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*Control of creativity-dependent work settings.  
Direct and indirect effects of creative task  
characteristics on control system design*

**This is Working Paper  
No 58 (April 2008)**

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# **Control of creativity-dependent work settings**

## **Direct and indirect effects of creative task characteristics on control system design**

Working Paper

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### **Abstract**

In this paper the author develops a framework for management control in creativity-dependent settings. Combining creativity and management control research, task characteristics of creative work are identified and linked to formal and informal control mechanisms suggested in the management control literature and already applied in empirical studies on management control system design.

**Key words:** Organizational Control, Organizational Creativity, Management Control Systems, Intrinsic Motivation

### **Introduction**

Researchers in the field of organizational creativity claim that creative work is particular and unique. They argue that creative products, the process of their production, and the preferences of creative employees differ in substantial and systematic (if not universal) way from their counterparts where creativity is less important (Gil and Spiller, 2007; Caves, 2000). These differences are attributed to the inherent properties of creative work that distinguish it from other sectors in the economy. Creativity researchers agree that the distinctive nature of creative work therefore requires different management practices in creativity-dependent settings compared to ordinary work settings (e.g. Gil and Spiller, 2007; Caves, 2000; Amabile, 1996). Empirical researchers (see for example Zhou and George, 2001; Amabile, 1996; Oldham and Cummings, 1996; Shalley, 1995; Shalley; 1991) examined the stimulants and obstacles of organizational creativity. Results of this research suggest that creativity can be facilitated or stifled by various dimensions of the work environment, such as leadership style (Amabile et al., 2004; Amabile, 1996; Oldham and Cummings, 1996), autonomy and freedom (Amabile, 1996; Amabile and Gitomer, 1984; Andrews and Farris, 1967) or pressure (Amabile, 1996; Amabile, 1993; Andrew and Farris, 1972). Many of these dimensions of the

work environment seem to be related to aspects of organizational control. Interpreting the results of these studies, creativity and control seem to be conflicting concepts. Given that all formal organizations need some form of control (Cardinal, 2001), the question of how to control creative employees while permitting high levels of creative performance is relevant. In the management control literature, a stream of research is concerned with investigating the determinants of control system design. It is widely accepted that the appropriate design of management control systems is situation-specific (Chenhall, 2003; Chapman, 1997; Otley, 1980). A key assumption in the management control literature is the need to align specific control practices with an organizations' technology<sup>1</sup> (e.g. Chenhall, 2003; Abernethy and Brownell, 1997). This implies that the applicability and effectiveness of control mechanisms is contingent on the task characteristics of the employees to be controlled (Eisenhardt, 1985; Ouchi, 1979). Following this approach, it can be assumed that the nature of creative work influences the design of control systems in creativity-dependent settings. However, in management control research an unexplored dimension of control system design is so far the dependency on creativity. In the management literature, there is broad agreement that inimitable intangible resources such as a firm's capability to promote innovation and creativity are key drivers of competitive advantage (e.g. Cho and Pucik, 2005), which is reflected in the increasing number of publications in the field of management that focus on organizational creativity (Gill and Spiller, 2007; Woerkum et al, 2007; Elsbach and Hargadon, 2006; Hargadon and Bechky, 2006; Amabile, 2004; Zhou and George, 2001; Shalley et al., 2000). Furthermore, creative industries<sup>2</sup> have become one of the driving forces of European economy.<sup>3</sup> According to a study on behalf of the European Commission on the economy of culture in Europe, the cultural and creative sector is a growing sector, developing at a higher pace than the rest of the economy. The sector's growth between 1999 and 2003 was about 12% higher than the growth of the general economy. From 2002 to 2004, employment in creative industries grew by 2%, while total employment across the European Union decreased.<sup>4</sup> Due to these high growth figures, the creative industries aroused a lot of attention in economic policy and deserve more consideration in the academic literature.

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<sup>1</sup> "Technology refers to how the organization's work processes operate (the way tasks transform inputs into outputs) and includes hardware (such as machines and tools), materials, people, software and knowledge" (Chenhall, 2003, p.139). An organisation's technology is reflected in the employees' task characteristics.

<sup>2</sup> The term "creative industries" is articulated as a way of integrating economic sectors in which creativity forms the immediate source of value creation. They can be distinguished from other industries because creativity is their **primary** source of value. According to this definition, the creative industries form a very heterogeneous sector including traditional cultural sectors like the visual and performing arts but also purely market-oriented sectors such as advertising, multimedia, or software development (Cunningham et al., 2003).

<sup>3</sup> [http://www.unesco.de/fileadmin/medien/Dokumente/Bibliothek/culture\\_and\\_creative\\_industries.pdf](http://www.unesco.de/fileadmin/medien/Dokumente/Bibliothek/culture_and_creative_industries.pdf)

<sup>4</sup> [http://ec.europa.eu/culture/eac/sources\\_info/studies/pdf\\_word/economy\\_cult/executive\\_summary.pdf](http://ec.europa.eu/culture/eac/sources_info/studies/pdf_word/economy_cult/executive_summary.pdf)

Despite the increasing prominence of organizational creativity in both economic policy and the management literature, research in management control did by now neglect the interrelation of creativity and control. Thus, investigating how the nature of creative work is associated with the design of management control systems is important, topical and novel.

An extensive study of the literature on creative work (see for example, Gil and Spiller, 2007; Mumford et al, 2002; Caves, 2000) reveals that the properties of creative work identified in creativity research represent dimensions of task characteristics that have already been identified in the literature on management control. Combining these two streams of research, this paper makes two contributions to the field. First, accounting for the different terminologies used in the two literature streams, a model characterizing creative work is developed. Characteristics of creative tasks are derived from the creativity literature and linked with the corresponding concepts applied in the management control literature. It is demonstrated that the uniqueness of creative work can be traced back to a distinct combination of task characteristics already known in management control research. Second, based on this model, a framework for control of creative work is developed. The effects of the specific combination of task characteristics which defines creative work on control system design are investigated. Control requirements for creativity-dependent settings are developed and linked to formal and informal control mechanisms as suggested in the management control literature (Ouchi, 1979) and already applied in empirical studies on management control system design (e.g. Cardinal, 2001; Abernethy and Brownell, 1997; Snell, 1992). The proposed framework provides an idea how control mechanisms may be applied in a way that creativity and control in organizations can coexist.

The remainder of the paper is organized as follows. Section two deals with the nature of creative work. Task characteristics of creative work are derived from the creativity literature and linked with the corresponding management control literature. Section three provides a literature review on organizational control. Section four develops the underlying theory and the hypotheses concerning the control of creative work. Finally, conclusions and implications for further research will be discussed in the last section.

### **The nature of creative work**

According to Amabile (1983), “a product or response will be judged as creative to the extent that (a) it is both a novel and appropriate, useful, correct, or valuable response to the task at hand and (b) the task is heuristic rather than algorithmic<sup>5</sup>”. As Ford (2000) puts it, a creative

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<sup>5</sup> For algorithmic tasks a clear path to solution can be defined-tasks for which an algorithm exists.

product is one where a successful solution has been implemented to a novel, ill-defined problem. Fundamentally, creative work can be defined as the generation of these novel appropriate ideas or successful solutions (Amabile, 1997). Creative work therefore requires creative intangible inputs which add more economic value to a product than is added by manufacturing. Hence, as opposed to ordinary goods, for the production of creative goods, creativity is the primary source of value generation (Cunningham et al., 2003). Creative goods and services, the processes of their production and the preferences of creative employees differ in substantial and systematic way from their counterparts in the rest of the economy where creativity is less important. These differences are based upon the inherent properties of creative work that distinguish it from non-creative activities, and in some cases distinguish creative activities from one another (Caves, 2000). A closer look at the properties that characterize creative work identified in creativity research (Mumford et al., 2002; Caves, 2000) reveals that these properties can be traced back to extreme dimensions of task characteristics already identified in the management control literature. The nature of creative work can therefore be explained by a combination of the extremes of these task characteristics.

#### Task complexity

By definition, creative work occurs on complex, ill-defined problems where performance requires the generation of novel, useful solutions (Mumford et al., 2002; Ford, 2000). As creative production is a multistage process including idea generation, information gathering and idea evaluation (Amabile, 1988), creative work requires sustained attention over long time periods where ambiguity is high, negative feedback is likely and stress level is high (Mumford et al., 2002). Moreover, the production of creative goods often involves the execution of multifaceted tasks requiring multiple forms of expertise. Creative jobs are complex as people need to focus simultaneously on multiple dimensions of their work (Oldham and Cummings, 1996). Therefore, creative production often requires collaborative efforts of diversely skilled people and is often organized in teams (Mumford et al., 2002; Caves, 2000). Further, creative tasks are defined as being heuristic rather than algorithmic (Amabile, 1983). For the solution of heuristic tasks no clear, straightforward path can be specified, rather some exploration is required (McGraw, 1978). Therefore, heuristic tasks require open-ended, complex solutions where some search is required and it is difficult to

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For the solution of heuristic tasks no clear, straightforward path can be specified, rather some exploration is required-tasks for which algorithms must be developed [McG78].

immediately determine which operations lead to an appropriate solution to the problem at hand (McGraw, 1978).

The concept of task complexity is also relevant in research on control system design (see Chenhall (2003) for a review). In the management control literature, task complexity refers to the degree of standardization of work. Large-batch and mass production is supposed to allow for standardized work processes involving little complexity, while small-batch technologies represent increasing levels of complexity (Chenhall, 2003; Woodward, 1965). More specifically, the production of highly specialized, non-standard, differentiated products demands complex techniques and procedures (Chenhall, 2003). As creative work is – in a narrow sense - defined as the generation of novel and appropriate ideas (Amabile, 1983), the outcome of each creative production process is unique. In other words, creative products are differentiated by originality and uniqueness (Caves, 2000). Mostly, the outputs of creative work are customized goods to fulfil individual customer needs. Therefore, creative products are highly specialized and non-standard, so creative work involves highly complex work procedures. To sum up, creative work is characterized by high complexity.

### Task uncertainty

Researchers in creativity agree that creative work is characterized by uncertainty (Gil and Spiller, 2007; Mumford et al, 2002; Caves, 2000). The creative production process is, per definition, particular and unique. As creative problems are ill-defined, multiple solutions to a given problem can be generated (Mumford et al., 2002). Thus, each creative output is a distinct combination of inputs leading to infinite variety options (Caves, 2000) and thus, inherently uncertain. Therefore, the number of product alternatives is infinite. The possible solutions to a given task (whether the development of a new product or technology, or the idea for a commercial spot or a film, etc.) are impossible to define ex-ante and to assess ex-post (Gil and Spiller, 2007). In other words, a manager assigning a creative task to a subordinate cannot specify the desired output. If the output could be defined to a high degree of specificity, the manager would have already undertaken the creative activity itself. Therefore, the task itself as well as the desired outcome of the task can only be specified in very general terms. Moreover, the major inputs to creative production (i.e. novel ideas or new combination of existing ideas) are intangible and therefore highly unobservable. In designing creative tasks, the manager does neither know the required resources nor the required effort necessary for task completion (Gil and Spiller, 2007; Caves, 2000). These task properties of creative work represent extreme dimensions of the concept of task uncertainty (Chenhall,

2003) used in the management control literature. Task uncertainty entails two dimensions, namely task programmability and output measurability (Eisenhardt, 1985; Ouchi, 1979). Task programmability refers to the degree of specificability regarding the actions undertaken by employees and how those actions influence subsequent performance (Widener, 2004; Spekle, 2001; Eisenhardt; 1985; Ouchi, 1979). Creative tasks are characterized by low task programmability as desired behaviours cannot be explicitly defined and measured. First, the core of creative work is the generation of ideas (Amabile, 1997) which is cognitive and intangible, therefore unobservable. Second, the pathways to problem solution cannot be prescribed as the approaches people take to idea generation are highly individualistic and depend on a person's individual problem solving style (Cummings and Oldham, 1997). Output measurability refers to the ability to clearly state performance targets and consequently evaluate outputs (Eisenhardt; 1985; Ouchi, 1979). Creative tasks are low in output measurability as desired outputs cannot be specified in advance. Therefore performance targets cannot be clearly stated ex ante and consequently, as there is no performance standard to compare the outcome with, the supervisor cannot evaluate ex post whether the creative output delivered by the subordinate was the best available solution to the given task the subordinate has come up with. To sum up, creative work is subject to high task uncertainty – creative tasks exhibit low task programmability and low output measurability.

To conclude, creative tasks can be characterized by high complexity, low task programmability and low output measurability. Each of these task characteristics does not exclusively describe creative activities and each property considered separately does not make creativity-dependent settings unique, but the particularity of creativity-dependent settings is the combined appearance of these property dimensions. In general, creative tasks score generally higher on all of these properties relative to non-creative settings/ tasks.

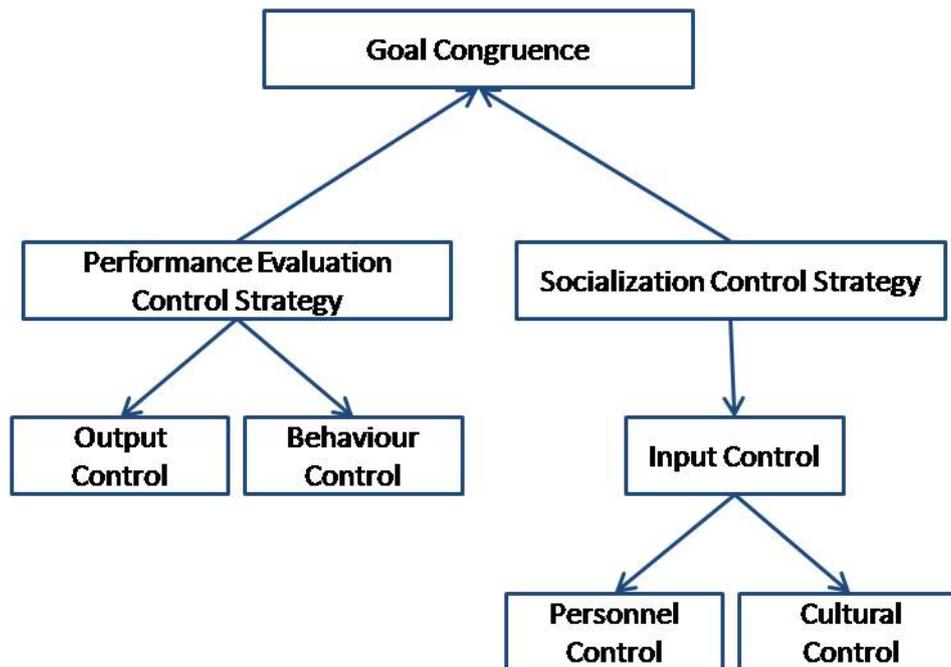
### **Organisational Control**

In the literature there is broad agreement on the necessity for control mechanisms to avoid opportunistic behaviour on part of employees (see for example Chenhall 2003; Eisenhardt 1989 and 1985; Ouchi, 1979). Given that we cannot escape control in formal organizations (Cardinal, 2001) this is also relevant in creativity-dependent settings. Fundamentally, the problem of organization is the problem of obtaining cooperation among a collection of individuals or units who share only partially congruent objectives (Ouchi 1979, p.833). The primary function of organizational control is to secure this cooperation.

Fundamentally, two underlying control strategies to cope with opportunistic behaviour are distinguished. Control can be either accomplished by performance evaluation or socialization (Govindarajan and Fischer, 1990; Eisenhardt, 1985; Ouchi 1979). Performance evaluation refers to the process of measuring, evaluating and rewarding performance. In controlling the work of employees, only two aspects can be monitored and evaluated: actions of employees or the outcomes which result from those actions (Govindarajan and Fischer, 1990). The performance evaluation strategy for control is therefore either behaviour or outcome based (Eisenhardt, 1985). Alternatively, control through socialization attempts to minimize the divergence of preferences among organizational members. The underlying assumption is that through socialization processes, employees cooperate in the achievement of organizational goals because they understand and have internalized these goals. This strategy emphasizes human resources policies such as selection and training, and socialization processes (Eisenhardt, 1985). Fundamentally, both control strategies intend to establish goal alignment by directing the efforts of all group members towards common organizational goals. The performance evaluation strategy imposes these goals to the individual by providing extrinsic incentives to fulfil the organizational objectives. The socialization strategy attempts to achieve “true” goal alignment by establishing that individual goals coincide with organizational objectives. Individuals then contribute to the organizational objectives for intrinsic reasons due to the fact that they simultaneously pursue their personal goals.

In organizations, control is administered through management control systems. “Management Control Systems (MCSs) help organizations to increase the probability that employees make decisions and take actions which are in the organizations' best interest” (Chow et al., 1999, p.441). Corporate control mechanisms can be defined as the instruments that are used to assure that all members of the organization pursue these common goals (Harzing and Sorge, 2003).

Fundamentally, three classes of control mechanisms can be distinguished: behaviour controls and output controls representing mechanisms referring to the performance evaluation control strategy on the one side, and input controls referring to the socialization control strategy on the other. Figure 1 outlines the classification of controls.



**Figure 1: Classification of Controls**

The distinction between these control mechanisms is based on what they are aimed to influence (Cardinal, 2001).

#### Behaviour Control

Behaviour control regulates the transformation process of work. It is initiated top-down in form of articulated rules and procedures regulating the conduct of work (processes). To ensure that employees adhere to these procedures, employees' actions are closely monitored and continuously evaluated (Snell, 1992; Eisenhardt, 1985; Ouchi, 1977). Behaviour control therefore serves two primary functions, the regulation function – exercised through ex ante formalization mechanisms, and the monitoring function expressed in ex-post performance appraisals (Cardinal, 2001).

#### Output Control

Output control regulates outcomes and results as opposed to means by which outcomes are achieved (Cardinal, 2001; Snell, 1992). Output control differs from behaviour control in that it provides subordinates discretion in the means they use to achieve desired ends (Snell, 1992). Applying this form of control, superiors do not translate intentions into standardized operating procedures but instead set targets for subordinates to pursue. More specifically, managers define performance targets and specify appropriate performance measures, measure how well these targets were met and link respective rewards or punishment to success or failure in goal attainment (Cardinal, 2001; Drury, 2000; Merchant, 1998). Rewards are usually not based strictly on performance measures but rather on performance measured

relative to a standard that corresponds to the level of performance required to achieve the pre-set targets (Murphy, 2001). Outcome-based control of task performance therefore consists of measuring performance and comparing it to a standard as a basis for corrective actions (Rockness and Shields, 1984).

### Input Control

Behaviour and output controls achieve goal alignment via performance appraisals and rewards. Input controls offer a more person centered approach to align the interests of employees with the organization's objectives. Input controls represent control mechanisms in order to implement the socialization control strategy and can be further divided into formal personnel controls and informal cultural controls. Input controls aim at motivating employees to either control their own behaviors (by means of personnel controls) or to control each others' behaviors (by means of cultural controls) (Merchant and Van der Stede, 2007).

Personnel control provides a symmetrical counterpart to behaviour and output control since it regulates the antecedents of performance – the knowledge, skills, abilities, values and motives of employees. Behaviour control regulates the work processes and output control regulates results (Snell, 1992). Personnel control typically functions as an ex ante control mechanism and is often centered on human resource policies such as selection and training that help to ensure that personnel will perform at a high level and in congruence with company goals (Widener, 2004). Personnel control refers to the careful selection and training of employees who fit the organization's needs and can be focused on two different dimensions of employee characteristics. Employees can be selected (and trained) for their work-related skills (specific job qualifications) or for their values (motivation and attitudes) (Ouchi, 1979). Personnel control is defined as some form of formal ex ante control to distinguish it from less observable influences that better define informal cultural control (Govindarajan and Fischer, 1990). Cultural controls represent a set of values, social norms and beliefs that are shared by members of the organizations and influence their actions (Drury, 2000; Merchant, 1998). Cultural controls prompt employees to work together in a synergistic fashion and are based on methods that encourage mutual monitoring such as written code of conducts and group based rewards (Merchant and Van der Stede, 2007).

### **Development of Hypotheses**

The appropriate design of control systems is contingent on the context an organization finds itself in (Chenhall, 2003; Otley, 1980). More specifically, the design of management control systems is amongst other things contingent on the task characteristics of the employees to be

controlled (Chenhall, 2003; Eisenhardt, 1985; Ouchi, 1979). As outlined, the nature of creative work can be explained by a distinct combination of task characteristics that distinguishes it from non-creative work. Therefore it is assumed that creativity-dependent work settings require particular control systems that are adapted to this specific situation. In the next section, accounting for the nature of creative work, the applicability of the previously introduced formal and informal control mechanisms in creativity-dependent settings is analyzed and a framework for control of creativity-dependent settings is developed.

As demonstrated, creative work can be characterized as highly complex, nonprogrammable tasks for which performance targets cannot be easily specified. This implies that creative work – compared to non-creative settings - is rather personally challenging to employees (Shalley et al., 2000; Cummings and Oldham, 1997; Oldham and Cummings, 1996;) because (1) uncertain tasks imply higher degrees of autonomy as employees need to make a lot of job-related decisions by themselves (Cummings and Oldham, 1997) and (2) complex tasks require more skill variety as employees need to focus simultaneously on multiple dimensions of their work (Cummings and Oldham, 1997; Oldham and Cummings, 1996). Jobs that are personally challenging to employees are expected to encourage higher levels of intrinsic task motivation as employees are expected to be excited about their work because they perceive the activities as interesting, involving, and satisfying (Deci et al., 1989; Hackman and Oldham, 1980). Therefore it can be assumed, that employees who fulfil creative tasks show higher levels of intrinsic motivation compared to employees with relatively simple, routine tasks (Hackman and Oldham, 1980). On the other hand it can be argued that to be successful, creative workers need to be driven by passionate interest in their tasks as creative work is demanding and time consuming, requiring sustained attention under conditions where ambiguity is high, negative feedback is likely and stress a part of daily life (Kasof, 1997).

**Hypotheses 1: The nature of creative work is positively related to employees' intrinsic motivation.**

Fundamentally, the appropriate balance of the control strategies in the design of an MCS depends on the costs of measuring employee performance versus the costs of selecting employees who fit the organisation's needs exactly (Ouchi, 1979). In creativity-dependent settings, the costs of performance measurement are extremely high due to high complexity and high uncertainty inherent in the creative production process. Moreover, as creative tasks

are supposed to be rather challenging, creative workers are assumed to show high levels of intrinsic task motivation (Hackman and Oldham, 1980) because the nature of creative work grants employees higher levels of autonomy and a feeling of self-determination in the conduct of their work (Deci and Ryan, 1985). External events - such as monitoring or explicit incentives - make employees feel controlled, which in turn decreases intrinsic task motivation of initially intrinsically motivated people (Frey, 1997; Deci and Ryan, 1985). As lower levels of motivation lead to less productive employees, creative workers will be less creative (Amabile, 1983; Hackman and Oldham, 1980). Thus, the reliance on control through performance evaluation might go at the cost of employee creativity which is the primary source of value creation in creativity-dependent settings (Cunningham et al., 2003). In contrast to performance evaluation, control through socialisation is less obtrusive and therefore entails less harmful side effects (Merchant and Van der Stede, 2007) on creative employees' work motivation. Therefore, it follows that in creativity-dependent settings control through socialization is more important than the performance evaluation control strategy.

**Hypothesis 2: In creativity-dependent settings control mechanisms referring to the performance evaluation strategy are substituted by mechanisms referring to the socialisation control strategy.**

Figure 2 outlines the underlying theoretical model.

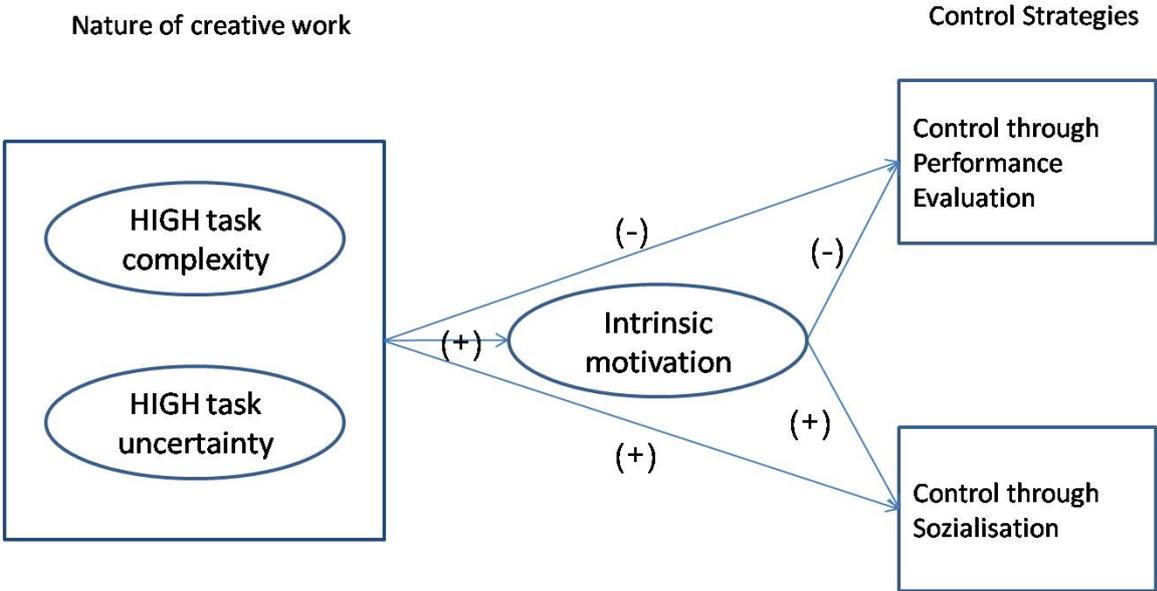


Figure 2: Theoretical Framework of Control of Creative Work

To conclude, it is assumed that the nature of creative work influences control system design (1) directly via the influence of the specific combination of task characteristics on the application of control mechanisms and (2) indirectly via the influence of the nature of creative work on employees' initial level of intrinsic motivation which in turn influences control system design. Based on this main assumption, hypotheses regarding each control mechanism individually will be derived. In a first step, hypotheses (3 - 6) concerning the direct effects of nature of creative work on control mechanisms will be derived (Figure 3). Second, based on hypothesis 1, the hypotheses (7-10) concerning the relationship between intrinsic task motivation and control mechanisms will be developed (Figure 4).

### Behaviour Control

On the one side, the applicability of behaviour control depends on the programmability of the tasks executed by the employees to be controlled (Eisenhardt, 1985; Ouchi, 1979). If tasks are programmable, managers can translate their intentions into specific actions and desired behaviour can be explicitly defined and measured (Daft and Macintosh, 1981; Ouchi, 1979). As the creative production process is characterized by low task programmability, specifying desired behaviours ex ante would be extremely costly, if not impossible. Therefore, standardized work procedures can hardly be imposed on employees in creativity-dependent settings. Furthermore, as the major inputs to creative production (i.e. novel ideas or new combination of existing ideas) are intangible and therefore highly unobservable, employees' actions and how these actions influence subsequent outcomes cannot be monitored by observation and evaluation of behaviour (Widener, 2004). This lack of task programmability in creativity-dependent settings leaves managers in such situations with extremely high behavioural uncertainty. The result is information asymmetry in favour of creative talent since the organization cannot directly attribute results and performance to an individual's effort (Widener, 2004). Consequently, creative talent is left with extremely much room for opportunistic behaviour. Applying behaviour control in such situations involves substantial costs of personal surveillance (Snell, 1992). Empirical studies also report that the use of behaviour control is negatively related to task programmability (see for example Rockness and Shields, 1984). On the other side, task complexity also influences the applicability of behaviour control. As demonstrated, creative production implicates highly complex tasks and a heuristic approach to problem solution is taken (Amabile, 1983). Standardization through

rules and procedures governing the approach taken in problem solving restricts employees' ability to deal effectively with the high level of complexity inherent in the creative production process (Cardinal, 2001). To the extent to which behaviour control standardizes work processes, it reduces subordinates' freedom and may lead to rigid and cautious behaviour (Snell, 1992). As a result, the greater the standardization through behaviour control, the less likely experimentation will occur and the likelihood that organizational members deviate from established behaviour patterns will be reduced (Cardinal, 2001; March and Simon, 1958), therefore the number of creative ideas generated will be reduced. Additionally, freedom about work process allows employees to approach problems in ways that best suit their individual problem solving style and/ or expertise. Research in management control also reports that more complex technologies are associated with less formal control systems (Khandwalla, 1977). To conclude, monitoring costs in creativity-dependent settings exceed the marginal benefits from this form of control, thus behaviour control is supposed to be an inefficient way to regulate performance in such settings (Snell, 1992).

**Hypothesis 3: High complexity and low task programmability in creativity-dependent settings are negatively related to the application of behaviour control.**

#### Output Control

The applicability of output control mainly depends on the specificability of performance standards and the measurability of output (see for example Abernethy and Brownell, 1997; Eisenhardt, 1985, Ouchi, 1979). Outcome-based control of task performance consists of measuring performance and comparing it to a standard as a basis for corrective actions. Since what is measurable about a task influences the comparison process, the choice of appropriate controls depends on the measurement capabilities and the costs of measurement (Rockness and Shields, 1984). The measurability of outputs involves the ability to define crystallized standards of desired performance which require reliable and valid criteria that represent performance benefiting the organisation. Ex ante, crystallized performance standards operationally define managerial intentions and ex post they serve as evaluation criteria of employee performance (Snell, 1992). As demonstrated, a manager assigning a creative task to an employee cannot specify the desired output. Therefore, clear specification of performance targets in advance is difficult if not impossible. As desired outputs cannot be clearly specified, delivered outputs cannot be objectively evaluated concerning goal achievement. Due to low output measurability in creativity-dependent settings, performance evaluation based on results

achieved is assumed to impose high measurement costs. Consistently, researchers found that the use of output control is negatively related to the measurability of output (Abernethy and Brownell, 1997; Hirst, 1983). Therefore it is assumed, that the costs of output control exceed the motivational benefits resulting from its application and therefore output control is hardly be applied in creativity-dependent settings.

**Hypothesis 4: Low output measurability in creativity-dependent settings is negatively related to the use of outcome-based performance evaluation.**

#### Personnel control

Organizations are only willing to invest in costly ex ante personnel controls if the marginal benefit received from the controls exceeds the marginal costs of its implementation (Snell and Dean, 1992). The reliance on ex ante personnel controls depends on the cost of performance evaluation vs. socialization (Widener, 2004; Ouchi, 1979). As the performance evaluation control strategy – due to high complexity and uncertainty in creativity-dependent settings - is very costly in such settings, organizations might focus on alternative controls to curb opportunistic behaviour. As previously outlined, the more tasks and outputs are uncertain, the less behaviour and output controls are applied (Snell, 1992; Eisenhardt, 1985; Ouchi, 1979). In such situations - as empirical evidence shows (Abernethy and Brownell, 1997; Snell, 1992) - personnel controls provide the most viable option for managers to control employee performance by preventing performance problems through careful selection and training of employees in advance (Ouchi, 1979). Opportunistic behaviour of employees can be mitigated by ex ante controls such as careful selection of new employees, and development and usage of multiple information sources in the ex ante decision making process concerning new hires since it helps to ensure ex ante that future employees will have the appropriate qualifications and congruent goals with the organization (Widener, 2004). Ex ante personnel control mechanisms such as careful selection and training reduce the necessity of performance monitoring, therefore they can substitute output and behaviour controls.

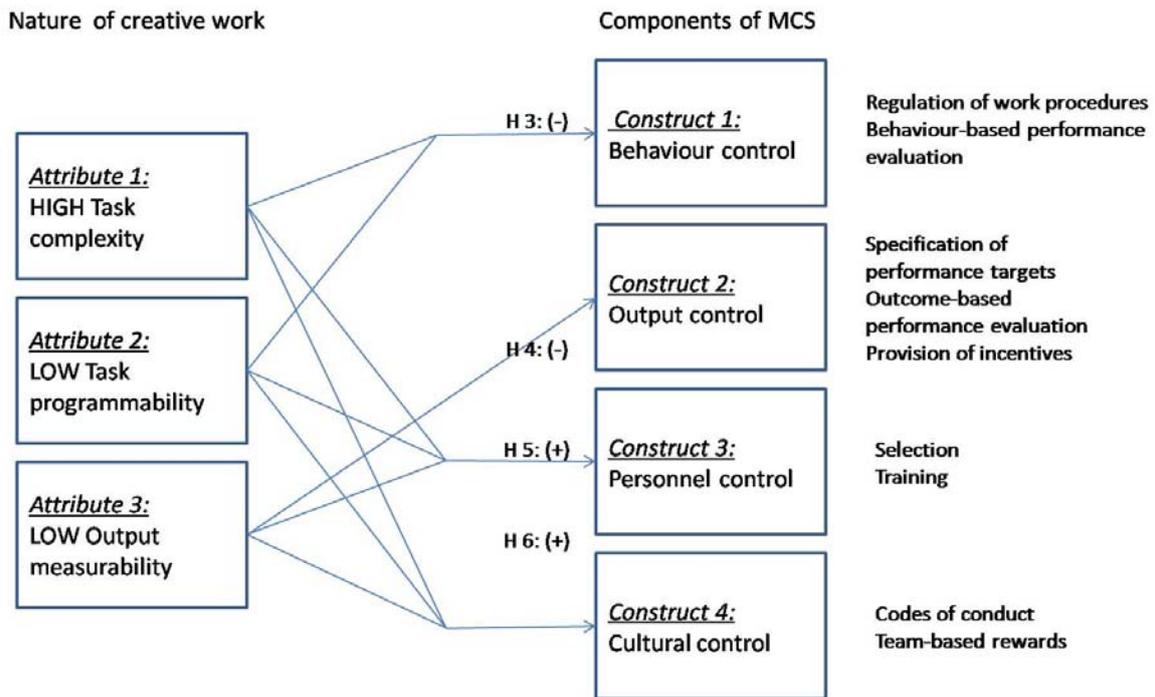
**Hypothesis 5: High complexity and high uncertainty in creativity-dependent settings is positively related to the use of personnel control.**

#### Cultural Control

Cultural controls have the advantage of being relatively unobtrusive. People whose actions are being controlled may not be aware of the fact that the shared norms and values are part of the organization's control system (Merchant and Van der Stede, 2007). As these norms function nevertheless as control mechanisms they can substitute other formal types of controls such as behaviour and output controls (Merchant and Van der Stede, 2007) in situations where they seem to be unsuitable as it is the case in creativity-dependent settings. By use of cultural controls, company objectives and desired behaviours are communicated to the employees, and mutual monitoring of employees is encouraged which is assumed to reduce the necessity of performance evaluation on part of the organization (Merchant and Van der Stede, 2007; Ouchi 1979). As performance evaluation due to high task uncertainty is difficult in creativity-dependent settings, managers will emphasize cultural controls. Furthermore, as supervisors in creativity-dependent settings are not in the position to directly monitor employee performance, these organizations will emphasise that employees monitor each others' performance with respect to the pursuit of company objectives. Mutual monitoring serves as an effective control in situations where social incentives are important. Social incentives play a role in organizations where people work together in groups and teams (Brüggen and Moers, 2007). Social norms then can provide incentives for individuals to follow a certain course of action as employees care about the social recognition or sanctions provided by their peers. As complex creative tasks are often organized as team work (Mumford et. al., 2002), mutual monitoring of team members' performance is more effective than in situations where employees perform tasks separately of each other. Therefore, managers in creativity-dependent settings will emphasize the development of group norms and a strong organizational culture as well as implement group based reward systems, which represent cultural control mechanisms.

**Hypothesis 6: High complexity and high uncertainty in creativity-dependent settings is positively related to the use of cultural controls.**

Figure 3 depicts the frame work and the hypotheses concerning the direct effects of creative task characteristics on the application of control mechanisms.



**Figure 3: Theoretical framework and hypotheses – direct effects**

Besides the direct influence of creative task characteristics on control system design, it is assumed that the hypothesized high level of intrinsic task motivation of creative employees (Hypothesis 1) also affects the choice of control mechanisms in creativity-dependent settings.

### Behaviour control

The interaction between control and employee motivation has been widely examined. In the literature, there is vast evidence that intrinsic task motivation is negatively affected when employees feel controlled or restricted in their decision rights (Amabile, 1996; Deci and Ryan, 1985, etc.). Frey (1997) argues that external events such as direct supervision might crowd out intrinsic motivation under the condition that workers show high intrinsic motivation at the outset. More recently, Falk and Kosfeld (2006) found that monitoring decreases employees' intrinsic motivation and termed this effect the "hidden cost of control". According to Amabile (Amabile et al., 1996), conservative, formal and rigid management structures such as standardized work procedures or tight communication channels are organizational impediments of organizational creativity as intrinsic task motivation is considered a prerequisite for creative performance (Amabile, 1983). Amabile (1996) found that restricting employees' degree of autonomy concerning the means, that is, concerning work process, not necessarily the ends, negatively affects intrinsic motivation creativity because dictating employees how to approach their work reduces employees' sense of

ownership over their work. The use of behaviour control through standardized work procedures is assumed to result in low autonomy in the day-to-day conduct of work. As it is assumed that creative workers show higher levels of intrinsic task motivation on the one side, and intrinsic motivation is considered to be positively related to creative performance on the other side, managers in creativity dependent settings will try to maintain or enhance employees' intrinsic motivation. As behaviour controls seem to undermine intrinsic motivation, it is assumed that managers will substitute behaviour controls by less obtrusive forms of control.

**Hypothesis 7: The relatively high level of intrinsic task motivation of creative employees is negatively related to the application of behaviour controls.**

#### Output control

As creative employees are assumed to show high levels of intrinsic task motivation, the provision of extrinsic incentives might be problematic for motivational reasons. Frey (1997) argues that under certain conditions extrinsic rewards crowd out intrinsic motivation by shifting the locus of control from intrinsic to extrinsic incentives. Similarly, Deci and Ryan (1985) argue that extrinsic incentives, which are perceived as controlling employee behaviour, undermine intrinsic task motivation, while incentives that are perceived as autonomy-supportive or informative enhance intrinsic task motivation. In general, monetary incentives are rather perceived as controlling therefore supposed to undermine intrinsic motivation while feedback and recognition is rather perceived as informative, thus fostering intrinsic motivation (Frey, 1997). Therefore it is assumed, that managers in creativity-dependent settings rely more on informative incentives (feedback and recognition) rather than controlling incentive, as they aim to avoid the negative effects of incentives on employees' intrinsic motivation. Furthermore, the provision of informative incentives might motivate people to fulfil overall company goals rather than specific performance targets, therefore can be seen as a support of cultural controls. The use of informative incentives rather than controlling ones can be interpreted as a less obtrusive form of output control.

**Hypothesis 8: In creativity-dependent settings, informative incentives are more widely used to motivate employees than controlling incentives.**

### Personnel control

Personnel controls allow managers to select employees for their values and motivation (Ouchi, 1979). As managers of creative workers are aware of the fact that performance measurement of creative employees is difficult, they will place much emphasis on selecting employees with high levels of intrinsic motivation who are willing to show much effort in the absence of salient controls. As a consequence, careful selection of employees reduces the necessity of performance monitoring, thus leaving employees with autonomy in the conduct of their work which in turn enhances intrinsic motivation and consequently, creativity (Amabile et al., 1996).

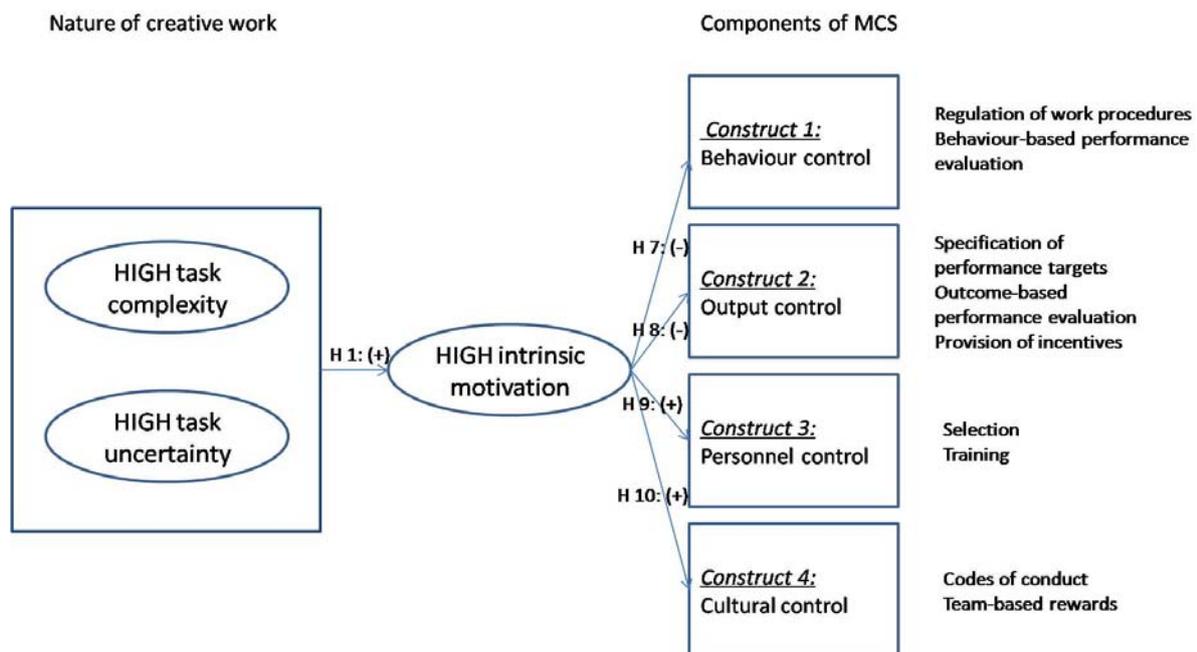
**Hypotheses 9: The relatively high level of intrinsic task motivation of creative employees is positively related to the application of personnel controls.**

### Cultural control

Cultural controls are implemented to enforce employees' commitment and loyalty towards the organization which is of special relevance in creativity-dependent settings for two reasons. First, as intrinsic motivation of creative employees is assumed to be rather high, they get emotionally involved with their tasks / projects rather than the organization they currently work in (Mumford et al., 2002). Second, due to high market uncertainty of creative products, managers need to rely on information from their subordinates concerning the potential success and quality of the creative goods delivered (Gil and Spiller, 2007; Caves, 2000), thus having to trust their employees. Creative employees usually have better information about the project's ultimate success or get it sooner than the manager. As creative workers might get emotionally involved with their projects, their personal interest might often be better served by continuing the project, despite economic reasons to abandon it (Caves, 2000). As creative employees seem to be more committed to their project than to the company, employees have an incentive to act opportunistically concerning the provision of information on the facts concerning the project they currently work on. Strong communication of company values is assumed to increase employees' loyalty towards the company, thus it is supposed to increase the probability that employees act in congruence with company goals by providing truthful information on creative products' properties.

**Hypothesis 10: The relatively high level of intrinsic task motivation of creative employees is positively related to the application of cultural controls.**

Figure 4 depicts the hypotheses concerning the indirect effects of creative work on the application of control mechanisms.



**Figure 4: Theoretical Framework and hypotheses - indirect effects**

## Conclusion

In summary, figures 2, 3, and 4 provide a theoretical framework for explorations of the relationship between creativity and control in organizations. This theoretical perspective is grounded in contingency theory of management control, stating that the appropriate control system design is context-specific. Managers in creativity-dependent settings face the challenge of having to manage extraordinary people who perform extraordinary tasks. It has been argued that in creativity-dependent settings control through (traditional) performance evaluation is substituted by less obtrusive but still effective socialisation control mechanisms, which focus on the person rather than on the actions taken by the persons. The proposed control framework for creativity-dependent settings therefore can be considered as highly person-centered.

For almost a decade, researchers (e.g. Woerkum et al., 2007; Amar, 1998) have claimed that theory in management control has not kept pace with the practicalities of organizational

change. Specifically, the question of how to control organizations while permitting growth and creativity has been raised. This paper attempts to initiate a discussion about this topic by providing directions how creativity and control in organizations can coexist. However, the value of the proposed framework will be proved only by empirical testing.

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