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REINVESTIGATING THE REASONS FOR CONTROL: AN IN-DEPTH ANALYSIS OF IT DEPARTMENTS

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Abstract

There is a need for a greater understanding of the reasons for control in work settings with innovative working behavior. The paper explores the reasons for control in IT departments by using inductive method and a multiple case study design in seven large companies. The investigation of the sources of control needs involved 45 interviews with CIOs/IT managers and their immediate subordinate managers. We find that managers with explicit trusting stance use control mechanisms in problematic situations, when there are complex tasks and under the influence of organizational complexity. For them, control is viewed as a means to provide an overview of results. On the other hand, managers with less inclination toward trust see control as an inevitable part of their management function; control is triggered by their personal traits. This has important implications for the reconciliation of organizational learning and control.

Keywords: *CIOs/IT managers, control, managers' attitudes, reasons for control, learning*

1. INTRODUCTION

Control is fundamental to companies because it enables aligning employee capabilities, activities, and performance with the company's goals and aspirations (Cyert & March, 1963). Through control, managers seek to manage employee behavior (Anthony, 1988; Merchant & Van der Stede, 2003; Simons, 1995a; Flamholtz, 1979, 1996).

Empirical literature on the use of management control systems (MCS) is extensive. It includes studies on the process of control, categorizations of control mechanisms (Flamholtz, 1979; Ouchi, 1979; Merchant, 1982; Anthony, 1988; Jaworski, 1988; Snell, 1992; Simons, 1995a; Merchant & Van der Stede, 2003), determinants of control mechanisms (Ouchi, 1979; Eisenhardt, 1985; Anthony, 1988; Simons, 1995b; Leifer & Mills, 1996, Abernethy & Brownell, 1997; Kirsch, 1997; Fisher, 1998; Jaworski, 1988; Kerr, 1988; Nicolaou, 1999; Berry et al., 2005; Scheytt & Soin, 2005), positive and negative impacts of control (Jaworski & MacInnis, 1989; Henderson & Lee, 1992; McKnight, Ahmad & Schroeder, 2001; Choi, Dixon & Jung, 2004; Loughry & Tosi, 2008; McGregor, 1967; Niehoff & Moorman, 1993; Bartlett & Ghoshal, 1995; Otley & Pierce, 1996; Ramaswami, 1996; Spreitzer, 1996; Winter, Sarros & Tanewski, 1997; Cardinal, 2001; Merchant & Van der Stede, 2003), etc.

Much of the contemporary literature on control, however, ignores what are the reasons for control. This question may be of major importance in work settings with innovative working behavior. Traditional organizational literature suggests that formal controls are not appropriate for innovative work setting (Burns & Stalker, 1961; Quinn, 1980; Mintzberg, 1994). Some scholars suggest that control undermines or hinders learning (Argyris, 1977, 1990; Marengo & Pasquali, 2012). Others scholars argue that learning requires organizational control (Cardinal et al., 2004; Sutcliffe, Sitkin & Browning, 2000) and show how MCS can help promote innovation (Bisbe & Otley, 2004; Henri, 2006; Widener, 2007). More recent empirical research finds that formal controls when combined with other forms of control can encourage innovation (Chenhall & Morris, 1995; Simons, 1995a; Henri, 2006; Davila, Foster & Li, 2009). The literature on organizational learning and control is thus still inconclusive. Ditillo (2004) specifically notes that very little is known about the control practices of knowledge-intensive firms.

Earlier literature on reasons for adoption of control (Merchant, 1982; Merchant, 1985) outlines lack of direction, motivational problems, personal limitations and lack of goal congruence (see also Herath, 2007); but also adapt to change and uncertainty; discover irregularities and errors; reduce costs, increase productivity, add value; detect opportunities; deal with complexity; facilitate delegation and teamwork (Kinicki & Williams, 2006). Empirical studies are rare and tend to focus on the evolution of organizational control (Greiner, 1972; Cardinal et al., 2004; Granlund & Taipaleenmaki, 2005; Davila, 2005; etc.), often in specific organizational settings. Davila, Foster and Li (2009) investigated reasons-for-adoption of product development MCS and the role of management control systems in start-up companies (Davila, Foster & Jia, 2015).

The purpose of this study is to enhance our understanding of 'Why managers choose control in IT departments?' Studying the sources of the need for control from the perspective of both the IT managers and their subordinates creates prominent possibilities for learning new things about control in general, and for reconciling organizational learning and control, in particular.

To answer the research question, we develop a multiple embedded case study design based on field research that allowed the replication logic (Yin, 1994). Based on a prior quantitative study of control and trust building behavior in 45 companies with their own IT departments, seven companies were selected with sufficient variability for an in-depth analysis of research question. Data collection methods included questionnaires, interviews, archives and observations. From semi-structured interviews with CIOs/IT managers and their immediate subordinates, representatives from other lines of business, and with some board members, as well as inspection of company documentation and archival records, we propose five different sources of the need for control. We conclude by discussing our findings.

2. METHOD AND DATA

To capture the richness needed to explore how CIOs/IT managers understand control and why they use it, our research design combines quantitative data gathered using questionnaires and qualitative data from interviews.

2.1 Data sources and sample description

In the first phase, a survey-based quantitative study of control and trust building behavior was carried out. The target population was determined by the company size (Slovenian companies with over 1,000 employees selected from the IPIS database) and an innovative work setting (in-company IT departments with at least two managerial levels). Initial target population was supplemented by some companies with less than 1,000 employees but with an in-company IT department. Altogether, the population consisted of 116 companies.

Survey questionnaires were designed to measure constructs with reliable measurement instruments. For example, to measure Machiavellianism, the standard instrument MACH-IV was used (Christie & Geis, 1970); trust in people was measured by the evaluation scale developed by Mayer et al. (1995); risk propensity was measured by the evaluation scale developed by Sitkin in Weingart (1995) and validated by Huff et al. (1997), etc.

A package with an invitation letter and questionnaires was sent to the CIOs. The letter described the purpose of the research, the research process, and the benefits of participating – a written document of the findings. Each company received two types of questionnaires – one for the CIO or the IT manager, and another one for his/her subordinates. In each case, three subordinates were asked to participate as survey respondents.

The response rate was 39 per cent. 45 CIOs/IT managers and 113 subordinate managers returned their questionnaires. While the share of financial services companies is dominant, various other industries are also represented.

In the second phase, the results from the survey-based quantitative study were used to identify companies with sufficient variability for an in-depth analysis of research questions. The field research using case study is the preferred method when the *why* question is being asked about a contemporary phenomenon within some real-life context (Yin, 2003, p. 6). We used a multiple-case research design that permits a replication logic in which cases are treated as experiments, with each serving to confirm or disconfirm inferences drawn from the others. This process typically yields more robust, generalizable theory than single cases (Eisenhardt, 1989; Eisenhardt & Graebner, 2007; Yin, 2003). In addition, the type of phenomenon under investigation required embedded cases, because in each of the studied companies we needed to investigate sources of the need for control at two hierarchical levels (subunits of investigation): the level of the CIO/IT manager and the level of his/her nearest subordinates. Our research design follows the process of building theory from case study research proposed by Eisenhardt (1989).

Based on survey results (by identifying below average, average, and above average values for selected constructs), seven companies were selected. Table 1 summarizes selected characteristics of the sampled companies and their CIOs/IT managers, including their tenure, number of months in current position, and number of months working with current subordinates (up to three subordinates were included in the case study protocol).

Again, an invitation letter with the interview protocol was sent to the CIOs/IT managers. In addition to the survey participants (CIOs and their subordinates), specific interview guides were developed for representatives from other lines of business and also for some board members to capture the detail required to answer the questions. Case studies were carried out in the following six months.

The interviews relied on detailed interview guides listing the questions to be addressed. The relevant interview questions are reproduced in Appendix A. The interview guides insured that the main topics of the research were systematically covered during the conversation, but the semi-structured nature of the interview gave the flexibility of follow-up questions to clarify the particular practices at each company (Marshall & Rossman, 1995). Altogether, 45 interviews were conducted in person lasting from 45 to 75 minutes. They were taped and

Table 1: Characteristics of the second research phase sample companies and their CIOs/IT managers

Company	Industry	Managerial function	Tenure (months)	Months in current position	Months working with up to three current subordinates
1	Banking	CIO	214	152	156, 156, 181
2	Retail	CIO	17	17	17, 17, 17
3	Financial services	CIO	144	24	97, 79
4	Retail	IT manager	96	96	84, 62
5	Metalworking	IT manager	322	10	18, 144, 11
6	Telecommunications	IT systems' support manager	172	66	120, 120, 108
7	Engineering	IT manager	202	162	96, 136, 84

then transcribed. From 20 to 30 pages of transcripts were accumulated for each company.

In addition to survey data and interviews, the research design also triangulates the data using archive documentation (IT department strategic and tactical plans, IT reports, internal rules and regulations for IT departments, memos from meetings, employee satisfactions surveys, and newsletters), public sources, such as the internet, and observation.

2.2 Data analysis

The analysis was structured following recommendations from Miles and Huberman (1994) and Eisenhardt (1989). We first analyzed interview transcripts for consistency and investigated documentations and archival records to highlight any inconsistencies requiring further examination. Then, we began with an in-depth analysis of each case through the lens of our research questions. The interview data were coded to summarize, interpret, and classify information. The main topics covered were identified and a common set of terms was determined. The coding process was exploratory.

We then turned to cross-case analysis, in which the insights that emerged from a specific case were compared to the insights from other cases. This enabled the identification of consistent patterns and

Table 2: Assuring research design quality

Tests	Case study tactic	Phase of research in which tactic occurs
Construct validity	Using multiple sources of evidence	Data collection
	Establishing chain of evidence	Data collection
	Having key informants review draft case study reports	Writing case study report
Internal validity	Pattern matching	Data collection
	Explanation building	Data collection
External validity	Using literal and theoretical replications	Research design
Reliability	Using case study protocol	Data collection
	Case study database	Data collection

Table 3: Understanding of the concept of control

Nr.	Stated understanding	Example	Category
1	Controlling execution of tasks	"It is about gathering information and being informed about the process execution. A manager needs to execute control while activities are taking place to see how activities are proceeding, whether there are any problems, and if subordinates need help."	Controlling execution (EXEC)
2	Identifying problems		
3	Gathering information		
4	Intervening to ensure task completion		
5	Intervening to ensure on-time delivery		
6	Intervening to ensure employee engagement		
7	Checking whether tasks have been completed as planned	"We certainly need control over results – to see whether the planned outcomes have been achieved. Whenever you get an assignment from your superior, you are expected to fulfill it. When your superior checks on results and these are good, it is also good for you. In case the expected results have not been met, sanctions typically follow."	Controlling results (RESU)
8	Checking on the status of the tasks		
9	Reporting results		

themes. The use of multiple sources of evidence enables us to triangulate our findings and thus provide more convincing evidence in our analysis. Table 2 summarizes case study tactics in various phases of research to assure construct validity, external validity, internal validity, and reliability.

The end result of this exploratory process was a set of new typologies that describe the concept of control and different sources of the need for control.

3. THE CONCEPT OF CONTROL

To capture the wholeness of the context within which managers and their respondents perceive the sources of need for control, we first investigated the understanding of the concept of control (see Table 3).

The iterative analysis of cases identified two prevailing categories: (1) control as a process of collecting data and information during the execution of activities (EXEC) and (2) control as an overview of final results (RESU). This is consistent with the common conception of control as either an *ante-factum* exercise to direct managerial activities in the light of pre-knowledge of, or in anticipation of, future circumstances, or a *post-factum* exercise– monitoring the outcome of activity, reviewing feedback, and if necessary, taking corrective actions (Fayol, 1930; Nelson & Machin, 1976). It confirms Ouchi (1979) and Eisenhardt's (1985) finding that control requires information comprising behavior and outcome-based measures.

Table 4: Sources of the need for control

Nr.	Stated reasons	Example	Category
1	Management function as a manager's role	"I would feel awkward not knowing what my subordinates are doing. It is difficult to be informed at all times, but a manager at least needs to have some basic information of where his subordinates are and what they are busy with."	Manager's function as a controller (FUNC)
2	Management function – gathering information		
3	Problems – in crisis situations	"I need control, in particular in specific circumstances, when things go wrong and may further complicate our business processes. In such situations, the extent of control is wider and control is exercised in more detail."	Problematic situations (PROB)
4	Problems – if things are not developing as expected		
5	Problems – when subordinates or co-workers are problematic		
6	Organization – because of the work flow	"Some part of the need for control is dictated from the external environment and internally. While internal push for control exists, it is mainly conditioned by the regulatory factors. Externally, the need for control is only conceptually determined, internally, on the other hand, the need for control is specified more precisely."	Organizational complexity (ORGC)
7	Organization – to monitor co-operation between subordinates		
8	Organization – to establish a formal working environment		
9	Organization – because of the technical organization		
10	Organization - to coordinate subordinates		
11	Personal – as a reflection of one's personal character	"There are managers, who are personally inclined towards control. They have this need to control everybody all the time even by executing cross examinations. These managers are special – for them, control is their motto."	Manager's attitudes (ATTD)
12	Personal – control as a leadership style		
13	Personal – because of individual experiences		
14	Personal – because of lack of trust		
15	Task – because of task/activity importance	"There are different sources of the need for control, but they are always unrelated to manager's personal attitudes. Control is primarily dictated by the nature and volume of work." "Whenever there's a large, important project, we keep tight control over its execution."	Task complexity (TASK)
16	Task – because of task/ activity complexity		
17	Task – because of time constraints		

4. SOURCES OF THE NEED FOR CONTROL

The iterative analysis of data related to the second research question, '*What are the sources of the need for control?*' converged to 17 stated reasons. They reflect experiences of interviewees as to why CIOs/IT managers execute control. These were further categorized into five distinct categories or sources of the need for control (see Table 4): *manager's function as a controller, problematic situations, organizational complexity, manager's personal attitudes,* and *task complexity*.

Some of these categories are similar to findings in extant literature. *Problematic situations* have been identified as the source for the need for control under the label 'crisis' or 'chaos' (Simons, 1995a; Davila, 2009). *Organizational complexity* has roots in Greiner's growth model (1972) and relates to the crisis of leadership because of the increasing number of employees and the complexity of processes that emerge as companies grow. *Manager's attitudes* have been proposed as a major source of variations in the choice of control mechanisms by Lewin and Stephens (1994). *Task complexity* has been identified as an internal source for the need for control under categories such as 'task confidentiality' (Leana, 1986), 'task importance and visibility' (Larson & Callahan, 1990; Leana, 1986), or 'task complexity' (Chenhall, 2003; Haridas, 1979; Leana, 1986). *Manager's function as a controller*, on the other hand, has so far not been identified as a specific source of the need for control.

To unveil the prevalence of specific categories (for the construct 'control' and the sources of the need for control) among studied companies, Table 5 provides an overview of responses from CIOs/IT managers (labelled from D1 to D7) and their subordinates (labelled from S1 to S7).

At this phase, the most important sources of the need for control were control as a management function (FUNC), organizational complexity (ORGC), and task complexity (TASK). After triangulating the data and by keeping only matching responses, Table 6 emerges.

Dark grey shaded responses reveal similarity in responses among companies 1, 2, and 3; light grey shaded responses show similarity in responses among companies 5, 6, and 7. Black shaded responses are common to all companies, while non-shaded responses reflect absence of any consistent pattern (or a pattern, deviating from expectations). Column indicating company 4 is non-shaded because their responses are, in a half of instances, similar to

Table 5: Understanding of control and the sources of the need for control as identified by respondents

Construct	Category	D1	D2	D3	D4	D5	D6	D7	S1	S2	S3	S4	S5	S6	S7
Control	EXEC			1	2	2	1	1	1	3	2	4	3	3	2
	RESU	2	2	2	2			1	2	2	1	2	1	2	1
Reasons for control	FUNC				1	1	2	1	1	1	1	1	1	2	1
	PROB	1	1		1		1		2	1	1	1			
	ORGC	1		2	2		1	1	1		1	4	1	2	1
	ATTD	1		1		1		1		4			1		2
	TASK	1	2	2			2	2	2	1	2	1	1		1

Legend: EXEC = control over execution
RESU = control as an overview of results
FUNC = manager's function as a controller
PROB = problematic situations
ORGC = organizational complexity
ATTD = manager's attitudes
TASK = task complexity
D1 = response from the CIO/IT manager of company 1, D2 = CIO/IT manager of company 2, etc.
S1 = responses from subordinates of company 1, S2 = responses from subordinates of company 2, etc.

Table 6: Results of triangulation

Construct	Category	C1	C2	C3	C4	C5	C6	C7
Control	EXEC			1	2	2	1	1
	RESU	2	2	2	2			1
Reasons for control	FUNK				1	1	2	1
	PROB	1	1		1			
	ORGC	1		2	2		1	1
	ATTD					1		1
	TASK	1	2	2				2

responses from companies 1, 2, and 3, and, in another half of instances, similar to responses from companies 5, 6, and 7. Similarity of responses is met when at least half of respondents in a group express a similar understanding or a pattern of behavior.

It was interesting to find that the understanding of control by companies 1, 2, and 3 is diametrically opposed to the understanding of control in companies 5, 6, and 7. Furthermore, these differences seem to be related to the sources of the need for control:

- In companies 1, 2, and 3, control is related to checking results. CIOs/IT managers use control because of task complexity and problematic situations (often associated with these). They do not use it as their key managerial functions or because of their personal traits (attitudes).
- In companies 5, 6, and 7, however, control is about gathering data and information throughout the execution. In these companies, control is viewed as a key part of the management function and not because of problems or task complexity. In fact, control as a managerial function and manager's personal traits (attitudes) are the two main sources of the need for control for CIOs/IT managers in companies 5, 6, and 7.
- In both groups of companies, however, the most commonly stated source of the need for control is organizational complexity.

We were intrigued by these results. To understand the differences between the first and the second group of companies, we went back to analyze survey responses from these seven companies. We were specifically interested in identifying CIOs/IT managers' attitudes as the sources of the need for control.

Descriptive data analysis provides evidence that *Machiavellianism, faith in people*, and *mistrust* (trusting stance) can help explain the differences between the two groups of companies (see definitions of these constructs in Appendix B). Based on our analysis, we find that managers with explicit trusting stance use control mechanisms in problematic situations, when there are complex tasks, and under the influence of organizational complexity. For them, control is viewed as a means to provide an overview of results (in Table 6, these are managers labelled as D1, D2 and D3). On the other hand, managers with less inclination toward trust see control as an inevitable part of their management function; control is triggered by their personal traits and by organizational complexity. Here, the purpose of control is gaining information and checking the data during the execution of activities (in Table 6, these are managers labelled as D5, D6 and D7).

To be able to hypothesize and model these findings, we investigated interviewees' responses about the impact of various internal and external factors on the sources of the need for control (see Table 7) and the forms of control they were using (Table 8). Formal internal mechanisms (such as internal rules, quality systems, internal control and audits) are relevant in all companies, except for company 5. In most instances, these mechanisms exert positive impact on the need for control. In company 7, leadership style positively impacts on the need for control, while in companies 2 and 5, this impact is negative. In companies 1 and 3 (both from the financial services industry), internal audits are an ad-

ditional internal factor that positively influences the need for control.

External factors reinforce the need for control only in companies 1, 2, 3, and 4. Among these, legislation is stated to be the most influential external determinant of the need for control. In other companies, these factors have a neutral impact.

Results show that the external factors may reinforce the use of control mechanisms which are compatible with the CIOs/IT managers' personal traits, or, on the other hand, stimulate the use of mechanisms that the CIO/IT manager would not have used otherwise. For example, requirements from an external control institution impact on the CIOs/IT managers with an explicit trusting stance to use of a broader selection of control mechanisms; they would have avoided most of these if there was no external pressure. Similarly, organizational culture of mutual trust will stimulate a low trusting stance CIO/IT manager to use less control mechanisms. This confirms Fisher's (1998) claims that the design and use of control mechanism must depend on the company's internal and external environment.

Finally, Table 8 presents six categories of control mechanisms used by the CIOs/IT managers in both groups of companies: organizational structures and procedures (council, committees etc.), rules, supervision, meetings, reports on behavior, and reports on results.

These findings help us draw the following conclusions. In companies 5, 6, and 7, CIOs/IT managers' need for control stems from their perception of control being an inevitable part of their management function. It is their responsibility to gather information about task execution and results. But it also reflects their managerial attitudes, their need to keep everything under control. These reasons for control are further accompanied by specific internal factors, such as quality assurance systems that require formal procedures and periodic assurance controls. Regular supervisions represent the dominant control mechanism in these companies but

Table 7: The impact of internal and external factors on sources of the need for control

	1	2	3	4	5	6	7
Impact	**Internal factors**						
+	Regular monitoring Internal control/audits Internal rules		Internal rules (Org. culture) (Internal control/audits)	Demands from the foreign owner		Internal rules/ Quality systems	Internal rules/ Quality systems Leadership style
0		Internal rules/ Quality systems		Internal rules/ Quality systems			
–		(Leadership style)			(Leadership style) (Org. structure)		
	External factors						
+	External control Risk mgmt. regulation Legislation	Unexpected events	Legislation External control	Legislation Industry Standards			
0		Legislation		(Financial auditing)		(Financial auditing)	(Financial auditing)

Legend: + = positive impact (the factor enhances the need for control)
0 = neutral impact (the factor is present but not relevant for the need for control)
– = negative impact (the factor diminishes the need for control)
( ) = factors stated in brackets were identified only by CIOs/IT managers or their superiors (CEOs)

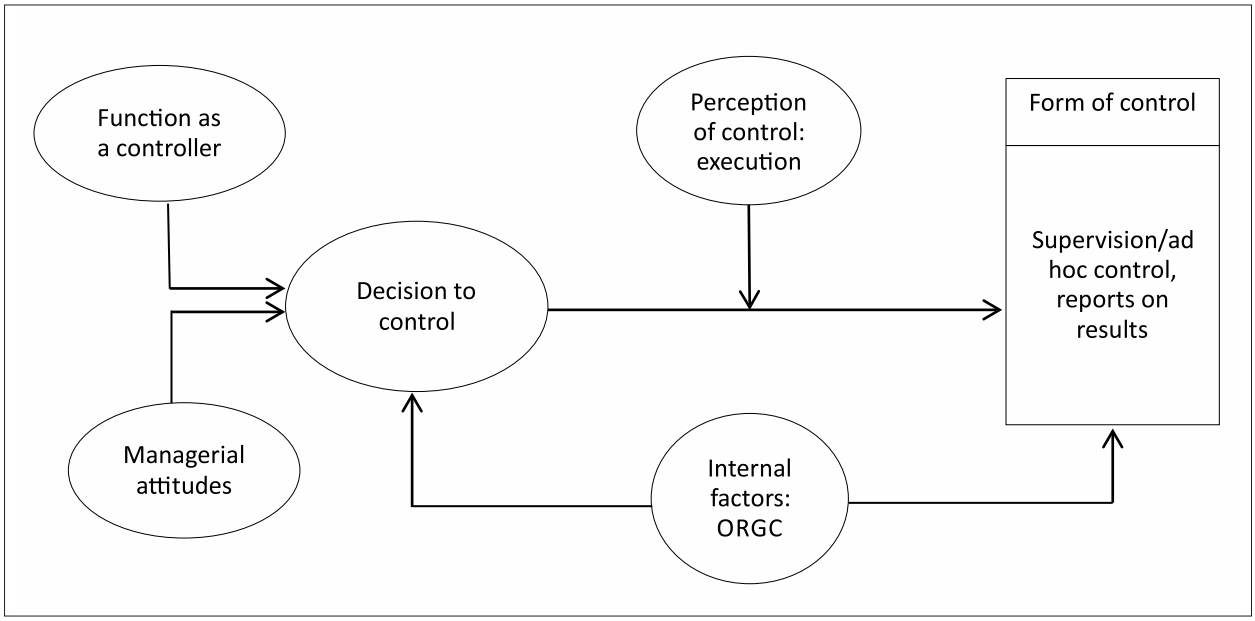
Table 8: The concept of control, sources of the need for control and control mechanisms

Construct	Category	C1	C2	C3	C4	C5	C6	C7
Control	EXEC			1	2	2	1	1
	RESU	2	2	2	2			1
Reasons for control	FUNK				1	1	2	1
	PROB	1	1		1			
	ORGC	1		2	2		1	1
	ATTD					1		1
	TASK	1	2	2				2
Control mechanisms	SUPR	1		3	1		1	2
	REPR	1	2	1	1	1		1
	REPB	1		1	1		1	
	MEET		1		1		1	
	RULE	2		1	1		1	
	ORGA							

Legend: ORGA = organizational structures and procedures (council, committees etc.)
RULE = rules
SUPR = supervision
MEET = meetings
REPB = reports on behavior
REPR = reports on results

they also rely on reports on results. The high importance of regular supervisions is clear—these managers perceive control as the process of assuring that resources are obtained and used efficiently and that the execution is effective. We capture these characteristics in Figure 1.

Figure 1: The form of control process in companies 5, 6, 7

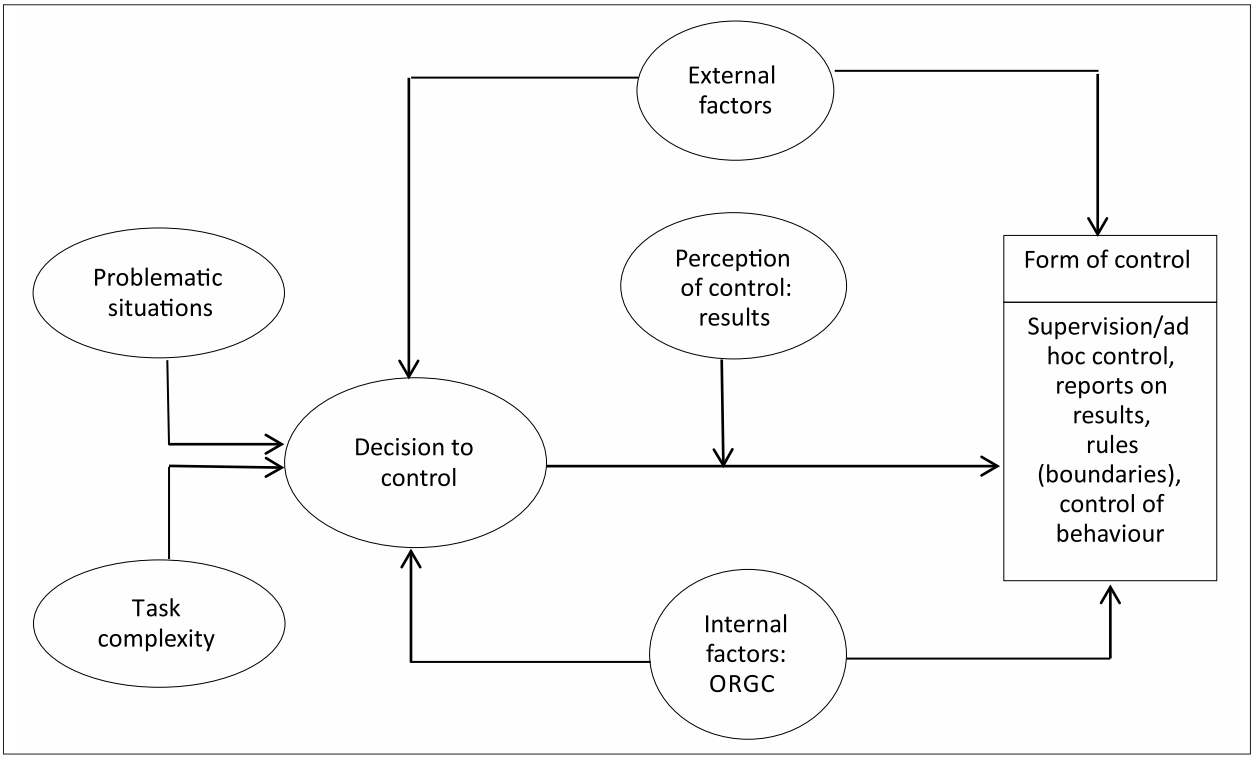


In companies 1, 2, and 3, the need for control is related to other, more varied factors. Foremost, control takes place as a preventive mechanism in complex situations, when tasks are important, complex or confidential (Leana, 1986; Larson & Callahan, 1990; Chenhall, 2003; Haridas, 1979), or when crisis or problems occur (Simons, 1995a; Davila, 2009). In addition to internal factors, in these companies control is enhanced by a number of external factors, as well, such as regulatory requirements and external control institutions that execute periodic oversight of enacted regulations. Because of all these factors, the variety of control mechanisms in use is broader. The CIOs/IT managers understanding of control as a *post-factum* exercise – monitoring the outcomes, reviewing feedback, and taking corrective actions – influences the use of reports on results, internal and external factors, however, impact on the use of other control mechanisms, such as rules, supervision and control of behavior. These connections are outlined in Figure 2.

5. CONCLUSIONS

The paper brings new evidence to the empirical literature on the sources of the need for control in IT departments. We identify five different sources that partially confirm earlier findings: *manager's function as a controller, problematic situations, organizational complexity, manager's personal attitudes* (faith in humanity, trusting stance, and Machiavellianism), and *task complexity*. We find that IT managers with explicit trusting stance use control mechanisms in problematic situations, when there are complex tasks, and under the influence of organizational complexity. These managers use control primarily to overview results. However, even though they perceive control as a *post-factum* exercise, various internal and external factors impact on the use of other control mechanisms, such as rules, supervision and control of behavior. On the other hand, IT managers with less inclination toward trust see control as an inevitable part of their management function; control is triggered by their personal traits and by organizational complexity. These managers use control as a means for gaining information during the process of execution.

Figure 2: The form of control process in companies 1, 2, 3



As with other empirical studies, this one is subject to potential limitations.

We use the case method for this study in order to gain and develop the rich insights developed above. A limitation of the case method is that we are unable to generalize our results to other companies (however, case studies are generalizable to theoretical propositions (Yin, 2003)).

The sample was determined by companies with their own IT departments. Survey respondents and interviewees were CIOs/IT managers, their subordinates, and some other participants. These characteristics make the findings most relevant to companies with similar profiles.

Another important issue in interpreting the results is that the identified sources of the need for control emerge from the analysis of data. We cannot rule out the possibility that other reasons for control may also exist.

The results of this study suggest several avenues for further exploration. First, this study has focused on management control from the CIO/IT managers' and their subordinates' perspective, and is, therefore, silent on other managerial functions. Exploring different settings would extend the empirical basis to formulate a more broadly applicable theory on contemporary sources of the need for control. Moreover, this study can be extended to examine whether sources of the need for control similar to the ones identified in our study are also relevant for other companies. Another extension of the study might address the impact of quality and type of relationships in control function on the use of control mechanisms.

Second, a quantitative empirical work could be performed to provide more generalizable evidence on contemporary sources of the need for control and to validate the two proposed models. The results of this study thus offer initial justification for studying these issues further.

EXTENDED SUMMARY / IZVLEČEK

Sodobnih študij o razlogih, zaradi katerih managerji uporabljajo kontrolo, je malo. To še posebej velja za oddelke, kjer je od zaposlenih pričakovati inovativnost, kot so oddelki raziskave in razvoj ali oddelki za informatiko. Pričujoča študija temelji na raziskovanju mnenj na populaciji (cenzus) in hkrati študiji sedmih primerov. Ciljna populacija so bila velika slovenska podjetja, v katerih so znotraj organizacijske enote za informatiko prisotne vsaj tri ravni vodenja. V anketah so sodelovali managerji informatike in njim neposredno podrejene osebe, v intervjujih pa poleg njih tudi člani uprav, odgovorni za informatiko, in predstavniki uporabnikov oziroma drugih poslovnih funkcij. V anketah je sodelovalo 57 podjetij (tudi toliko managerjev informatike ter 129 njim neposredno podrejenih zaposlencev), v sedmih študijah primerov je bilo izvedenih 45 intervjujev. Podatki študij primerov so bili obdelani z ustreznim kodiranjem odgovorov iz intervjujev in dokumentacije ter s podatkovno analizo v skladu z zahtevami stroke.

Ugotavljamo, da direktorji informatike, ki so manj nagnjeni k zaupanju, kontrolo obravnavajo kot obvezni del managerske funkcije, kot izraz osebnostnih lastnosti in posledico vpliva organizacijskih dejavnikov. Namen kontrole je pridobivanje informacij oziroma preverjanje podatkov. Ker prevladuje razumevanje kontrole kot preverjanje poteka izvajanja nalog, kot oblike kontrole uporabljajo preglede in poročila o rezultatih. Na odločitev o izvajanju kontrole vplivajo tudi notranji dejavniki, npr. vzpostavljen sistem kakovosti, ki terja formalno urejenost procesov, ter periodično preverjanje skladnosti delovanja z dokumentiranimi postopki.

Managerji informatike, ki so bolj nagnjeni k zaupanju, pa uporabljajo mehanizme kontrole, če pride do težav v delovanju, ko gre za zahtevne naloge ali že preventivno, ko so dodeljene naloge podrejenim kompleksne, pomembne in povezane z natančno določenimi roki, in zaradi vpliva organizacijskih dejavnikov. Na kontrolo gledajo kot na pregled rezultatov. Čim bolj so naloge ali odločitve pomembne in kompleksne, intenzivnejša je uporaba mehanizmov kontrole in tudi število vpeljanih mehanizmov je večje. Poleg notranjih dejavnikov imajo tukaj pomembno vlogo tudi zunanji dejavniki,

npr. regulator oziroma nadzorne institucije, ki po eni strani predpisujejo določen tip poročil ali dokumentacije, po drugi pa izvajajo redno preverjanje izvajanja predpisanih postopkov. Kjer managerji informatike razumejo kontrolo predvsem kot preverjanje rezultatov, je poročanje o rezultatih pogosto, ostale oblike kontrole pa so odraz vpliva zunanjih in notranjih dejavnikov. Nabor oblik kontrole je širši kot pri managerjih z manj zaupanja in poleg pregledov ter poročil o rezultatih izvajanja nalog vsebuje tudi formalni okvir (pravilnike, procedure) in poročila o vedenju izvajalcev nalog (na kakšen način se izvajajo naloge).

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Appendix A: Interview Guide Questions

Table 1: Examples of questions from the Interview Guide matching the research questions

Research question	Examples of questions from the Interview Guide matching the research questions
What is control?	• What do you understand under the term 'to control an employee'?
What are the sources of the need for control?	• What drives CIOs/IT managers to use control as a means of managing the IT department? • What determines the choice of various control mechanisms in a manager/subordinate relationship?#Do the various forms of control change over time? Why? • Are there any special events that trigger the use of control? Which are they? • Are there any special situations that require the use of control? Which are they? • How do various organizational factors impact the evolution of control mechanisms? • How do various external factors impact the evolution and use of control mechanisms in your company? • How do these specific internal/external factors determine your relationship with the subordinate/superior? • Have you experienced or noticed any external events that have affected the performance of your department (such as negative publicity, threats, violations of rules, etc.)? • Etc.

Appendix B: Managerial Attitudes

Machiavellianism (Christie et al., 1969) is a particular variant of need for power that involves a preoccupation with matters of hierarchy and a strong desire to control and manipulate people. People high in Machiavellianism believe in the acceptability of treating people as a means toward ends. In addition, people motivated by such needs are often more concerned with their own feelings of control than objective organizational outcomes.

Trust in people (Survey Research Center, 1969) reflects the individual's basic philosophy of human nature – people essentially being good or evil. Managers who believe that human beings are fundamentally good are expected to be less inclined towards supervision and enforcement. Because of their belief that people tend to be basically hard-working by nature, there should be little monitoring of individuals. Theory Y similarly assumes that people will exercise self-direction and self-control in the achievement of organizational objectives to the degree that they are committed to those objectives (McGregor, 1960). It states that employees actually become more productive when more trust and responsibility is delegated to them. Theory Z (Ouchi, 1981), too, assumes that workers can be trusted to do their jobs to their utmost ability, so long as management can be trusted to support them and look out for their well-being. A yet more detailed definition of this construct is provided by McKnight et al. (2004). Dispositional trust is determined by the faith in humanity in general, the faith in humanity of professionals, and the trusting stance.

Risk propensity (Sitkin & Pablo, 1992) describes an individual's attitude toward risk across situations. Individuals with low risk propensity attempt to minimize uncertainty, and avoid high-stake problems.

Uncertainty avoidance (Hofstede, 1993) expresses the degree to which the members of a society feel uncomfortable with uncertainty and ambiguity (compare to tolerance for ambiguity). People with high uncertainty avoidance (low tolerance for ambiguity) prefer to reduce complex issues to more tractable forms and feel compelled to know what their subordinates are doing at all times (Lewin & Stephens, 1994).

Power distance (Hofstede, 1993) expresses the degree to which the less powerful members of a society accept and expect that power is distributed unequally. In a managerial context, this implies, that a manager with a high power distance will tend to implement formal control mechanisms that will keep the hierarchical order or even extend the distance towards his/her subordinates.