) or conducted surveys or laboratory experiments to collect evidence on these components (Oldham et al. 1996 p. 609; Amabile et al. 1996; Pirola-Merlo, and Mann 2004).

This paper advances the literature in many ways. It contributes to the creativity literature because it aims at a deep understanding of creativity processes in relation also to the innovation processes (Ford 1996 p. 35; Gilson et al. 2005 p. 35; Shalley et al. 2004). In fact, so far, for the most part, authors investigating creativity have been only marginally aware of the work done in the field of innovation. As a consequence they have failed to exploit the potential synergies deriving from the study of the two phenomena jointly (Ford 1996). To overcome these limitations we will conduct our investigation by recognizing that creativity is intimately linked to the innovation process. Even if we assume that the former refers to the early generation of novel products, services and so forth and the latter relates to the successful implementation of these products and services at the organizational level (Woodman et al. 1993; Oldham et al. 1996) – as most research has previously assumed – we consider the effects of the expectations of what is happening in the following phase of innovation activities, which creativity undergoes, as well as some adjustments that may derive from difficulties emerging in the generation phase, and we investigate related control issues. In addition, an attempt is made here to

contextualize the findings of the creativity literature and to explore whether some contingent variables may explain the variety of mechanisms adopted to control creativity in practice. In fact, while the creativity literature has proposed a variety of relevant factors that can either enhance or stifle creativity (Shalley et al. 2004), it has done so by considering these conditions in a universal fashion, i.e. with the implicit assumption that the creative process is alike in all possible settings, without considering the relevance of some important competitive, organizational and operating characteristics of the environment in which creativity processes take place. This paper contributes also to the management accounting literature in that it incorporates the creativity contributions into the management accounting field. In this way it aims at linking diverse literatures and research traditions together to generate additional wisdom on a phenomenon that has a strong impact on organizational effectiveness and, ultimately, survival of firms.

2. Creativity: a review of the literature
A large body of literature has studied creativity over the last fifty years. Much research has been conducted in different domains – ranging from psychology, sociology, organizational theory and management – and it is really difficult to illustrate the variety and richness of contributions in this area. One possibility is to categorize them according to the specific unit of analysis investigated with a link to the disciplinary framework adopted (Runco 2004; Rhodes 1961/1987). In what follows the main results achieved by the various contributors of creativity research will be summarized. In no way, this review is intended to be exhaustive, and hundreds of pages would be necessary to provide a complete analysis of extant literature. The aim is rather to illustrate the potentially important variables and relationships that may enhance or discourage individual's creativity as well as the interaction between personal characteristics and the work environment, as a premise to investigate which of these variables and relationships are linked to management control.

2.1 Individual creativity
Early research on creativity centred, to a large extent, on the outcomes and results of the creative process such as, for example, publications, paintings and poems. This kind of research has been mainly applied to eminent persons and the perspective adopted is mostly historiometric and historical. For example, Simonton (1984), by using a historiometric approach[1], analysed the productivity of Piaget, Picasso and other luminaries, and Boorstin (1992), by adopting a traditionally historical approach, took a wide view to develop a deep analysis of "the creators". The objective of this approach · · · 鑵 nd the antecedent conditions of individual creativity and method to measure the *products* of creativity. However, the key problem with this perspective was that it often generated insights on productivity more than creativity, and this may be misleading because what generates productivity does not necessarily overlaps with what generates creativity. In addition, insights from eminent people cannot be generalized to non eminent populations (Runco 2004).

To overcome these limitations another stream of research concentrated on the personal characteristics of creative *people* to understand individual creativity. On the one hand,

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[1] Simonton (1984) defined historiometry as "a scientific discipline in which nomothetic hypotheses about human behavior are tested by applying quantitative analyses to data concerning historical individuals".

Barron and Harrington (1981) summarized the *personality factors* of creative individuals and emphasized the relevance of high valuation of aesthetic qualities in experience, broad interests, attraction to complexity, high energy, independence of judgment, autonomy, intuition, self-confidence, ability to resolve antinomies or to accommodate apparently opposite or conflicting traits in one's self concept and finally a firm sense of self as 'creative'. In a similar vein, also Amabile and Gryskiewics (1989) and Witt and Beorkrem (1989) investigated the contextual variables that impact positively on individual creativity: freedom, autonomy, good role models and resources (including time), encouragement specifically for originality, lack of criticism, and norms in which innovation is appreciated and failure is not stigmatized. On the contrary, other factors have been found to have a negative influence on creativity, such as lack of respect (in particular for originality), red tape, constraint, lack of autonomy and resources, inappropriate norms, project management, feedback, time pressure, competition and unrealistic expectations. However, the distinction between these two different categories of factors is not always so clear-cut. For example, competition can both stimulate and inhibit creative work (Watson 1968), and resources may be necessary for creative insights, but in some cases it is the lack of resources that stimulates creativity (Runco 2004). The importance of independence was confirmed also by Hatcher, Ross and Collins (1989) who demonstrated that among other factors, the level of autonomy of jobs was positively related to the number of new ideas individuals presented at an organization suggestion program. On the other hand, researchers also investigated a number of *cognitive factors*. For example, Carrol (1985) found that associative fluency, fluency of expression, figural fluency, ideational fluency, speech fluency, word fluency, practical ideational fluency, and originality, as well as field dependence, are related to creativity[2]. Other contributors focused on the specific *processes* that are conducive to creativity. Runco (1991), for example, demonstrated the relevance of associative processes in divergent thinking and problem solving, at least when the problem at hand is open-ended. Cognitive researchers investigated the role of memory (Pollart et al.1969), and attention (Martindale, and Greenough 1973), as well as tactics, strategies and metacognition (Rubenson, and Runco 1995; Adams 1980; Root-Bernstein 1988; Runco 1999a). Also attention deployment has been viewed as particularly important for creative thinking, even if its relevance has been debated. On the one hand, Wallach (1970) maintained that wide attention deployment contributes to the development of remote and original ideas. On the other hand, very different evidence was produced by Smith et al. (1990) who argued that evaluation and pressure often generate anxiety and divided attention, which in turn are detrimental for creative thinking, because attention is directed to stressor rather than to the task or problem to handle. Other key cognitive aspects of creativity investigated include conceptualization (Mumford, Olsen, and James 1989), imagination (Singer 1999), incubation (Smith et al. 1990), insight (Sternberg, and Davidson 1999), intuition (Policastro 1999), the ability to consider two very different perspectives simultaneously (Rothemberg 1999), logic (Johnson-Laird 1999), metaphors (Gibbs 1999), mindfulness (Moldoveanu, and Langer 1999), misjudgment (Runco 1999b), the

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[2] Various questionnaire measures have been generated to reliably evaluate these personal characteristics. One of the most diffused and considered is the *Gough's Creative Personality Scale* (Gough 1979), including 30 items to assess employee's creativity-relevant characteristics.

role of perception in cognition (Smith 1999b), perspective (Runco 1999c) and synaesthesia (Domino 1989).

Among other factors that have been ascribed to the creative individual is *intrinsic motivation,* because tasks that are intrinsically motivated have been seen as independent from evaluations and constraints that could prevent creativity (Amabile 1979; Amabile et al. 1989; Amabile, and Gryskiewicz 1987). People are more creative when they are excited about a certain activity, are free on how to perform a task and are interested in performing it for the sake of the activity itself (Woodman et al. 1993; Shalley 1991; Amabile, Conti et al. 1990; Amabile 1983; Barron 1981). Zuckerman et al. (1978) demonstrated that when individuals possess freedom on which task to complete, and how much time to assign to each of it, are more intrinsically motivated than those that do not have this possibility. In a similar vein, also Amabile (1983) showed that boundaries or constraints that reduce a person's decision on task strategies, or deviate attention from the heuristic aspect of the task may have a negative impact on creativity.

Additional authors focused on specific *endowments* that may play an important role in the ability of the individual to be creative: the socioeconomic status during an individual's development years and knowledge and expertise. To address this latter variable, Amabile (1988) distinguished between 'domain-relevant skills' and 'creativity-relevant skills'. The former include knowledge, technical skills, and talent, needed to generate creative products, whereas the latter involve the cognitive skills and personality traits linked to creative performance. As suggested by Weisberg (1999) knowledge and creativity seem to be related in an inverted U-shape, assuming a maximal creativity when some middle range of knowledge is present. In addition, the relevance of knowledge changes along the stage of the creativity process. Acquiring and accessing knowledge seems to be particularly important in the preparation phase, when individuals attempt to understand the problem to develop in turn potentially effective alternative responses (Mumford et al. 1998), and in the validation and communication phase to effectively discriminate between ideas (Wynder 2007). More specifically and with reference to management control, Wynder (2007) studied the effect of control system design on creativity, under conditions of high and low domain-relevant knowledge. Evidence collected through an experiment based on a short business scenario showed that knowledge is an important determinant of creativity and that when knowledge is high, process-based control will decrease intrinsic motivation and thereby impede creativity. In contrast when knowledge is low, process-based control will guide and motivate the necessary analysis that should subsequently increase creativity. The rationale behind this is that process-based control (exerted in the preparation phase of the creative process) can be an effective communication tool to indicate how to generate more creative responses and be a substitute for knowledge. It can also guide the preparation phase by prompting consideration of important information and produce motivation for a phase that is less intrinsically interesting. The role of process-based control in the form of standardization was also analysed by Gilson et al. (2005) who studied the relation between standardization and creativity on performance. Using a sample of 90 empowered service technician teams from a strategic business unit of a large multinational corporation – in a context where employees have not traditionally been expected to be creative or rewarded directly for being creative – the authors investigated whether creativity and control function in a complementary or conflicting manner, as related to team performance and

customer satisfaction. Data indicate that creative team environments are positively related to team performance, but not to customer satisfaction, whereas standardized work practices and error reduction are positively related to customer satisfaction, but not to team performance. In addition, evidence suggests that high work standardization appears to stifle the influence of creative team environments on performance, while low standardization appears to facilitate the impact of creativity on performance. In contrast, the influence of creativity on customer satisfaction is most positive when creativity occurs in combination with high work standardization. Alternatively, the relationship between creativity and customer satisfaction is at its lowest when work standardization decreases. This in a sense deepens our understanding on the use of behavioural forms of control. In fact, while some contributions in the management control literature seemed to suggest that in highly creative research and development settings behavioural control appeared to contribute positively to performance in no situation, and contribute negatively where task uncertainty is highest, although they are preferred to accounting controls where the number of exceptions is high (Abernethy, and Brownell 1997), contributions in the creativity field propose a more articulated vision on the basis of which the use of behaviour control is justified in the presence of low domain-relevant knowledge and when customer satisfaction is vital. In addition, accounting controls are not seen as suitable for very uncertain creative environment (Abernethy et al. 1997) and this is also confirmed by Ford (2002), who suggests that analyzing the past (e.g reviewing financial statements, conducting variance analysis, etc.) can affect negatively the futurity of decision making and in turn depress creativity.

Proposition one – Behavioural controls, mainly in the form of process-based mechanisms and standardization, are used to foster individual creativity when they are applied in a context of low domain-relevant knowledge and are combined with creativity to enhance customer satisfaction.

2.2 Group creativity
While noteworthy in its own, the almost exclusive attention to the individual level of earlier contributions on creativity made them too focused on the micro explanation of creative work, neglecting in this way the more macro dimension of investigation (Slappendel 1996; Drazin et al. 1999). The succeeding literature tried to overcome this limitation by expanding the spectrum of analysis, and some contributors concentrated on creativity at the *group* level (Amabile, Goldfarb, and Brockfield 1990; Amabile et al. 1996; Drazin et al. 1999). Drazin et al. (1999) proposed that teams' creativity is affected by group characteristics such as composition (e.g diversity), structure (e.g cohesiveness, group size) and processes (e.g., problem-solving strategies, social information processes). King and Anderson (1990) showed that the probability of creative results is a function also of a democratic and collaborative leadership. Further, Amabile (1983) pointed out that when in the group other persons are present in an evaluative capacity, creativity is constrained, and in a following article (Amabile 1996), she expanded this conclusion by suggesting that this effect depends on the phase of the creative process (Mumford et al. 1991; Basadur 1994; Amabile et al. 1996; Amabile 1996). In a description of the creative process articulated in four phases - 1) Problem identification, in which the existence and nature of the problem are identified; 2) preparation, in which an individual combines and

reorganizes relevant information; 3) idea generation, in which possible responses are generated freely and without censorship; and 4), validation and communication, in which ideas are assessed in terms of their likely effectiveness, and preferred solutions are communicated to others - Amabile (1996) suggested that both the second and the third phases of the process benefit from a higher domain-relevant knowledge and the presence of extrinsic motivators (such as evaluation associated with the organization's control system) (Amabile 1996; Wynder 2007). These conclusions of the creativity literature achieved at the group level are complemented by the contributions in the management accounting field, which stresses that the presence of management control mechanisms can be justified by a different role they play in creative contexts, other than inspection and monitoring. According to Nixon (1998) and Davila (2000) performance measurement systems, especially in the form of non-financial measures, adopted in the creative context of product development research projects, affect performance in a positive way when they provide information directed to coordination, learning and uncertainty reduction.

Proposition two – Output controls, mainly in the forms of non-financial performance measures, are used in creative projects to provide information directed to coordination, learning and uncertainty reduction, and to evaluate individuals in the preparation and idea generation phases of the creativity process.

2.3 Organizational creativity
Wider socio-psychological perspectives have been adopted by *press* research[3], which concentrated more on social dynamics, and took into consideration the more objective aspects, or the individual's interpretation, of the environment (Murray 1938; Mraz, and Runco 1994). Some contributions have analyzed the relevance of contextual variables at different levels of analysis and have proposed *multilevel* models of creativity. For example, Woodman et al. (1993), by using an interactional psychology perspective[4], have proposed a theoretical framework for linking individual- (cognitive abilities/style, personality, intrinsic motivation, knowledge), group- (norms, cohesiveness, size, diversity, roles, task, problem-solving approaches) and organizational-level variables (culture, resources, rewards, strategy, structure, technology) to creative outcomes, and have identified important influences on creativity associated with these different levels of analysis. They argued that the components of creative persons, creative processes, creative situations, and creative products should be jointly considered for a comprehensive understanding of creativity in complex social systems. From a management control point of view they suggest that creativity outcomes may be lowest when structure is mechanistic rather than organic. Highly bureaucratic organization may not encourage employees to try alternative methods to carry out their job, whereas flatter structures with wider spans of control may be more conducive to creativity (Shalley et al. 2004). Further, motivational interventions such as reward systems may have a negative

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[3] This concept was originally introduced by Harry Murray (1938) to refer to pressures on the creative process or on creative persons and is re-employed by Rhodes (1961/1987) to consider the relationships of individuals with their environment.
[4] According to the interactionist perspective, the behaviour of an organization is the result of a complex interaction of the situation and the nature of the organism itself (Woodman, and Schoenfeldt 1990: 279-280).

impact on intrinsic motivation because they move attention away from the heuristic aspects of the creative tasks in favour of the technical or rule-bound aspects of task performance. More specifically, this effect seems to be dependent on the freedom of choice of the creative person. When this latter has no much choice on the task performed, monetary reward can increase creativity, but when the individual is rewarded simply for consenting to execute a specific task, creativity may be undermined (Woodman et al. 1993). Ford (1996), by using an evolutionary metaphor depicting the variation, selection, and retention processes associated with creative actions, described interactions between intentional and evolutionary change processes as a mean for integrating psychological and sociological approaches to explaining creative and conformist behavior. The author extends the concept of motivation and proposes some conclusions that are useful from a management control point of view. According to his model motivation results from the interaction among goals, expectations related to those intentions, and emotions (Locke, and Latham 1990). First, given that few frameworks contain automatically creativity as a relevant aim and therefore few sensemaking processes will foster intentions to attempt creative action, it is necessary to shape organizational settings with outcome-oriented leadership and explicit creativity goals to facilitate creative action. Second, people expectations pertaining to the confidence in undertaking a creative action as well as outcome-oriented rewards have been demonstrated to improve people's creativity. Reward systems have to embody standards of success that express the organization willingness to pursue risky courses of action implicit in creativity performance. Third, emotions that are filled by a nurturing culture that emerges from adequate social processes positively influence creativity. The author also identified multiple social domains that affect creativity in organizations and suggested that creative actions often are affected at the same time by the selection processes activated at the multiple social domains. Drazin et al. (1999), by using a sensemaking perspective, proposed a model composed of four interrelated concepts – individual sensemaking, intersubjectively shared frames of reference, a collective structure that represents a negotiated belief structure between parties that have different frames of reference, and a shift in the negotiated belief structure that results from crises - to address the question of how creativity unfolds over time. They argued that creativity, at the organizational level, involves not only individual engagement but the emerging structuration of who engages and when they engage, and the politically dynamics of such creative engagement leads to the development of a negotiated order, which change its balance over the life time of the project. This negotiated order is achieved with the contribution of many individuals contributing to the creativity process, in a way that it is difficult to assign credit to any one individual for the creative outcome, generating as a consequence a managerial control problem of accountability. Oldham and Cummings (1996) demonstrated that, among other factors that influence creativity, supportive, non-controlling supervision and job complexity affect creative performance positively. These variables have an important role to play because they have also key implications for the design of management accounting systems. According to the authors, supportive and understanding behavior of supervisors towards employees' needs and emotions promote their self-determination and personal initiative at work, contributing in this way to enhance interest and creative results (Oldham et al. 1996; Deci, and Ryan 1987). In contrast when supervisors monitor closely employees, do not involve them in the decision-making process and force them to

behave in a certain way, this moves the individual attention toward external concerns, reducing in this way intrinsic motivation and in turn creative performance (Deci, Connell, and Ryan 1989; Deci et al. 1987). The other variable is job complexity. It has been argued that complex, challenging jobs, characterized by high levels of autonomy, skill variety, identity, significance and feedback seem to foster and activate higher levels of motivation and creativity than are relatively simple, routine jobs (Shalley et al. 2004; Deci et al. 1989; Hackman, and Oldham 1980). When jobs are characterized by a high level of complexity and challenge, individuals get excited and are motivated to complete them without the need of adopting external boundaries or controls. Complex jobs induce creative results because they require the concomitant combination of multiple dimensions of work, whereas simpler jobs may impede such trajectory. These conclusions are somehow in contrast with those achieved in the management control literature. In fact, differently from what suggested by creativity theorists, some management control contributions argue that in an organizational context where creativity is paramount – knowledge-intensive settings – the use of management control systems depends on the type complexity faced when executing a task. Tasks characterized by computational complexity require action control through the codification of instructions, rules and procedures to carry out knowledge activities. Those subject to technical complexity are regulated by means of output control, which helps in defining content, timing, and location of results expected. Finally, tasks characterized by cognitional complexity require the use of socialization processes deriving from the common history of individuals, shared experiences and collective social and organizational frames (Ditillo 2004). As a consequence, the complexity deriving from computation, technical and cognitional elements that may act as a trigger of challenge and interest of job requires the introduction of more intensive combinations of action, output and social controls. A conclusion that is in some way dissimilar to that of creativity theorists. Shalley and Gilson (2004) reviewed the extant literature on individual, job, team, and organizational level factors that should be of interest to leaders for developing a work context that is supportive of creativity. Based on this review the authors derived some practical implications for day-to-day management of creative people. First, the authors suggest that leaders need to define goals and requirements in a way that members of the organization feel they have to pursue creativity. In fact, a series of studies showed that assigned creativity goals effectively increase performance. Carson and Carson (1993) showed that people that receive a creativity goal are more creative than those who do not receive it. Shalley (1991) found that if there are no explicit creativity goals, but there are goals related to other dimensions of performance, the likelihood of a creativity outcome is doomed to decline. Second, the authors maintain that managers have to find the right balance between providing enough time to be creative, but not too much to avoid that people get tired of their activities and are not creative anymore. For example, Amabile and Gryskiewicz (1987) recorded that one frequently mentioned element in creativity activities is sufficient time to think alternatively, search for different perspectives and play with ideas. Katz and Allen (1988) found that engineers operating on new technologies considered uninterrupted work to be critical. Equally, managers have to make material resources available to individuals, but excessive provision may hinder creativity (Katz et al. 1988; Csikszentmihalyi 1997). Third, the two contributors proposed also that managers need to foster information provision and constructive feedback to

promote individuals' creativity. Feedback that is conveyed in a more informational than controlling manner affects creativity positively. For example, Zhou (1998) found that when informational feedback was given to individuals, they had higher subsequent creativity than when the feedback was proposed in a controlling or punitive manner. Finally, Shalley and Gilson (2004) found that if creativity is a valued outcome, individuals are more willing to explore new ideas, more open to share alternative perspectives and visions on things, and overall act in ways that will lead to creative outcomes. For example, Isaksen et al. (2001) suggested that values, beliefs, history, and traditions of the organization should affect employees' propensity to be creative.

Proposition 3
Organic structures, explicit creativity goals combined with adequate time and materials resources, outcome-oriented rewards, and social control that prizes risk and personal initiative and that is supported by non-controlling supervision, are used to foster creativity in organizations, especially in a context of cognitional complexity.

The analysis of the creativity literature together with the management accounting literature has shown that there are some contradictions in conclusions both within the individual research domains and when comparing the results of the corresponding contributions. It is not, for example, still clear whether the introduction of rewards that stimulate extrinsic motivation may be conducive to creativity or simply stifles it (Amabile et al. 1996; Ford 1996). Or there is no convergence on the role that behavioural controls have on creativity. In fact, while in the management accounting literature, this mode of control was found to contribute to positive performance in no creative situations (Abernethy et al. 1997; Shalley et al. 2004), some contributions suggest that its role may be dependent on the level of domain-relevant knowledge of people involved in the creativity process (Wynder 2007). Another aspect that has not been clarified is the kind of role that performance measurement systems, and controls more in general, have to assume in creativity contexts (Nixon 1998; Davila 2000). This is connected to another unresolved issue on the adoption of accounting controls (Woodman et al. 1993; Abernethy et al. 1997; Davila 2000; Ford 2002). The empirical analysis that follows aims at contributing at these debates with the objective of analysing them in a real organizational context where the need to match all these different aspects is paramount.

3. Research setting and methods
People can be more creative in almost every industry and job (Shalley et al. 2004 p. 33). Yet, we selected the fashion industry to address our research question (Djelic, and Ainamo 1999; Uzzi 1997; Cappetta, Cillo, and Ponti 2006; Richardson 1996; Caves 2000; Saviolo, and Testa 2002). Creativity is paramount in this industry. Creativity is in some way pure in this setting, in that it is not heavily affected by technological evolution (Abernathy, and Clark 1985), but rather based on a more flexible reassignment of social meaning to an existing product and/or a free change of the aesthetic characteristics of a product, generating both a new product – from a physical point of view – and a new meaning (Cappetta et al. 2006)[5]. This allows to study creativity, and the corresponding

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[5] For a more thorough discussion of the difference between technological innovation and stylistic innovation see Cappetta et al. (2006).

control mechanisms, in an uncontaminated form, removing the potential impact of technological variables. The fashion industry is also particularly interesting for our research because of the high speed at which the process of creativity takes place. In fact, fashion apparel is a highly competitive business where product life is short (in some cases some products are sold for only a few weeks) and differentiation strategies are built on brand image and product styling that can be quickly eroded. As a consequence fashion apparel makers are to continuously struggle for position with creative efforts and new products as a basis for a short-lived differentiation advantage (Richardson 1996). Fashion companies have groups of people that are easily identifiable with different degrees of creativity form the creative group at one extreme to prototyping, styling, and finally distribution at the other extreme. In addition, creativity is often considered as being historically, culturally, and socially bound (Amabile 1996; Shalley et al. 2004), the reference to one single industry allows to maintain these elements roughly stable and concentrate on the specific factors that affect creativity in an homogeneous context. While the research findings are limited to the fashion industry, they may provide insights that might be relevant to understand creativity in other industries where its role is likely to be somewhat more latent.

The study comprises five companies in the fashion industry. They are all regarded as leaders in the industry and known in the market for their ability to propose unique and new products as assessed by clients on the basis of the creative value of their products (Saviolo et al. 2002). Thus, they were selected because of their visibility and creative performance. In addition, they varied in terms of product positioning as well as customer segments served. This latter dimension is especially relevant dimension. In fact, there is an important pecking order among fashion firms that has a strong impact in terms of their competitive actions and management orientation. The industry has two distinct levels. The first level is "haute couture." Companies in this level and produce custom, one-off designs targeting very wealthy customers. The second level is, "prêt à porter." Products are off the shelf. Within this segment, companies are also ordered going from the high end (e.g. Armani, Dior, Gucci) that an average person would still consider as expensive but affordable to the middle (e.g. Calvin Klein, Max Mara), to the low end (e.g., Benetton, Zara) that targets the mass market.

The companies in the sample represent a theoretical, and not random, sample of the creativity phenomenon (Eisenhardt, 1989). The sampling criteria were to study organizations well known for their creative outcomes while maximizing the variance of practices choosing companies in different segments. Each company in the sample is positioned in different levels, providing a more comprehensive representation of how creative processes are controlled in fashion firms. In addition, these firms have also been selected to allow (a) *literal replication* (predict similar results) and (b) *theoretical replication* (predict contrasting results but for predictable reasons) (Yin 2003). The objective of choosing this sample was to permit the development of a rich theoretical framework of control and creativity describing how various control mechanisms are used in creativity contexts.

To apply this methodology we proceeded in two steps. In the first step we identified a *pilot study* (Yin 2003). The pilot study was an in-depth case study. We did 24 interviews with 16 managers. This mix of positions of the managers interviewed allowed us to examine creativity from different angles. Often we interviewed the same manager several

times over the research period going back to them to clarify issues and contrast our interpretations of the data and the control process of creativity. The data collection lasted more than twelve months. The company also gave us privileged access to data and process observation. Another attractive feature of the company is that it works in different product markets ranging from shoes, bags, trousers, shirts and suits, with different brands positioned differently on the market, thus providing a variety of contexts in which to observe the various control mechanisms. The inquiry in this step was extensive and broader to develop an initial framework of the variables that affect control mechanisms in a creativity context.

In the second step, we applied a *"two-tail"* logic to select the additional cases to refine our framework (Yin 2003). On the basis of this logic we selected cases at both extremes of market positioning: two firms were chosen at the very high end and two at the low end of this continuum. In each of these companies we interviewed at least four managers that our key informant identified. The relevant managers varied across companies because each company organizes its creative process in a different way, with different types of departments and separating or bringing together different jobs depending on the company's beliefs about creativity. In all the companies we carefully selected the best people to interview to better understand how creativity and control work together (Djelic et al. 1999; Uzzi 1997). These additional companies were not selected with the idea of evaluating how creative these firms are, but rather to confirm, challenge, and refine our findings from the pilot.

3.1 A-Fashion (pilot study)

A-Fashion[6] was founded in 1981 when it opened its first show room in Milan. Today, the company designs and distributes luxury goods, ranging from women's wear, lingerie and beach wear, men's underwear, leather goods, bags, foot wear, eyewear, kids wear, fragrances, watches, neckwear, umbrellas, sport chic apparel, ski and après-ski apparel and fitness clothing. The consolidated revenues of *A-Fashion* are around €240m (+4.5% yearly growth), with a consolidated EBITDA around €36.5m (15.5% of sales) and a consolidated net income of €12.7m (5.5% of sales). In 2007 *A-Fashion* was admitted to listing by Borsa Italiana in the star segment.

Its portfolio of international luxury brands includes five owned brands and four licensed brands. These nine brands are complementary, positioned at the high-end of the market, and ranging from the idea of contemporary feminine elegance and glamour to provocative collections. Some of them have high image and innovative style, some others have high image and contemporary style, and finally the remaining ones have medium image with either a contemporary or an innovative style[7]. Owned brands come from acquisitions of important companies with long experience in the footwear and leader goods industry; licensed brands are associated with partnership agreements and licensing agreements for the production and distribution of specialized products.

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[6] For confidentiality all the names of the companies have been disguised.

[7] Image ranges from low to medium to high and is related to the reputation of superior quality and design (often linked to the idea of "Made in Italy"), whereas style ranges from classic to contemporary to innovative and is related to the degree of attempting to challenge existing fashion stereotypes.

A-fashion distributes its products through a network of 205 mono-brand stores – 78 being directly owned points of sales and the rest being franchised – and over 2,500 points of sale including multi-brand boutiques, corners, and department stores.

A-Fashion manages the design, purchasing process, sales campaigns, logistics, communication, marketing and public relations, and distribution. Production activities have been fully outsourced through long term relationships with more than 500 selected third-parties manufacturers, at least 20 for each phase of the manufacturing process. The design activities are carried out with in-house designers (for some brands) and longstanding cooperation with leading international designers (for other brands). Internally the design process is organized with a *'modello a isole'* which provides designers with significant creative and stylistic independence.

3.2 B-Fashion

B-Fashion operates in more than 100 countries, producing and selling, every year, around 130 million garments in yarns and in wool, cotton, denim and many other natural and synthetic fibres. The firm is also involved in the manufacturing and distribution of accessories and other items for casual and home wear, footwear, cosmetics, eyewear, watches, stationery, bags, umbrellas, games, and toys. The consolidated revenues of *B-Fashion* are around €2,100m (+4% yearly growth), with a consolidated EBITDA of around €350m and a consolidated net income of €155m (7.5% of sales). *B-Fashion* is listed in the Borsa Italiana Blue Chips segment.

Different elements characterize *B-Fashion* business model. First, its innovative operations management techniques allow postponing as much as possible the garment completion in order to better reflect market trends. Second, *B-Fashion* manufacturing process outsources most of the labour intensive production phases - such as tailoring, finishing and ironing - to small and medium size subcontractors. This policy guarantees flexibility and contribute to lowering labour costs and operating risk. The only factory owned by *B-Fashion* is one the most advanced high-tech production sites in the apparel industry. This site coordinates operations to minimize lead times, through advanced information and communication technology. Third, , *B-Fashion* controls its major supplier of raw materials because supply of raw materials is a key element in reducing lead times. This approach allows *B-Fashion* to exercise effective and timely quality control of textiles. Fourth, the firm keeps in-house strategic activities and operations that require heavy investments, such as weaving, cutting, dyeing, quality control of inputs, finished goods and intermediate phases of production. Finally, the distribution network of *B-Fashion* is made up of mainly mono-brand stores linked to the firm through exclusive franchising contracts. This dependence gives the company flexibility and the ability to quickly adapt to market changes. More recently, the distribution network has been integrated with mega-stores, some of which *B-Fashion* manages directly. The main characteristics of these stores are large dimensions, prestigious locations in historic and commercial centres, and the fact that they carry all the products of *B-Fashion* brands.

3.3 D-Fashion

D-Fashion was founded at the beginning of the '80s but saw its huge growth starting in 2002. It designs and sells clothes and accessories such as bags, belts, or purses. It operates with only one brand sold through three distribution channels: 157 mono-brand

stores, 4500 multi-brand stores and 450 corners and shop in shop in 65 different countries. *D-Fashion* has 1500 people from 25 different nationalities. The company has had a spectacular growth over the last seven years with revenues increasing twenty fold, from €8m in 2002 to over €320m in 2009 and expected to reach €520m in 2010. D-*Fashion* activates a lot of non-conventional marketing initiatives and its quality in logistics has been recently recognized with an award for excellence. Currently the company is able to deliver up to 100,000 garments per day and to stock up to 3,000,000 items in their automated stores, capable of simultaneously processing 5,000 orders and deliver in 24 hours. One particular characteristic that distinguishes this company from the others is the innovativeness in the use of space and material in the points of sales, for which they received an award for being recognized in 2008 as the international brand with the best concept.

3.4 V-Fashion

V-Fashion is a leading company in the luxury clothing segment with a diversified portfolio of products including classic menswear, women's apparel and luxury goods, sportswear, and accessories. More than two-thirds of sales are generated in Europe, mainly through the wholesale channel. The group activities are broken down into three business units, covering the entire luxury and fashion sector with numerous brands. The company acquired numerous firms over the years with the purpose of achieving offer diversification and brand differentiation. Some of these brands are owned (8) whereas some others are licensed (2). Moreover the company owns a substantial portion of a US brand company. The company operates in over 110 countries, with more than 1,600 boutiques and 433 directly-managed shops. The consolidated revenues of *A-Fashion* are around €2,360m (+10.49% yearly growth), with a consolidated EBITDA around €375m, and a consolidated net income of €133m (5.6% of sales).

3.5 G-Fashion

G-Fashion is a multi-brand luxury goods company. It was born in 1923, when the founder opened the first small leather goods store in Florence. Its offer includes a diversified portfolio of products, including apparel, lingerie, scarves, shoes, bags, leather accessories, eyewear, jewellery, watches, fragrances and some furniture. In 2008 it opened its largest store in New York's Fifth Avenue as a testimony of the accomplishments achieved over the last ten years. It has risen to become one of the world's largest luxury retailer with about 550 directly operated stores. *G-Fashion* sells its products through nine different brands. From an organizational point of view the headquarter is in charge of some central decisions concerning acquisitions, disposals, capital expenditures, financial investments as well as hiring new people and communication. At the brand level, each unit has its own CEO and management and is in charge of strategy, design, product development and manufacturing. In addition, each unit has its own retail network, which is completely separate from that of the other brands. These networks are characterized by a strong level of decentralization, with regional offices that take care of distribution, sales and in some cases communication and marketing. The consolidated revenues of *G-Fashion* are around €3,100m, with a consolidated EBITDA around €720m, and a consolidated net income of €133m (4.3% over sales).

3.6 Data collection methods and analysis

We started our data collection through an in-depth case study at *A-Fashion*. The objective was to explore the role of control systems and creativity based on the existing literature. As we progressed through the data collection, we analyzed it contrasting the findings against the existing literature and developing a framework of management control systems and creativity. Once the initial findings from the in-depth pilot study were identified, we used a replication logic to contrast these initial findings with new evidence from the additional case studies validating and refining our conclusions.

We collected from multiple sources within each case. These multiple sources allowed to contrast and triangulate the data providing "multiple measures of the same phenomenon" (Yin 2003 p. 99). Each source also provided their own idiosyncratic views on control and creativity given their background and role in the organization. These views were embedded in the narrative provided by interviewees. Triangulation also limits the biases associated with individuals' partial perspective and retrospective rationalization (Yin 2003). We collected our data from three sources: (1) interviews with key informants; (2) documents of the organization; (3) observations of processes.

To develop our framework and generate inferences on the role and features of management accounting mechanisms in controlling creativity, we adopted an iterative logic of cycling between the data, emerging theory, and relevant literature. This process was most relevant in the pilot case study following a grounded theory appraoch (Glaser and Strauss, (1967). In analyzing interview transcripts and field notes, we iteratively identified the control mechanisms used, how they were used and how they affected creativity. We then went back to existing control concepts to explain the rationale of our observations. When existing control literature did not offer a plausible explanation for the observed behaviour, we developed tentative concepts and relationships grounded on the data gathered and the creativity literature. Next, we replicated our analysis in the other case studies. As we analyzed this new evidence, we contrasted the data with our analysis of the pilot case. The conclusions from the pilot study were reinforced when the data confirmed these initial observations. Conversely, when the data challenged the initial conclusions we went back to the theory to revise and refine our framework, we also went back to the companies to gather additional information and especially with managers at the pilot case study to understand why its practices differed.

4. Creativity and new products in the fashion industry

Fashion firms design and produce clothing and accessories that they sell through wholesale and retail channels (Uzzi 1997). We studied the fashion design process that includes all the activities executed before the product goes into production. This process is well structured in all the companies in the sample starting from the emergence of the basic ideas through the development of samples including phases such as research, design, paper pattern drafting, prototyping and sampling (Parsons, and Campbell 2004; Bonacchi, and Bambagiotti Alberti 2006; Statistics 2008).

The traditional process is structured around the autumn/winter and the spring/summer seasons. In some companies it happens more frequently when one or two pre-collections

midway through the main seasonal collections.[8] The design process starts with the *research* phase. During this phase, designers become familiar with the market, trends, and where fashion will be going over the next seasons. They have several sources of information. First, they have their own feeling of the market based on trade shows, what is currently selling and their own contacts and experience in society. Second, they rely on trend reports that describe styles, colours, and fabrics popular for the coming seasons. Third, they visit textile manufacturers right before the end of this first phase to procure

the expected products. Textile manufacturers are at the very beginning of the industry value chain and follow a similar research process ahead of fashion designers to select fabrics and patterns. These decisions are recorded in a document, called technical card, that becomes the reference point for all the decisions and choices that will be made for a specific garment product along its life-cycle (Statistics 2008). (for example the technical card in V-fashion, including the design of the product and the instructions to reproduce it).

Once designers have selected fabrics, colours, patterns and cuts the *design phase* starts. In this phase, designers sketch preliminary designs. Many designers use pencil and ink for their sketches and then translate it into digital blueprints with CAD systems. Computer-aided design, in fact, allows designers to see designs of clothing on virtual models and in different colours and shapes, thus reducing the time to do refinements and adjustments in the later phases of prototyping and sampling (Parsons et al. 2004).

In the *paper pattern drafting phase*, the technical aspects of the designs are addressed. The paper pattern is the drawing on paper of the basic silhouette, indicating all the different parts and features of a garment (for example, in a female shirt, the neckline or collar, the sleeves, the pockets, the cuts, the lengths, the draperies). The paper pattern is then cut and placed on the fabric that is used to decide how to cut it (Statistics 2008).

During the *prototyping phase,* prototypes are built using different materials or with small changes to the pattern to experiment various alternatives. These prototypes are then tried on a human model to see it and decide whether adjustments are needed. This process leads to the selection of the designs that will be actually offered for sale (Statistics 2008).

In the *sampling phase*, once the final adjustments and selections have been made, the samples of the article using the actual materials are produced and marketed to clothing retailers through fashion and trade shows. This phase ends with the development of the different sizes of the same article. This activity is complex in that not all the elements of an article grow in the same proportion and in predetermined manners to develop the various sizes (Statistics 2008).

This fashion development process, even if described as linear, is iterative in its nature. Colour and fabric specifications or even the design can be re-evaluated in light of the new information generated throughout the various stages in the process. This iterative nature makes focusing on one stage in the process limited without considering its interactions with the other stages.

5. Controlling creativity in fashion firms

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[8] A new type of fashion companies going to the lower segments in the market has eliminated these seasons and introduces new products daily. Examples include H&M and Zara.

Figure 1 summarizes the grounded model that emerged as relevant to describe control and creativity in our research environment. Existing concepts in the control literature are relevant to explain how organizations control creativogenic[9] environments. Yet, certain dimensions of these concepts are much more relevant while others decrease in importance. The goal divergence/agency costs perspective is much less relevant. Shirking and self-interest in the sense of rent appropriation is not considered as an issue. Managing the working environment to inspire, communicate and process qualitative information is much more salient. Existing concepts require not only emphasizing different dimensions but new concepts are needed to complement them.

5.1 Control Mechanisms in Creative Environments The control environment establishes clear confines that define the creative space. These mechanisms are not intended to motivate certain behaviours or entice people to exert certain types of effort. These typical control issues are less relevant in these environments where intrinsic motivation (Amabile 1979; Amabile et al. 1989, 1987; Deci 1972) dominates the motivational field. Rather, these mechanisms guide and coordinate the creative aspect towards a common finalized behaviour. Some of these mechanisms are set to limit the space for creation while others guide creative activities. The former are inducing systems that share some characteristics with Simons' boundary systems such as setting limits to exploration. Yet, they do not come from the strategy of the company but from the coordination needs of its operations. The inspirational systems share some characteristics of Simons' belief systems in that they inspire. Yet, they are not aspirations for people that motivate them to work beyond short term objectives. They are themselves short-term in that they last one collection and they do not motivate work but shape the creative process. The design of these mechanisms is a critical aspect of these environments. Too much freedom may create delays or not enough consistency across products to create the sense of unity. Confines that are too narrow reduce the creativity that surprises the customer and differentiates the collection. Control mechanisms that guide towards the wrong theme lead to collections that fail.

Several control mechanisms define the creative space:

(1) The *collection brief* defines the structure of the collection by listing the number of models per category such as skirts, trousers, or suits and is the basis for the planning of design and development activities. The *collection brief* restricts the freedom establishing clear objectives in terms of what to create. This confine comes from outside the creative process, usually from marketing, which predicts the mix of products given past experience and the strategy going forward. It also establishes a communication channel between marketing and collection design.

(2) The *collection calendar* indicates the timing of the various phases of the design and development process to meet the deadline of the fashion shows and availability at the shops for the beginning of the season. The industry imposes the *collection calendar* through the timing of fashion shows. This explicit timing that defines when each of the stages of the creative process needs to be finished (except for minor or unexpected iterations) provides a rhythm to the process that constrains but at the same time stimulates the creative process.

(3) *Analysis of the previous year's sales* of the corresponding collection of the previous year in terms of which fabrics, colours, patterns were more successful.

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[9] This term was introduced by Arieti (1976) to indicate an environment that fosters creativity.

(4) *Technical cards* and *cost cards* record all the information concerning a garment, reported along its development. They discipline the creative process but mostly facilitate communication with production that is often outsourced.

(5) *Expense budgets* authorize expenses for the different managers involved in the creative process for each of its phases.

(6) *Gates*[10] at the end of each development phase involves managers from other departments and stages in the process to provide feedback and redirect the thrust of the collection if needed.

(7) *Direct inspiration during and at the end of the process* by the head of the creative department.

(8) *Selection of designers* defines the group characteristics and group dynamics in the creative process. Creation in all the companies in our sample is a group effort. Designs are not traced to the particular designer and the contribution of each person is evaluated not only in terms of her designs but her contribution to the group. The type and experience of the designers brought in, the degree of designers' *turnover* and/or *free lance designers' rate over total designers* while moving from one collection to the next affects the level of creativity achieved by the design group.

(9) *Theme or mood of the collection* is a unique mechanism in that it is not common to more traditional control settings. The objective of this mechanism is to inspire designers as well as coordinating their creative activities. The head of the designers' department defines this theme or mood. To crystallize it, the group may travel to "feel" the theme and get ideas from interacting with certain environments, they may create a poster with photos that reflect the theme, they go to *fashion fairs* and interact with their networks to align it with new trends:

> "We are all, how can I say, rather embedded in how the other companies are behaving in terms of trends, what they plan to do, what they are doing, and what they are not doing" *(Product Manager, V-Fashion).*

The control mechanisms identified can be analyzed using existing frameworks such as Thompson (1967), Ouchi (1979), Merchant (1985) (TOM) or Simons'(1994). Yet, these frameworks look at the control issue from a perspective that oversees the main dimensions relevant to understand control in creative environments. Their perspective highlights certain dimensions of control that are secondary in this particular setting. For instance, TOM looks at how to reduce the effects of goal divergence: changing people's values (personnel), limiting their actions (process), or aligning through incentives (output).

In our sample, this issue was minor. The pressing problem is how to design the environment of creative people to allow coordination with other departments without restricting their freedom too much. Too much exposure to marketing or production may lead to a dull collection. This coordination happened through process confines such as the collection brief, the calendar brief, previous year's sales, and technical and cost cards. The control issue at hand is defining the creative space, setting relevant confines, managing the tension between freedom to create and reaching business objectives. The other pressing problem is how to inspire designers. Inspiration is paramount. It means

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[10] Gates are meetings organized between managers at the end of each phase of the product development process where progress is checked and compared with the expectations to see whether the plan needs to be adjusted in light of the new information emerged (Cooper 1990).

stimulating creativity and aligning the efforts of the various designers towards one idea. Failing to provide a compelling theme may lead to dull and unattractive collections. Control mechanisms here are themes and moods, travelling and being in part of various networks, selection of designers and direct inspiration. These systems do not set confines but rather stimulate creativity. This control is not about motivating, this is not the problem, but inspiring.

In creative environments, a more fruitful perspective is to look at control mechanisms as inducing and inspirational control. Inducing (or impelling) control defines the creative space. Inspirational control[11] stimulates the exploration of the creative space.

5.2 The influence of environmental variables upon control mechanisms

The control mechanisms used across the companies in our sample were quite homogeneous (see the right hand side of Figure 1). This observation is consistent with a rapid spread of managerial practices and isomorphism (Carruthers 1995) Yet, the way in which each company used these mechanisms was markedly different depending on the strategy, environment, domain relevant knowledge and experience of key people in the design organization, company identity, and technological complexity. .

Brand and product positioning in the market was associated with variations in the use of control mechanisms. As previously described, there is an established pecking order among fashion firms that impacts the range of competitive actions. Roughly, fashion firms fit into "mass market" and "fine fashion" firms. This positioning is often associated with *the complexity of the collection* (in terms of the number of articles and their variants in each collection) with "mass market" companies having much broader collections. Furthermore, the positioning is associated with the structure and management practices within the company including control mechanisms. The effect of strategy on structure is consistent with the traditional strategy-structure-performance (Chandler 1962; Caves 1980). The impact of brand position on the use of control mechanisms is particularly salient when comparing *A-Fashion* and *B-Fashion*. The first one is positioned as a "fine fashion" with an average of one hundred articles for collection. The second company is positioned as a "mass market" and an average of one thousand articles for collection. *B-Fashion* used control mechanisms much more intensely, defining a much narrower creative space. Planning is much more detailed with precise boundaries to express and regulate creation:

"Each brand develops the marketing plan on the basis of last year's sales, updates, and forecasts for the following period. Given a certain profit objective defined on the basis of an analysis of operations and profitability goals, each brand must agree to certain revenues objectives and then develop a plan indicating the number of articles, the number of options, values, deliveries etc. When the plan is discussed, confirmed and validated, it becomes effective for the semester, it is 'armoured', everybody knows the obstacles to overcome in the semester, (s)he will not have daily surprises with something that changes. We define the rules within which the design office will operate, we provide them with the collection brief, merchandising plan, calendars, activity plans … and they know they have to develop their ideas, their style, and I do not tell them if they have to produce a flowery skirt, but I tell them they have to produce a skirt at 19.9

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[11] This is different from the idea of belief system developed by Simons (1994) because it refers to mechanisms to acquire new knowledge – exploration (March 1991) – evaluate, assimilate, and adopt it for useful purposes – absorptive capacity (Ford 1996). These characteristics are not proper of belief systems, which are meant to diffuse, rather than absorb, a certain culture among organizational members.

euros, three skirts at 29.9". They have to produce 447 "industrialized" and 273 "coomercialized" products. [12] They can use 89 fabrics, of which 11 shared. They cannot use 200 fabrics because otherwise I stop them. They have to use 18 colours, for women up to 23."

The planning process defines a lot of boundaries to the designers, and rules and procedures guide all the phases of the design and development process. This approach is well-reflected in the 'motto' written at the back of the desk of the technical director and visible to everyone talking to him:

"Creativity is a serious matter only if there is discipline, steadiness and rules".

The technical director described the hiring process of designers as follows:

"(Designers) become part of a system and to work in the system they need to understand the method of work that we have. They need to acquire the method, to understand the design rules, the design tools. It is not that you design on a piece of paper, there are instruments where they have to include project information that is then collected and analysed".

As a further illustration of the control principles behind *B-Fashion*, the technical director described the importance of rules through the planning phase:

"There must be rigour, in other words an analytical approach, very precise rules (…) rules that give some freedom. But we have to remember that we do business, we do not create for the sake of creating … if a were a painter, I would paint my paintings and that would be it. But here I have to create an industrial product, something that has creativity and fashion content. But to get to this point there must be an analytical approach, everything must be planned to be sure that the system works".

Planning activities in *B-Fashion* are detailed and impose significant constraints to the designers. First of all, planning is based on the results of a detailed analysis of previous year results, as reported by the controller of B-Fashion:

"Within the firm there are two key roles, technical department and time and methods department, which elaborate a series of statistics on historical sales data".

In addition, the number of variants (e.g. colours, fabrics, accessories etc.) is clearly defined for the designers and the opportunities for them to choose different variants are limited. The technical director describes it as:

"We develop a collection brief for the semester, for example the fall-winter collection 2009. The brief includes the plans of all the activities that must be carried out to be ready for the collection presentation. We consider last year variances, forecasts, financial pre-budgets, commercial objectives, operations objectives, growth objectives, complexity management, percentage of *"industrialized"* vs *"commercialized."* All these activities have a deadline and various decisions are taken before design such as number of fabrics, number of accessories, standard changes, volumes, feasibility."

This is specifically so for recurrent products, for which the controller of B-Fashion reported:

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[12] Industrialized' refers to products for which one or more phases of the manufacturing process have been outsourced but the outsourcing company provides the raw materials. Commercialized refers to products that the company fully outsources on the basis of the specifications that it provides to the manufacturers.

"On this there is a planning that is really anticipated, so that we have the opportunity to grasp the best opportunities".

In contrast, *A-Fashion,* positioned at the "fine fashion" segment, sets a more open creative space. Designers face fewer operating constraints such as the ones described for *B-Fashion*. The interaction between creation and business needs happens through communication throughout the design process reflecting more of an experimental approach. The collections coordinator of one of the brands describes how during the design process adjustments are made:

"Let me give you an example, we want to have trials of the opening for the neck, so you take the fabrics available and you try different designs (…) These are trials for new garments. These are fabric trials that can be combined at the very beginning (…) This year many fabrics suggested by designers were Japanese, so I sent a mail to the designers saying 'Look, we are using too many Japanese fabrics, I cannot guarantee you that the collection is ready in time for production'. I put a question mark. It is necessary that they get informed, so that we can adjust the process *in itinere*".

In contrast to *B-Fashion*, designers at the top brand of *A-Fashion* ("fine fashion") have the freedom to choose fabrics with operational criteria coming as suggestions to the decisions that they made. These decision rights reflect a broader decision space. Not only are designers given the responsibility to choose the fabrics, but they initially define their own confines around fabrics and only through the design process are these confines adjusted from the operational side.

"Creative activities are bound to have many changes throughout the process, especially when the product is fashion. When a product is more, say, basic, many modifications are not in place… sometimes designers with the last changes can create interesting products".

Control mechanisms mould the creative space over time as decisions are made. Rather than setting hard boundaries from the very beginning, boundaries are adjusted initially through designers' decisions and then through suggestions. The guiding idea is letting the creativity of designers flow freely with an ex-post selection of ideas, in a trial-and-error approach in *A-Fashion*. Numerous ideas are proposed and then filtered while the product is developed. In addition, the "fine fashion" positioning requires careful quality tests to verify the style that the designer proposed is fully captured:

"When items get to the very end of the design process, when I have to ship them … I still look for something that might have gone wrong for example … the eye is careful, the eye must be careful, so when items arrive, you have to control that what you receive fully reflects the original design, control it quickly and see whether there are things that do not work" (Collections coordinator of *J-Brand, A-Fashion)*.

The quality control is fundamental to *A-Fashion*. Another aspect of the control environment is product complexity variables including:

(1) The technical complexity of collections: — Different lines[13] (first, second, third) have different levels sophistication and variety. Certain designs are more complex, for instance when using embroidery, printings, valuable raw materials. Certain products are more complex such as men's coats and suits.

(2) The relevance of a specific product collection in the overall portfolio of collections. Some collections are core while others complement and support the main collection. For example, clothing fashion firms often have accessory collections for leather bags and shoes, or for other accessories.

(3) The level of innovation of the product associated with the degree of change of products from one season to another as well as the rate of recurrent products versus trendy products.

The relevance of these variables to control is clearly illustrated in the management of the various brands at *A-Fashion*. The higher segment brand (top "fine fashion") has a looser approach in the planning phase and a tighter monitoring logic as described in the previous paragraphs. An approach much more in line with *B-Fashion* is used the second and even more for the third line.

"There is a first, a second and a third line and they are completely different. For example, the series of continuing trousers developed for *M-Sub-Brand* is a characterizing element for the third line, but does not relate at all to the first line for which we wish, in our case, I mean, that the collections are more varied from one season to the following one. And for a first line in general, and certainly in our case, the commercial inputs that you have to follow are lighter" (Creative Direction, *A-Fashion*, *M Brand*).

This different approach is also reflected in the level of details of the collection briefing and definition of a theme. For the top brand of *A-Fashion* the collection briefing contains a few elements and gives designers significant flexibility. The aggregation of designs in collections is done ex-post, after they have been developed, without the need to specify a theme.

"There is a briefing that reports the different kinds of product categories that we have to design, say, 10 designs for coats, 25 designs of jackets, 30 designs of dresses, … divided for the different categories that make up a collection. And on the other hand the number of designs we have to produce … say in total between 100 and 110 designs. So the total number of items is around 130-140. This is because some categories, some designs are reproduced in more fabrics and the effects can be completely different. One dress can be embroidered in chiffon and made in unified pattern because it has a daily use … it can have different souls, they change a lot according to the fabric and the workmanship with which it is manufactured" (Creative Direction, *A-Fashion*, *M Brand*).

"The chief designer chooses the designs that she likes. We can decide that instead of producing 8 coats, we produce 10, and not necessarily all of them will get to the end. This is because, for example, currently coats are more requested than jackets and maybe the briefing is not really precise in this respect, so we have some elasticity" (Creative Direction, *A-Fashion*, *M Brand*).

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[13] Within the same brand, collections are organized in lines: first line, second line and third line, with a decreasing level of importance and relevance. Normally, first lines are normally used as marketing tools to maintain reputation and image.

"In the second and third lines it is easier to find a theme, on the first line, being the more creative, the theme is not there. You build the collection somehow for stories, but they are not so clearly defined. The creative director selects designs that are consistent, after their development" (Creative Direction, *A-Fashion*, *M Brand*).

Individual- and team levels variables are also relevant to the use of management control systems. *Domain-relevant knowledge* defined as the knowledge specific to the problem domain, which can be developed through instruction, training and experience (2007). Individuals with better technical and organizational knowledge use structured controls to a lesser extent relying on mutual adjustment. The collections coordinator of *J-Brand* in *A-Fashion* strongly emphasized the importance of her background, her experience in the company and how these elements affected the control process:

"As a background, I have a stylistic preparation, a total preparation, I come from an art institute in fashion and costumes […]. I come from a culture where my parents, and specifically my mother was a model-maker and had a fashion laboratory, where I learned how to develop a product […]. I had a work experience with a company where I worked with the owners, so a 360 degree experience, from design, development and also sales".

This background and preparation allow the collections coordinator to intervene when necessary to adjust deviations and to react to unexpected events, relying on mutual adjustment:

"Often when the designers ask me how to position the model on the fabric, how to do with the jacquard, so I manage also technical issues … after 20 years of fabrics, managing fabrics every day, I have learned all the technical aspects, right?"

"I have a model maker, who takes care of positioning the pattern on the fabric, we go to the cutting phase together and we discuss together how to enter the different pieces. Also here, if you do not have the technical knowledge of all the pieces of a paper pattern, when the paper patterns arrive a graphic can be one meter long where there is the sleeve, rather than the neck, rather than the shoulder, rather than … I get very technical here … you do not know how to turn them because they have a straight-thread, they could have a bias binding, on the basis of how the model maker sets it on the paper pattern, you go down, look at and go away, but if you have a bit more of knowledge, specific, then you can ask to re-adapt things" (Collections coordinator of *J-Brand, A-Fashion)*.

Another important element is the level of experience with people in the organization and with the chief designer. This experience allows grasping a lot of the style and nuances of a specific branded collection to activate a debate with the different people involved:

"For 14 years I have worked with a person who is my contact point at the design departments and who works close to the chief designer. Now there are other designers, the situation has changed, it is important to know whom you have in front of you, understand what is on the other side and not forgetting that you are working for the chief designer. New people arrive, with different competencies, not always with excellent preparation, with a weak technical background, maybe they are good in something but not in something else and float in the emptiness. You have to be capable to understand who is in front of you, and where you have to lead those people to get to the shared objective. It is not easy. Because they come from a different background and before understanding deeply a chief designer it takes time. It is not that today I go away from

here, I go to work with Galliano or Armani and think I can do everything well. I can have the technical knowledge, I can say well I have my experience, I know what we are talking about, but I cannot think I can understand the chief designer 100% from the very beginning" (Collections coordinator of *J-Brand, A-Fashion).*

The importance of knowledge is also associated with the positioning of the brand. A member of the creative direction of *M-Brand* suggested the importance of a combination of more experienced versus less experienced people:
"In the case of the top "fine fashion" brand, we have a wide range of ages. There is a woman who started with the chief designer 25 years ago, there is a man that has worked here for ages, 15 years, and then there are younger people, a person who arrived 2 years ago and another who arrived in October."

Another important variable that mediates the impact of contingent variables on control is represented by the presence of a strong chief designer. The strength of this designer goes often hand in hand with the use of his/her name as the brand. This chief designer can be either part of the company or operate in a different company acting as a licensor. When the designer is strong, the level of freedom allowed is higher, with a substantial lower adoption of detailed planning mechanisms. This observation is illustrated in *A-Fashion* and *V-Fashion* managers. Actors that operate around the design office with a strong chief designer are in a weaker position to impose specific constraints and so the approach is more similar to a trial-and-error logic.
"You cannot always constrain the chief designer and say 'no'. Sooner or later the chief designer will say I do not want this person anymore. You are replaced. You have to be subtle to get to the objective" (Collections coordinator of *J-Brand, A-Fashion).*

The same evidence emerged in *V-Fashion* where the operations director argued that when the chief designer was still in the company, things were very different. If he thought that a certain thing should be done on the basis of a futurist view, none could stop him, "not even the powerful American investors."
A further variable that plays a mediating role between contextual variables and control systems is identity. The CEO of *D-Fashion* pointed out at the importance of identity and culture in the company. He pointed out at the relevance of the characteristics of people in the company, who must be *'D-People'*. He used a slogan - 'fun & profit' - to describe their philosophy and the values behind it: commitment, positivism, constant improvement, enjoyment, emotions, on the 'fun' side, and sustainable growth, cost control, and emotions on the 'profit' side. "And the most difficult thing is the combination of the two". This focus on culture and identity has a reflection also on people who work in the company and the kind of control approach that is adopted:
"Let's make sure that we have the right people on the boat". "We have to enjoy the trip together". "This is not top-down approach; it is something that comes from the bottom" *(CEO of D-Fashion).*

Finally, the last variable that had a role in the selection of control mechanisms to adopt is technological complexity. The role of technology imposes more constraints to the designers and requires more process control to test whether the technical aspects have been properly taken into consideration. The need to check the technical aspects was clear in the words of the collections director of *P-Brand*, *A-Fashion*:

"The first feedback I want is from those who will sell the product, and I am used to ask whether the shoes are uncomfortable, tight, or you cannot wear them, if instead of a lace, it is better to use an elastic, so that I know whether I have to modify the product or not."

"Shoes need to be managed from a technical point of view: there are things that are not technically feasible. Even if some people say that everything can be done, this is not true. Right the shoe is something that you have to wear on your feet and walk comfortably, so you creativity is limited both technically and commercially."

The governing of creativity: control as a dialogical process
The analysis of the evidence reported in the previous section suggests the existence of contextual factors which, combined with some mediating variables, explain the adoption of certain process, output and social control mechanisms. The purpose is now to describe the features of control in a creativity context, and then to present three fairly distinct combinations of these mechanisms from which control architects seemed to be selecting in a creative environment. It is important to stress, however, that how control is perceived in creativity contexts is not relevant only in this form of settings, but contributes to deepening our understanding of the control phenomenon in general.
From the data collected, it appears clearly that in the case studies analysed control is seen more as a process rather than simply as a combination of mechanisms. To illustrate the specific nature of control that emerged in creativity contexts, we use the label *dialogical* control[14] to indicate that the control of organizational behaviour is a process exerted by individuals who sense problems, formulate hypotheses, communicate ideas, contradict expectations, coordinate actions and make joint decisions, through *dialogues* that incorporate the multiple-mindedness of the different groups within the organization (e.g. the creative designers, those technically responsible for the creative activity and those commercially and financially responsible of the creative outcomes). These dialogues are inherently dynamic, iterative in nature, and characterized by a polyphonic interplay of the different communities involved. They presuppose an a-centred, horizontal order in which individuals facing the uncertainty of the environment consult one another to provide an understanding of events in lieu of simply setting reciprocal boundaries, and to define a guidance towards the perceived correct behaviour[15]. From a methodological point of view

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[14] "Dialogic or dialogical, characterized or constituted by the interactive, responsive nature of dialogue rather than by the single mindedness of monologue. The term is important in the writings of the Russian theorist Mikhail Bakhtin, whose book Problems of Dostoevsky's Poetics (1929) contrasts the dialogic or polyphonic interplay of various characters' voices in Dostoevsky's novels with the 'monological' subordination of characters to the single viewpoint of the author Tolstoy's" (Baldick 2004).
[15] The concept of dialogical control parallels that of interactive control system (Simons 1994) and accounting talk (Ahrens 1997) but it is different. It differs from interactive control systems because it is not referred to the selection of one or a few specific formal information systems to identify strategic uncertainties or intercept emergent strategies. It is wider because it may refer to all control mechanisms at the same time and dialogues may be activated by alternative sources other than control mechanisms. In addition, it does not presupposes hierarchy – debate between managers and subordinates – with a central actor selecting the mechanism(s) and filtering the emergent strategies to consider. It does not overlap with the concept of accounting talk because it does not presupposes a specific content – accounting – and does not necessarily require the involvement of a specific category of members – management accountants.

this means mapping *when* these dialogues occur, *what* activates them and *who* is involved. The various control mechanisms may have a role in activating these dialogues.. For example, the analysis of the sales of garments of last year (a form of output control) activates dialogues between the designers, the commercial directors and the project managers on which models to focus in this season.

"There is an analysis of what was the sales of previous season evaluated by a small 'conclave' … because while before, everything was done at home, among 4 walls, 2 people, now there are 'conclaves', so mega meetings of 'let's talk about what happened'. In the 'conclave' there are: the commercial director, the product manager – myself – the style, which can be articulated in the designer and the creative director or directly one single person because there is coincidence of roles, and more and more frequently someone from the board of directors, it could be the president himself, another representative, and unfortunately someone representing funds… it happens that the designer informed on the length of the skirts that were sold better, the details of the jackets that were more liked, receives a sort of input to consider in the development of the following collection" *(Product Manager of V-Fashion).*

The planning of activities (a form of process control) triggers dialogues between the designers, the project managers and the operating employees on how to organize the development of the collection.

"So, we do this type of control, we give suggestions and we start to define the first group of designs, the first group of designs to the public of the collection, that is to say the famous commercial director, the marketing director, also the member of the board of directors may appear again, but not necessarily, and overall the style director who is less and less the same as the creative director, recently. In these occasions, we define carefully the 'fallen', they are eliminated and we signal to the designer that the fallen models need to be replaced with some alternatives" *(Product Manager of V-Fashion).*

"This document (collection brief) is a document with which the designer works, but overall the product manager, being him the person knowledgeable about work costs, about laboratories, is able to manage on the one hand the 'crazy' designer and on the other hand the marketing director, the commercial director who would like to sell lining at hyperbolic prices, so you have to make him understand how you define this number and I enjoy very much this because you completely close the door of creativity, and so of madness, and there is a 'tête-à-tête' with the one that has the divine knowledge of numbers and make him understand that lining is not silk, and it is necessary to understand whether we want to sell lining or silk. After this meeting, the product manager, almost always with the 'brief' modified, goes to the mad guy and gives him some guidelines, and then the meeting with all the 'conclave' to launch the prototypes" *(Product Manager of V-Fashion).*

The supervision during the development of the product activates dialogues between the designer and the product manager on the technical difficulties emerging in the execution phase.

"I want to make a jacket with the shoulder straps, all built 'tailor' with a non twisted cotton, and I want to wash it … that means creating a monster, but explaining it is not easy so you have to look after him: 'How would you like it?' 'I would like it with this cotton … but I want to do it built' 'But you do not want to wash it, do you?' 'Yes, I want to wash it' 'so let's not do it built' 'Why?' 'Because it's crap' 'Yes, you are right' … so looking after him all the time" *(Product Manager of V-Fashion).*

All these dialogues shape the environment, trigger decision making and elicit the actions of individuals within the organization.

The cases investigated showed that not necessarily dialogues are activated by control mechanisms and that there are three different forms of dialogical controls taking place within the organizations analysed. The labels that we have attached to each model are evocative of their character: dialogical control focused on managing organizational complexity, dialogical control focused on managing product excellence and dialogical control focused on managing identity. These three models vary in terms of dialogues for coordinating activities (planning vs control orientation), selecting people (on the basis of skills, experienced talent, fit with organizational identity), and defining creativity content (free vs guided). See Table 1.

Dialogical control focused on managing organizational complexity. This form of control is characterized by a planning orientation. This means that from the very beginning of developing a collection, for each dimension of complexity, some standards are defined to reduce the level of costs. The number of items, the number of colours, the number of fabrics, the number of accessories, the level of outsourcing, are defined ex-ante and represent the grid within which creativity flows. People working on creativity are normally fairly young with specific competence skills acquired in style schools. The development of collection proceeds on the basis of a specific theme or mood defined by the creative director. This excerpt from our interviews illustrates this model: 'We have to pursue revenues objectives, keeping complexity under control' (Technical Director of B-Fashion).

Dialogical control focused on managing product excellence. This mode of control is based on a ex-post control orientation. This implies that only a few constraints and standards are defined ex-ante, and that creativity is filtered ex-post in a trial-and-error logic. More items are proposed and than progressively discarded to fine tune the contents of the final collection. People working on creativity tend to have more experience and are selected on the basis of their reputation on the market. The development of the collection is free from specific thematic inputs and items are grouped into categories only after their development. This excerpt from our interviews describes this model: 'There are always adjustments to make during the process and at the end things that are really interesting may emerge, those that make the sales' (Collections Director of V-Fashion, G-Brand).

Dialogical control focused on managing cultural identity. This form of control is also based on a ex-post control logic. This is possible because identity is the centre around which all the collection development process turns. In fact, the selection of creative people is based on the fit between their personal and stylistic characteristics and the identity of the organization. And this latter is also the main source of inspiration during the design of the product. This excerpt from our interviews is evocative of the importance of cultural identity in this model. 'The product is easy to copy, the culture is more difficult to copy. It's related to the energy that is in the company' (CEO D-Fashion).

Conclusions

Creativity is a concept that has been hardly used in the management accounting contributions. The purpose of this manuscript was to introduce creativity and its determinants as major explanatory factors of management accounting systems configuration. This has, on the one hand, removed the assumption, implicit in the

creativity literature, that the ideal context for the creative process is alike in all possible settings, without considering the impact of some key competitive, organizational and operating variables. On the other hand, it has expanded the set of variables to consider when designing management accounting systems in a creativity context.
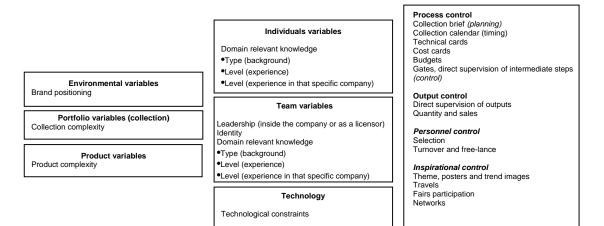
The field work has provided a better understanding of the creativity phenomenon in organizations. From the analysis of cases, a framework reporting the key contextual factors, as well as the mediating variables, affecting management control in a creativity context has emerged. This has contributed to activating a bridge between the creativity and the control streams of research. Creativity theorists have unveiled the relevance of specific variables, i.e. domain-relevant knowledge, formerly neglected by the control literature. Control authors have highlighted the role that some contextual factors have in the way in which creativity processes are managed. The data collected have also suggested the specific nature of control when creativity is at work. It is dialogic in that it refers to dialogues activated between different communities, each characterized by its own mindedness, to define guidance towards the perceived correct behaviour. These dialogues may be triggered by control mechanisms, which combine differently in various contexts, leading to alternative dialogic forms of control (focused on organizational complexity, product excellence or cultural identity).

In addition, our analysis has provided additional insights into some of the contradictions present in the literature. Firstly, in line with the original contribution by Deci (1972), our evidence confirms the lack of contingent rewards for creative individuals in organizations. Secondly, our data suggest a more articulated link between creativity and behavioural control, depending on the role of some contextual factors, such as firm positioning. They confirm also some of the findings of Bailyn (1988), who suggested that individuals do not expect to have complete autonomy in their creativity effort but they are satisfied when they can define the contents of their work after a specific agenda has been set (Shalley et al. 2004 p. 38). Finally, accounting controls have been found to be used in creativity contexts as inspirational devices rather than as monitoring tools.

To conclude, this manuscript is only the beginning of an attempt to investigate how to control creativity. As new contributions will be produced, certainly more articulated versions of the model presented here will be developed as well as more alternative forms of dialogical control will be proposed. Further research will enlarge the spectrum of variables that affect management control systems choices and effectiveness in creativity contexts. In addition, new conclusions will emerge by considering creativity and control in other industries and levels of analysis. Despite these limitations, we however believe that this work may represent a point of departure to activate a debate on the role of control in creativity contexts, a role of stirring creativity rather than stifling it.

Figure 1

A framework of control mechanisms in creativogenic environments

Environmental variables Brand positioning	**Individuals variables** Domain relevant knowledge •Type (background) •Level (experience) •Level (experience in that specific company)	**Process control** Collection brief *(planning)* Collection calendar (timing) Technical cards Cost cards Budgets Gates, direct supervision of intermediate steps *(control)* **Output control** Direct supervision of outputs Quantity and sales
Portfolio variables (collection) Collection complexity	**Team variables** Leadership (inside the company or as a licensor) Identity Domain relevant knowledge •Type (background) •Level (experience) •Level (experience in that specific company)	***Personnel control*** Selection Turnover and free-lance ***Inspirational control*** Theme, posters and trend images Travels Fairs participation Networks
Product variables Product complexity	**Technology** Technological constraints	

Table 1 – Models of dialogical control

	Dimensions of dialogues		
	Coordination of activities	**Selection**	**Definition of creativity content**
Dialogical control focused on managing organizational complexity	Planning orientation	Skills	Theme
Dialogical control focused on managing product excellence	Control orientation	Experienced talent	Free
Dialogical control focused on managing cultural identity	Control orientation	Fit with organizational identity	Identity

Table 1
List of interviews

Company	Managers interviewed	Time interviews
A-Fashion	Italian Commercial Director Foreign Technical Director Italian Technical Director Group Controller Group Controller (II interview)	1 hour 1 hour 1 hour 1 hour 4 hours
Brand J	Collections Coordinator	3 hours
Brand M and Sub Brands	Commercial Director Brand M Controller Brand M Controller Creative Direction	2 hours 1 hour 1 hour 1 hour
Brand P	Collections Director	1 hour
Brand A	Product Manager (shoes and bags)	2 hours
	Total	19 hours
	Documents analysed	
	Financial statements	
	Company profile	
	Management control manuals and procedures	
	Segmented income statements	
	Collection briefing	
	Collection calendars	
	Product technical cards	
	Designs	
	Patterns	
	Processes observed	
	Design process	
	Pattern development process	
	Cut process	
	Sewing process	
	Prototype development process	

Company	Managers interviewed	Time interviews
B-Fashion	Group Controller 1 Group Controller 2 Technical Director	2 hours 1 hour 3 hours
	Total	6 hours
	Documents analysed	
	Financial statements	
	Company profile	
	Product technical cards	
	Collection calendars	
	Designs	
	Patterns	

	Processes observed
	Design process
	Pattern development process
	Cut process
	Sewing process
	Prototype development process

Company	Managers interviewed	Time interviews
D-Fashion	CEO CEO (presentation) Chief Designer	3 hours 1 hour 3 hours
	Total	7 hours

Company	Managers interviewed	Time interviews
V-Fashion	Direttore Marketing di prodotto Responsabile prodotto Responsabile produzione	2 hours 3 hours 2 hours
	Total	7 hours

Company	Managers interviewed	Time interviews
G-Fashion	CFO Controller (presentation) Controller	2 hours 2 hours 1 hour
	Total	5 hours

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