

Michel, Lukas; Anzengruber, Johanna; Wölfle, Marco; Hixson, Nick

Article

Under what conditions do rules-based and capability-based management modes dominate?

Risks

Provided in Cooperation with:

MDPI – Multidisciplinary Digital Publishing Institute, Basel

Suggested Citation: Michel, Lukas; Anzengruber, Johanna; Wölfle, Marco; Hixson, Nick (2018) : Under what conditions do rules-based and capability-based management modes dominate?, Risks, ISSN 2227-9091, MDPI, Basel, Vol. 6, Iss. 2, pp. 1-16, <https://doi.org/10.3390/risks6020032>

This Version is available at:

<https://hdl.handle.net/10419/195824>

Standard-Nutzungsbedingungen:

Die Dokumente auf EconStor dürfen zu eigenen wissenschaftlichen Zwecken und zum Privatgebrauch gespeichert und kopiert werden.

Sie dürfen die Dokumente nicht für öffentliche oder kommerzielle Zwecke vervielfältigen, öffentlich ausstellen, öffentlich zugänglich machen, vertreiben oder anderweitig nutzen.

Sofern die Verfasser die Dokumente unter Open-Content-Lizenzen (insbesondere CC-Lizenzen) zur Verfügung gestellt haben sollten, gelten abweichend von diesen Nutzungsbedingungen die in der dort genannten Lizenz gewährten Nutzungsrechte.

Terms of use:

Documents in EconStor may be saved and copied for your personal and scholarly purposes.

You are not to copy documents for public or commercial purposes, to exhibit the documents publicly, to make them publicly available on the internet, or to distribute or otherwise use the documents in public.


If the documents have been made available under an Open Content Licence (especially Creative Commons Licences), you may exercise further usage rights as specified in the indicated licence.



<https://creativecommons.org/licenses/by/4.0/>

Article

Under What Conditions Do Rules-Based and Capability-Based Management Modes Dominate?

Lukas Michel ¹, Johanna Anzengruber ^{2,*} , Marco Wölfle ³ and Nick Hixson ⁴

¹ Agility Insights AG, c/o KD Zug Treuhand AG, Untermüli 7, Postfach 7444, 6302 Zug, Switzerland; michel@agilityinsights.com

² Health-, Social- and Public Management Department, University of Applied Sciences Upper Austria, Garnisonstrasse 21, A-4020 Linz, Austria

³ Center for Real Estate Studies und VWA Business School, Steinbeis University Berlin, Eisenbahnstraße 56, D-79098 Freiburg, Germany; woefle@steinbeis-cres.de

⁴ Hixsons Limited, 24 Cecil Avenue, Bournemouth, Dorset BH8 9EJ, UK; nick@hixsons.co.uk

* Correspondence: johanna.anzengruber@fh-linz.at; Tel.: +43-(0)50-804-52450

Received: 23 January 2018; Accepted: 30 March 2018; Published: 4 April 2018



Abstract: Despite real changes in the work place and the negative consequences of prevailing hierarchical structures with rigid management systems, little attention has yet been paid to shifting management modes to accommodate the dynamics of the external environment, particularly when a firm's operating environment demands a high degree of flexibility. Building on the resource-based view as a basis for competitive advantage, we posit that differences in the stability of an organization's environment and the degree of managerial control explain variations in the management mode used in firms. Unlike other studies which mainly focus on either the dynamics of the external environment or management control, we have developed a theoretical model combining both streams of research, in a context frame to describe under what conditions firms engage in rules-based, change-based, engagement-based and capability-based management modes. To test our theoretical framework, we conducted a survey with 54 firms in various industries and nations on how their organizations cope with a dynamic environment and what management style they used in response. Our study reveals that the appropriate mode can be determined by analyzing purpose, motivation, knowledge and information, as well as the degree of complexity, volatility and uncertainty the firm is exposed to. With our framework, we attempt to advance the understanding of when organizations should adapt their management style to the changing business environment.

Keywords: capabilities; management style; dynamics; change; engagement; VUCA; volatility; uncertainty; complexity

1. Introduction

Conceptual papers and empirical studies have provided compelling arguments and evidence for the negative consequences of hierarchical structures and rigid management systems (Hugos 2009), particularly when the operating environment of an organization demands a high degree of flexibility (Grantham et al. 2007). Today, given that many rules-based systems face more complex situations with a higher frequency as compared to the past, the effect of their actions and outcomes can be optimized, as these kinds of organizations are not equipped to perform in environments with high uncertainty, volatility and ambiguity (Benkler 2006; Tushman and Nadler 1977). While back in the industrial era, organizations created competitive advantage through activities for greater stability, efficiency and control, since then, the focus has shifted to faster learning and innovation (Pralhad and Krishnan 2008; Schramm 2006). No company can control all the resources needed for innovation (Pralhad and

Krishnan 2008), hence, organizations increasingly need collaborative approaches often with resources from outside a firm's boundary (Doz and Hamel 1998). Consequently, organizations need to engage in strategies aimed at adapting their modes of operation to the dynamics of the external environment.

Despite more and more emphasis in the literature on how organizations can cope with the changing dynamics and foster capability-building (Bijlsma-Frankema et al. 2008; Fleming and Waguespack 2007; O'Mahony and Ferraro 2007), research streams reveal that these arguments are mainly theoretical and conceptual in nature. To our knowledge, very few studies and practical examples have been published so far.

To address this issue, we conduct a conceptual and quantitative study using a sample of 54 firms to explore under what conditions capabilities and rules-based management modes dominate. We characterize these firms accordingly.

Acknowledging the research regarding the rules-based management mode, more emphasis will be given to the capabilities mode. The main focus of this paper, therefore, is to develop a framework showing the contingent variables that push management from a traditional control approach to a more capabilities-based operations mode. The remainder of the paper is organized as follows: First, we summarize the existing literature that enables us to develop our framework. Next, we describe our framework and its elements and generate the empirical evidence for each of the four modes, before we summarize our results and discuss the implications. The final section points out some limitations and avenues for future research.

2. Literature Review

Management has traditionally been hierarchical with dominant command and control-oriented models creating competitive advantage (Chandler 1977; Thompson 2003). In such settings, the primary function of the manager rested with organizing, planning, coordinating, and controlling (Fayol 1949). In general, management has been grounded in the transaction cost theory with hierarchy as a means of controlling action in markets and the rational choice models of human behaviors derived from agency theory with the need to reconcile self-interest with company interests (Ouchi 1981; Eisenhardt 1985). In competitive, market-driven situations, market controls with transfer prices, incentives, and results-based performance programs align motivations and actions of employees with organizational goals. In such a context, management is seen as the alignment of capabilities, activities, and performance with organizational goals (Cardinal et al. 2004). However, such management interventions are to a certain extent reactive rather than proactive in the use of information as a means to anticipate change (Sitkin et al. 1994). High transaction, information and communication costs and the challenges in aligning management with the interests of humans have been constraints on the speed of decisions for innovation, the flexibility to adapt to a changing environment and robust behaviors (Tushman and Nadler 1977). However, over the past decades, technology developments have reduced costs for information search, computation and storage while, at the same time, offered enhanced connectivity resulting in quicker decision-making and early market signals detection within organizations (Altmann et al. 2003). Moreover, firms now have the means to engage professionals, customers and communities remotely in activities to search for new opportunities, which allows them to flexibly act on information using robust managerial responses in a rapidly changing environment. In addition, the move from scarcity to over-supply has strengthened the ability to innovate, to anticipate customer expectation changes and to create distinct, qualifying elements for the company offering. As a result of these developments, the need for balance and control as well as the need for flexible adjustment to the various production and market contexts have arisen (Salvioni 2005).

Simultaneously, human-centered perspectives have dramatically increased based on the behavioral theory of the firm that stresses goals, expectations and choice (Cyert and March 1963) and the resource-based view with a focus on valuable resources and capabilities as means to build competitive advantage (Barney 1991). Where the company was the focal actor in the traditional organization, innovation now happens in communities, often outside traditional firm boundaries

(Baldwin and von Hippel 2011; Benkler 2006). Market-driven management emerged as one of the forms which focuses on creating a superior ability to understand, attract and maintain customers and stakeholders (Day 1999) and exploiting resources (Hult and Ketchen 2001). The goal is to offer better value for customers than competition (Brondoni 2005; Day 1999) and foster stakeholder engagement to improve competitive capabilities while taking environmental expectations into account (Day 1999). According to Sciarelli, “market-driven businesses have collaborative leadership styles, decentralized organizational structures with strong interactions and collaboration between the units, information flows for the effective spread of knowledge, and strategic planning mechanisms based on task-oriented teams” (Sciarelli 2008, p. 69).

In a modern people-centric and knowledge-driven environment, traditional formal control approaches lose their function as prime governance devices (Weibel 2010). Ease of communication permits a management style rooted in free choice, sharing, transparency, absence of both formal boundaries and hierarchy. Self-determination (Ryan and Deci 2000) and empowerment (Spreitzer 1995) suggest that autonomy is a key motivator for people to perform. Alternatively, in reverse, choice is a prerequisite for self-responsibility. To coordinate individual, team and community action, sense-making becomes an important management tool in a people-centric environment (Weick 1995). Feedback systems are needed in support of individual and organizational learning and as a means of competence enhancing control (Sitkin et al. 1994).

In contexts with low information and communications cost and where knowledge work dominates, peer-based dynamic capabilities-based management displaces rules-based management (Benkler 2006) with an emphasis to “continuously integrate, reconfigure, renew, and recreate a company’s resources and capabilities, focusing on upgrading and reconstructing its core capabilities in line with a dynamic, changing environment, and to obtain and sustain competitive advantage” (Wang and Ahmed 2007, p. 35). In these settings with radically delegated decision-making, organizations invest in people, peer-based control and learning. Hence, all three forms of intellectual capital—human, structural and relational capital—are crucial to enhance a firm’s capacity to create and apply its knowledge base and to create synergies and growth (Dean and Kretschmer 2007). Dynamic capabilities-based work environments are based on a shared mindset, a high level of trust, strong relationships and joint purpose. Individual and team-based decision-making dependent on the ability to focus attention (Ocasio 1997). The inner game (Gallwey 2000) provides a practice model for expedited learning with a focus on limited attention (Simon 1957), choice based on autonomy (Ryan et al. 1995), and trust in the team in form of belongingness (Bijlsma-Frankema et al. 2008) at its core. Such decentralized, collaborative and self-organizing capabilities-based management approaches are in a sharp contrast to rules-based management dominated by traditional managers. Capabilities-based management energizes people through a blend of intrinsic and extrinsic motivations, and human interactions are mainly online. In capability contexts, self-selection drives both participation and effort (Boudreau Kevin and Lakhani 2009; Von Krogh et al. 2003). As such, self-organized communities develop their own emergent social structures (Fleming and Waguespack 2007; O’Mahony and Ferraro 2007). Communities are self-motivated, self-selected and self-governed (Boudreau et al. 2011; Von Krogh et al. 2003). In this setting, communities have a dramatic effect on outcomes (Lakhami and Hippel 2003).

Under what conditions do capabilities and rules-based management modes dominate? Based on a control approach, Ouchi (1977, 1979) with the foundation of (Williamson 1975), has developed three types of control with three specific loci of management: market, bureaucracy and clan. In a dynamic market environment, managers primarily focus on evaluating transaction outcomes rather than how well subordinates adhere to organizational rules and norms as promoted by the transactional leadership style (Ouchi 1979). In contrast, bureaucratic control emphasizes the specification, monitoring, and enforcement of rules (Ouchi and Price 1978).

In fast moving, volatile and uncertain environment, the associated capability management approach is widely different to the market-driven change context where control dominates. In a

stable environment, when knowledge work dominates, creating a work environment that enables people to effectively apply their knowledge is fundamentally different as compared to when work is highly standardized and managers take control. Figure 1 shows these four operations modes in their specific context.

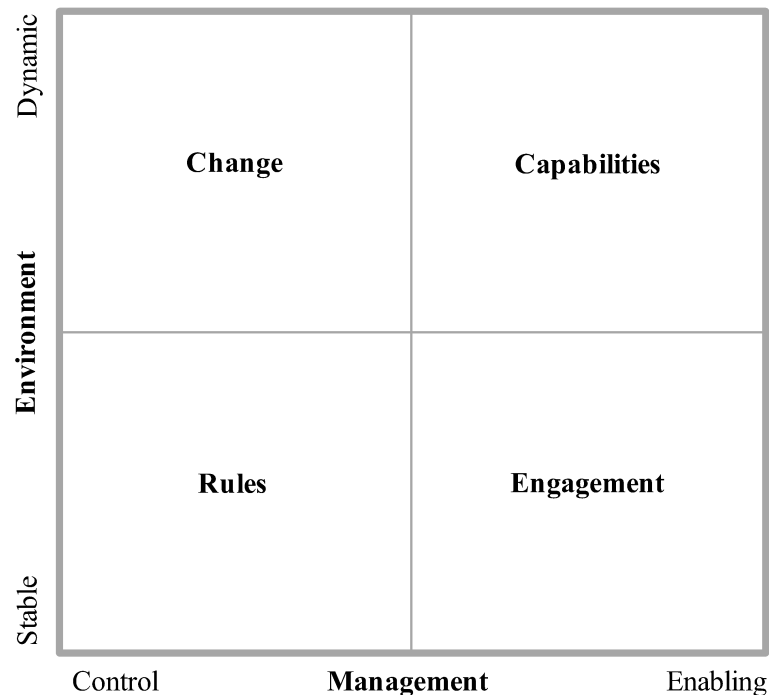


Figure 1. The context frame.

Traditional means of management control are appropriate in some circumstances but not in others (Kirsch and Choudhury 2010, Kreuzer and Lechner 2010, Long 2010). It has long been argued that, in an increasingly dynamic environment, firms can build competitive advantage by engaging and empowering employees at the client interface rather than to control and command them (Hope and Player 2012). Rapid recognition of contextual change, speedy decisions, and learning over time become synonymous with the practices that facilitate organizational learning (Sitkin et al. 1994, p. 558). This is why we complement the bureaucracy and market approaches with capabilities-based management.

In a stable environment where knowledge is concentrated with managers, traditional rules-based decision-making (the thinking) and control of employees implementing action (the doing) dominate. The thinking and doing are separated, which legitimizes managerial control through bureaucracy. Bureaucratic control applies formal control mechanisms, such as rules and regulations, specialized jobs, and hierarchies (Lebas and Weigenstein 1986; Weber 1946). As such, standardized routines, rules and tools for physical activities and decision-making (Sutcliffe and McNamara 2001) deliver predetermined actions by coordinating individual activities (Ocasio and Wohlgezogen 2010). Moreover, rules and procedures facilitate the assignment of resources, the allocation of tasks, the coordination of activities, and the assessment of performance. (Arrow 1974). Rules-based management is a means to constitute a stable organizational platform from which control is exercised (Weber 1978). For example, imagine flying an airplane. No passenger would want the pilot to become creative and innovative in his job. The expectations are that he follows clear standards and rules. On the other hand, in a case of emergency, any passenger would expect that the pilot applies his knowledge to address the problem. A stable rules-based platform is, in many contexts, a prerequisite for higher organizational agility. Consequently, companies can blend rules-based management with other approaches as the context required.

In a dynamic market environment that requires direct intervention, change-based management dominates. Change modes operate in a market control setting where managers alter the resource base, align interests through incentives, and restructure accountabilities in response to market changes (Ouchi (1975, 1979)). For example, consumer banks and insurance firms are known for management action in response to market changes as they frequently restructure their operations to alter their competitive positions based on small changes in prices. However, the evidence for the success of change-based approaches is thin. In 1995, Kotter's research indicates that only 30% of change programs succeed (Kotter 1995). This is confirmed by surveys of the McKinsey & Company in 2008 (Keller and Aiken 2009). Firms in the change mode face the challenge that, once their change is completed, they find themselves at the beginning of the next change to adapt to yet another change in the market.

In the context of a knowledge driven working environment with little change, management with people enabling engagement-based approaches dominate. Engagement methods emphasize informal clan controls on inputs, behaviors and outputs to align individual interests through visions, beliefs, boundaries and values. As Simons (1995) articulates, "in the absence of management action, self-interested behavior at the expense of organizational goals is inevitable". He adds, "Argyris (1985) work on defensive routines is one of the few attempts to reconcile the paradox of the central tendency". In the setting where individual people-centric management dominates, identity is an important driver of behaviors: consequently, it is the basis for control. For example, for many years, executives of the World Economic Forum have emphasized their mission to "improve the state of the world" as an effective means to attract and retain a high level of talent to manage the operations of the event.

In dynamic and enabling contexts, based on low costs of information with remote interactions in an engaging environment, traditional rules-based management approaches are not effective. Under these conditions, capabilities-based management transforms organizations in support of fast decision-making and proactive, flexible action which lead to robust outcomes. Dynamic capabilities refer to a firm's ability to integrate, establish and redeploy internal and external resources to be able to recreate new market opportunities (Teece 1998; Eisenhardt and Martin 2000). According to Quinn (1999), dynamic capabilities are important for a company to be able to cope with changes in the environment by delivering the right person at the right time with the right knowledge. This can best be achieved through self-managed workgroups and wider spans of control which have decreased the importance of direct managerial influence and increased the interpersonal influence and lateral coordination to direct and motivate work (Pfeffer 1997). This requires peer control as the process, where peers direct attention, motivate, and encourage performance in ways that is desirable to those who initiate the control (Loughry 2010). There is plenty of evidence of legacy firms in high-technology sectors that increasingly separate entire communities of experts in start-up settings as a means of fast development and agile responses where innovation flourishes. To ensure the robustness of these constructs and to withstand external shocks, they develop such underlying capabilities as a model that combines legacy with new forms of management.

What are the contingent variables that push management from a traditional control approach to a more capabilities operations mode? As the operating contexts of organizations become more fluid, managerial models including control may need to change accordingly (Child and McGrath 2001; Towry 2003). There is wide consensus that businesses in a dynamic environment need flexibility in their decision-making, planning and implementation which traditional control fails to deliver (Hope and Player 2012). The managerial context in which many firms operate today includes organizational work with a focus on knowledge with greater uncertainty in process and goals, with greater independence among individuals and, therefore, team-oriented work. Teams may span departments, divisions, or even organizations, and are often distributed across the globe (Bigley and Roberts 2001). Hence, we suggest that the fundamental choices for the selection the right mode of operations are the degree of the external challenges and the distribution of knowledge in organization.

In a stable environment where knowledge is highly concentrated, the logic of rules-based control applies. Under these conditions, managers are in control. They refine their decision-making and

planning as a stable platform from where they decide, act and control as the situation requires (Scott 1992; Cyert and March 1963; Merchand 1985). The speed of decisions and the flexibility of their actions depends on the ability to search for information and knowledge predominantly from within the firm (Barrand 2006). Their culture and styles are internally focused. When volatility, uncertainty and ambiguities increase, the locus of management shifts from control to change-based approaches to quickly adapt to the new environment (Barrand 2006; Joroff et al. 2003). Under these conditions, managers restructure, re-allocate resources, and refine processes as a means to react to a new environmental situation (Hamel and Prahalad 1999; Kotter 1995). However, learning does not take place. In contrast, when knowledge is widely distributed, and complexity increases, the locus of management shifts from the engagement mode to the capabilities-based mode enabling collaboration, relationship building paired with a deep sense of purpose (Charbonnier-Voirin 2001). Complex structures are replaced by self-organized communities of work (Beer 1981; Kaufmann 1993). They use inexpensive information and communications in remote work environments to sense opportunities early, act on weak market signals flexibly and based on robust capabilities that help them withstand external shocks (Altmann et al. 2003).

The capabilities context represents even more common conditions for management. Under these conditions, capabilities replace rule-based management. The capabilities mode, enabled by low information and interaction costs, has transformed the way people work and their social relations (Benkler 2006). Traditional management models need to incorporate manager-initiated and peer-based controls (Kirsch and Choudhury 2010). Management and organizational theory is firmly rooted in control, transaction costs, and the minimization of dependence on its context. The literature around management has evolved around a product and efficiency focus driven by a stable environment with high costs of information and concentrated knowledge. However, the contextual reality of many companies today is outside that tradition. It is inconceivable that today's management models reflect the reality in a world that is even more connected with highly skilled people that best work in small communities. The capabilities-based mode makes fundamentally different assumptions. It is at least a complement, if not a replacement of rules-based management. If so, the theories of management and organization must include the capabilities-based mode as a means for higher speed, agility and resilience.

The past decade has witnessed radical changes in the context in which firms operate. Digitalization and the changing nature of work are the drivers. Traditional management models based on control may be ineffective or inaccurate in an environment that requires a work environment for fast, agile and robust responses in support of a people-centric learning. Where the control of people is the focus in a rules-based environment, self-organized community management shifts the focus to the capabilities mode of operations. The management approach of a community fundamentally differs from the rules-based environment (Benkler 2006). Thus, managerial and organizational theories need to include the tension between these contrasting modes.

3. Methodology

For our empirical investigation, we used quantitative research methodologies, as we attempted to test the dimensionality of the four modes with Principal Component Analysis (Roussel 1996) as it is a common method to characterize dimensions. To operationalize the four modes, we identified seven items from the literature (Appendix A) and formulated them into a two-sided questionnaire: The way people are energized (Purpose), where control originates (Motivation), where knowledge resides (Knowledge), and how information is shared (Information) are the factors that we related to management. The way an organization deals with their internal complexity (Complexity), how it adapts to ever changing markets (Volatility) and how it copes with uncertainty (Uncertainty) are the factors that represented the environment dimension of the context framework.

In total, the survey was directed at 102 companies, of which 54 (Table 1) responded (response rate of 53%) belonging to: Technology; Logistics and Infrastructure; Pharma and Chemicals; Professional

Services; Telecom; Financial Services; Manufacturing BtoB; Consumer BtoC; Public Services; Education; Healthcare; Resources; and Tourism and Media. We used a cross-firm research setting, to be able to provide greater generalizability. In this survey, the top managers were asked to assess how their organizations cope with a dynamic environment and what management style they used as a response. Participants evaluated each question on a 9-point scale (from 1 to 9), where 1 indicated clearly self-directing and 9 clearly controlling for the management mode, and where 1 indicated clearly that the company acts in a completely stable environment and 9 in a completely dynamic environment. Individual scores of each top management team were later aggregated on a firm level by calculating average firm scores. The data used for this analysis are a small part of a larger survey conducted online (distributed via e-mail and link) over 10 years, from 2006 and 2015, and was open for participation for 15 days on average for each company. Before it was released, several pre-tests had been run with 7 anonymous respondents to enhance the quality of this methodological means. A few adjustments had to be made to further upgrade it. More than half of participating 54 companies had public shareholders, the other owner managed businesses. Forty-four were from Europe, eight from US and Canada, and two from Asia. The data were provided anonymously to the authors in the context of the survey.

Table 1. Data demography.

Organizations	54
Participants	15 companies with 1 to 5 participants; 28 companies with 6 to 19 participants; 7 companies with 20–99 participants; 3 companies with 100–999 participants; 1 company with more than 1000 participants
Time period	2006 through 2015
Industries	Technology (12 companies); Logistics and Infrastructure (7); Pharma and Chemicals (6); Professional Services (6); Telecom (5); Financial Services (4); Manufacturing BtoB (4); Consumer BtoC (3); Public Services (3); Education (1); Healthcare (1); Resources (1); Tourism and Media (1)
Firm size (Number of employees)	1–99 (16 companies); 100–999 (11); 1000–9999 (3); >10,000 (24)
Life cycle stage	Creativity/Start-up (7 companies); Direction (4); Delegation (20); Coordination (16); Collaboration (7)
Country (of origin)	Europe (44 companies); US/Canada (8); Asia (2)
Ownership	Public shareholders (32 companies); Owner managed/Family (18); Public services (2); Foundations/NGO (2)
Scope	Global (13 companies); International (17); Regional (13); Local (11)

4. Results

Tables 2 and 3 show the descriptive statistics and the correlations. They were carried out on seven items identified in the literature, comprising of seven items. These were: (1) Purpose; (2) Motivation; (3) Knowledge; (4) Information; (5) Complexity; (6) Volatility; and (7) Uncertainty.

In general, we found strong relationships between the variables, separating into two groups. Table 3 shows Pearson correlations for our set of variables with asterisks indicating significance at 0.1, 0.05, and 0.01 (*, **, and ***, respectively). As can be seen, the data represent an ideal set for exploratory factor analysis. Within the upper left and the lower right corner, a substantial number of highly significant relationships can be found for the variables. While one group is formed by engagement, motivation, knowledge and information, the other group is formed by complexity, volatility and uncertainty. Volatility and uncertainty yield correlations beyond 59%, while information and knowledge amount to 54%.

Table 2. Descriptive statistics.

Number	Questions	Observations	Mean	Std. Dev.	Min.	Max.
1 Purpose	We hire talent by offering attractive salary, benefits, and bonuses vs. The right talents join us because they identify with what we do and for our contribution to society	54	52.06777	21.21753	10	90
2 Motivation	When people work long hours it is because they are seeking to get ahead and/or to get larger bonus vs. When people work long hours it is because they enjoy their work	54	51.09919	21.72813	10	90
3 Knowledge	Managers prefer to rely on their own experience and knowledge vs. Managers prefer to tap into the collective wisdom of their team and other sources	54	49.68359	20.91084	10	90
4 Information	We assume that information (budgets, quality, goals) are confidential and provided on a need-to-know basis vs. We assume that information about internal processes is available and open for discussion	54	49.15999	24.00034	10	90
5 Complexity	Normally, we achieve results through formal management processes that coordinate our work and efforts vs. As complexity rises, we achieve results through informal and spontaneous coordination and by individuals that act in the best interest	54	54.06669	20.81504	10	90
6 Volatility	Cost savings, high productivity, and efficiency are our ways to respond to change vs. Flexibility, room to move, and learning are the means to deal with a volatile market environment	54	59.11815	23.07328	10	90
7 Uncertainty	The accountability for the decision-making rests with specific individuals when clarity and speed matter vs. In uncertain situations, decision-making is viewed as a collective responsibility with teams	54	51.39787	27.07854	10	99

Table 3. Correlation.

Items	Purpose	Motivation	Knowledge	Information	Complexity	Volatility	Uncertainty
Purpose	1						
Motivation	0.4923 ***	1					
Knowledge	0.4045 ***	0.4061 ***	1				
Information	0.3538 ***	0.3825 ***	0.5406 ***	1			
Complexity	0.2469 *	0.0876	0.2852 **	0.3533 ***	1		
Volatility	0.0749	0.2597 *	0.4138 ***	0.0862	0.3436 **	1	
Uncertainty	0.0556	0.1682	0.4773 ***	0.1825	0.4837 ***	0.5989 ***	1

The Table reports Pearson correlations, where * denotes significance at 0.1, ** at 0.05 and *** at 0.01.

Two factors appeared after the first iteration of the explorative factor analysis in Table 4: One related to items representing the management practices implemented to control or self-direct the organization. The second one corresponded to the practices aimed at the capacity of an organization to deal with the different kinds of environment settings. There was no cross-loading of the items on these factors. The reliability analysis was assessed by a Cronbach's alpha value of 0.73. The factor loadings for the items ranged from 0.537 to 0.809. The results seemed coherent with the literature. The first dimension "management" is dedicated to purpose, motivation, knowledge and information. The results for the exploratory factor analysis for the dimension "environment" show complexity, volatility and uncertainty as the dominant variables represented internal and external managerial challenges.

Table 4. Exploratory factor analysis data.

Number	Questions		Factor 1: Management	Factor 2: Environment
1 Purpose	We hire talent by offering attractive salary, benefits, and bonuses	vs.	The right talents join us because they identify with what we do and for our contribution to society	0.714 0.064
2 Motivation	When people work long hours it is because they are seeking to get ahead and/or to get larger bonus	vs.	When people work long hours it is because they enjoy their work	0.774 −0.106
3 Knowledge	Managers prefer to rely on their own experience and knowledge	vs.	Managers prefer to tap into the collective wisdom of their team and other sources	0.694 0.402
4 Information	We assume that information (budgets, quality, goals) are confidential and provided on a need-to-know basis	vs.	We assume that information about internal processes is available and open for discussion	0.765 0.026
5 Complexity	Normally, we achieve results through formal management processes that coordinate our work and efforts	vs.	As complexity rises, we achieve results through informal and spontaneous coordination and by individuals that act in the best interest	0.369 0.537
6 Volatility	Cost savings, high productivity, and efficiency are our ways to respond to change	vs.	Flexibility, room to move, and learning are the means to deal with a volatile market environment	0.165 0.809
7 Uncertainty	The accountability for the decision-making rests with specific individuals when clarity and speed matter	vs.	In uncertain situations, decision-making is viewed as a collective responsibility with teams	0.254 0.732

In this sample, 40% of companies operate in a stable environment with either rules-based or engagement-based modes. More than half of the companies operate in the controlling (55%) mode and 45% in the enabling context. In other words, the results show the following distribution among the surveyed firms: An equal number of firms (20%) sees themselves still functioning in a rule-based mode, with 20% of the firms place themselves in the engagement-based category. A large share of 35% of the assessed organizations believe that they work in a change mode, therefore 25% are in a capability-based setting.

Two thirds of the very large companies and a large part of the medium size companies in our sample operate in a stable environment with rules-based and engagement-based modes, whereas two thirds of the small firms compete in a dynamic environment in the change and capabilities modes. The technology sector splits into two modes: traditional technology firms that operate in a rules-based environment and high-technology firms that compete on capabilities in a dynamic environment with high employee engagement. The pharma and chemicals sector splits into companies in a stable environment and those that operate in a change mode, constantly adapting to new external challenges. All public services firms in the sample are found in a constant change mode. While companies in their early life cycles stage operate in a people-centric, engaging mode, as they grow, they favor direction with a rules-based management mode. At the delegation life cycle stage, companies compete in all four modes. At the coordination stage, management action dominates with companies that operate in a stable environment with a predominant rules-based approach. Publically owned, shareholder driven companies predominantly operate in a mode that fits a stable environment, whereas owner managed firms are in all four modes.

In essence, the demography of the companies in the four operating modes by size, industry sectors, life cycle stage, and type of ownership indicate clear patterns. For example, small and medium size companies in the technology and professional services sectors which are in their birth and consolidation stages, find themselves very often in a capabilities-based mode. Low cost information and easy remote access facilitate transparent knowledge work by self-determined teams, communities

or network arrangements fostering high agility and speed. In contrast, rules-based modes work in a stable environment with a certain degree of predictability about the market development. For example, many large and complex public companies in mature industries fit this context. Extrinsically motivated management control with concentrated knowledge works through formal rules to ensure high efficiency and scale benefits.

5. Discussion

This research project was designed to build a framework for studying management modes with a focus on managerial control. As outlined in this paper, when the organizational context becomes more complex, managerial processes and control need to change accordingly (Child and McGrath 2001; Towry 2003). Today, most companies face a volatile and uncertain market environment with managers favoring people-centric approaches driven by increasing digitalization (Greenstein 2010) and the changing nature of work (Weibel 2010). While a body of research exists with a focus on changing market dynamics and capability building, most of it has been studied without comparing and contrasting different modes of management. The study discussed in this article corrects this one-dimensional view. We conducted this conceptual and quantitative study to contribute to the shifting focus of research and practice to management and capability development by proposing a framework that determines the degree to which companies can be characterized as part of one of four distinct management modes.

This objective was accomplished by measuring the 54 firms in this study with regard to purpose, motivation, knowledge and information, as well as their degree of exposure to complexity, volatility and uncertainty. Then, the above stated environmental and managerial factors were combined into a context frame with a locus that aligns with a stable or dynamic environment and with controlling or enabling management. The four arising context-based management modes (rules-based, engagement-based, change-based, and capabilities-based management) involve combinations of controlling or enabling management (e.g., how employees are energized; from where motivation is initiated; where the knowledge resides; and how information is shared) and whether the environment is a stable or dynamic (e.g., how the organization structures work to deal with complexity; how it responds to volatility; and how it makes decisions to deal with uncertainty). We suggest that such a framework provides a more comprehensive interpretation of managerial control approaches at the intersection of the environmental context and the managerial response.

This approach offers certain advantages. First, as discussed, a stable or dynamic environment and controlling or enabling management provides distinct metrics upon which managerial control approaches can be categorized. As shown in this study, approximately half of the companies analyzed have a controlling mode and the other half an enabling mode installed. Second, once categorized, businesses can be analyzed for differences in their management style. While many firms (20% in our sample) see themselves as still functioning in a rules-based mode, the same amount of firms (20%) place themselves in the engagement-based category. Most of the assessed organizations (35%) believe that they work in a change mode, therefore 25% are in a capabilities-based setting.

5.1. Contribution to the Literature and Practical Implications

The issue of what drives managerial change is an important and under-researched topic (Hamel 2008). The examination of different modes is needed to understand when and where a rules-based, engagement-based, change-based, and capabilities-based management mode is appropriate. As multiple configurations can lead to the success of the firm, we analyzed the conditions under which they do by drawing upon the Resource Based View (Barney 1991) of management. This study has confirmed the arguments of previous researchers showing that purpose, motivation, knowledge and information are factors that represent management practices implemented to control or self-direct people. Complexity, volatility and uncertainty correspond to the different environmental settings with practices aimed for the organization to deal with the respective settings.

By meeting the main objective above, this study has provided a method for determining the management mode of companies by analyzing their purpose, motivation, knowledge and information and the degree of exposure to complexity, volatility and uncertainty.

This study extends the empirical finding on how to successfully upgrade, reconfigure and renew its managerial capabilities to sustain competitive advantage (Wang and Ahmed 2007) by determining the seven items that describe managerial control.

Furthermore, we contribute to the management systems and design literature by providing a framework for faster learning for companies to adapt to a new environment with a mental model on how to think about the contextual settings and their implications on systems and management design. In addition, there is conceptual research available on dynamic capabilities but little quantitative evidence and practical examples (Charbonnier-Voirin 2001). We contribute to the dynamic capabilities literature by providing a framework that allows contrasting comparisons of managerial modes be it as case studies or quantitative research on practices that integrate organizational behaviors, capabilities and performance outcomes (Franco-Santos et al. 2012).

This study has important managerial implications. There is wide agreement that achieving competitive advantage requires organizations to adapt to the changing business environment. Our study highlights the importance of addressing both the environmental context in which companies operate and their managerial response to the new working environment. Specifically, our study suggests that, today, many rules-based companies, operating in a far more complex and fast changing environment, can optimize their approach to deliver their expected outcomes. The context framework offers a practical tool for managers to evaluate the current mode of operations of their organization along the dimensions environment and management styles. It further serves as a straight-forward conversation tool for managers about the desired mode of operation and offers paths along which the transition from old to new can be accomplished when external challenges change, and knowledge becomes a more important differentiator. These paths include responses to how leaders engage people, how work is coordinated, how goals are set, and how decisions are made.

We argue that the context framework presents a further mechanism to link an organization's management mode with managerial practices. For examples, when complexity, volatility and uncertainty rise, it is important that management builds on emergent, spontaneous and self-organized coordination of work rather than to introduce more routines and rules. In addition, radical decentralization adds the necessary speed to address a rapidly changing environment. When knowledge is distributed to employees, teams or communities and remote work changes the work environment, then management should rely on self-motivated, purpose driven employees allowing self-directed work with choice which leads to higher performance (Gallwey 2000).

The theoretical model we outline can help inform organizations and managers on choosing a management mode with controls, routines and tools that meets the needs of its context. An organization's choice of control should be driven by the context in which it operates (Ouchi 1977, 1979). For example, objectives agreements for the capabilities-mode requires team-based metrics with peer-reviews as compared to the rules-based mode where objectives are individual dependent on management feedback and that are often linked to incentive plans. Planning in the capabilities-mode, as another example, means experimentation as compared to target setting and alignment in the rules-based mode. Furthermore, as companies adapt their management mode to the context rather than to go from one extreme to another, it is often some sort of balance between the extremes that can help (Puranam and Gulati 2009).

To adapt managerial modes to the changing external environment, we suggest diagnostic tools for scoring managerial contexts and operating modes to explore new designs and enabling a point of view on how to compete in the future (Hamel and Prahalad 1999). Diagnostic tools create observation points for managers to focus their attention and speed up learning (Gallwey 2000). Although more research is needed in this area, it is quite likely that the evolution of managerial control mechanisms is not a coincidence.

Given the advantages witnessed in capabilities-based organizations in times of challenging external environments in this research, firms should strive to reach the capabilities-based mode by

developing their internal processes needed for allowing new ways of control. This study demonstrates that one successful way to do this is to invest in the development capabilities that address purpose, motivation, knowledge and information, complexity, volatility and uncertainty.

5.2. Limitations and Future Research Directions

While this study makes several noteworthy contributions, it is important to point to its limitations and discuss future research. One of the biggest limitations of this study is that the data were collected over a period of 10 years studying companies at different points in time without taking the time difference into account. Over ten years, the environment has changed in many cases. Furthermore, even though we have performed explorative testing on the factors that lead to the model and cited several studies that support the model, the results should be viewed with care due to the limited sample of companies. Therefore, the feasibility of the model should be tested in a large-scale study with a wider scope of companies that offers the ability to search for patterns spanning industries, companies of different sizes, at different life cycle stages, of different origin and with different ownership.

We have made the case for purpose, motivation knowledge, information, complexity, volatility and uncertainty as the factors that determine the dimensions of our model. However, we recognize that other factors which we did not include in our study could also account to determine managerial operating modes (e.g., decentralization). Clearly, a more in-depth study in this area is needed. Obviously, a confirmation of these results in other settings would strengthen the confidence in these findings. Understanding what risks can occur when organizations switch to capability-based management modes would be an additional important area for future research. In the end, more research is needed to build on our initial model of managerial operating modes and should include factors that promote clarity of the modes and their conditions under which they dominate.

Author Contributions: Lukas Michel and Johanna Anzengruber designed the paper. Lukas Michel performed the experiments and Marco Woelfle analyzed the data; Lukas Michel and Johanna Anzengruber wrote the paper and Nick Hixson contributed with proof-reading.

Conflicts of Interest: The authors declare no conflicts of interest.

Appendix A. Ten Items to Characterize the Modes

Factor	Definition	Foundation
1 Purpose	How are people energized: by finding purpose in what they do or through extrinsic motivation? Purpose is the source of motivation in a knowledge driven environment. A deep sense of purpose helps people to follow their self-motivated inner beliefs. Extrinsic motivation comes from the outside of a person, for example through financial rewards or threat of punishment.	Purpose comes from the task and activity itself. In a knowledge intense environment, purpose is superior to extrinsic motivation (Deci and Ryan 2000).
2 Motivation	Where is the locus of motivation: assuming that people are self-responsible or in need of outside control? Motivation is the internal condition that activates behaviors and gives direction. Self-determination means that people perform based on what they belief is the right thing to do. Outside control refers to leaders that motivate people to perform.	The nature of control in organization follows the two opposite images of mankind: self-determination and control through leaders (Ryan and Deci 2000). Control assumes direct leadership interferences. In the setting where knowledge is distributed, identity and self-responsibility is a better motivator than managerial control (George and Qian 2010; Weibel 2010).
3 Knowledge	Who has the knowledge: decision-making through accessing collective wisdom or hierarchy and power? Knowledge is seen as a scarce resource in today's economy. Collective wisdom assumes that knowledge is distributed with groups of people making decisions, whereas, in a hierarchy, decisions are allocated to individual with superior insights.	When knowledge is distributed and the context is dynamic, the wisdom of crowds leads to better decisions (Surowiecki 2004). Hierarchy (Adler and Borys 1996) is seen as a vertical process that works well in a stable environment with asymmetric knowledge with managers or experts when consistent outcomes are needed. For example, clan control systems work better under ambiguous conditions than bureaucratic controls (Ouchi 1980).

Factor	Definition	Foundation
4 Information	How is information shared: by providing access to information through transparency and open sharing or through selective distribution? Transparency means that individuals and self-organized teams can align to goals. Obliquity refers to keeping information back due to the fear of perceived loss of control.	In a knowledge-driven, information-rich context, sharing enables people to use their talent (Hamel 2008). Transparency refers to the open source concept of sharing knowledge enabled through digitalization (Girard 2009). Obliquity refers to limited information in support of control, power, and limited risk.
5 Complexity	How does the organization deal with complexity by structuring work: coordination through self-organization or through bureaucratic procedures? Bureaucracy relies on formal rules and procedures to produce consistent outputs. Self-organization relies on the emerging, spontaneous coordination through self-interested behaviors.	As organizations grow and add complexity, coordination of activities (Coase 1937; Williamson 1975) is increasingly important. Self-organization (Beer 1981; Kaufmann 1993): in situations where innovation and adaptation are needed emerging approaches work well (Beinhocker 2006). Bureaucracy refers to applying rules and procedures to coordinate work (Weber 1947) in a stable context. In general, less is more. In complex settings, self-organization through teams outperforms bureaucracy (Haken 2000; Von Foerster 1960).
6 Volatility	How does the organization deal with a volatile market environment: adapting to a changing environment through developing flexibility or more efficiency? Efficiency refers to restructuring to adapt to the change. Flexibility requires dynamic systems to address change. At the edge of chaos, systems can most effectively change.	In highly dynamic contexts, agility beats efficiency. Agility requires flexible systems. Efficiency and scale require rigid routines for consistency and quality. Systems with more structure are too rigid, whereas systems with less structure are too disorganized (Brown and Eisenhardt 1998).
7 Uncertainty	Where is the power to decide and act in an uncertain context: with delegated responsibility to teams, networks, markets or power to individual managers?	Power and authority, under specific circumstances, are effective tools (Leavitt 2005). However, strategies at various levels of uncertainty require non-linear approaches (Courtney et al. 1999). Digitalization makes it possible to dramatically decentralize decision-making without giving up control (Malone 2004). For example, networks provide flexibility in scaling work up and down.

References

- Adler, Paul S., and Bryan Borys. 1996. Two types of bureaucracy: Enabling and coercive. *Administrative Science Quarterly* 41: 61–98. [\[CrossRef\]](#)
- Altmann, Elizabeth J., Frank Nagle, and Michael L. Tushman. 2003. Innovation without information constraints: Organization, communities, and innovation when information costs approach zero. In *Oxford Handbook of Creativity, Innovation and Entrepreneurship*. Edited by Michael A. Hitt, Christina E. Shalley and Jing Zhou. Oxford: Oxford University Press, pp. 353–75.
- Argyris, Chris. 1985. *Strategy, Change and Defensive Routines*. Marshfield: Pitman.
- Arrow, Kenneth J. 1974. *The Limits of Organization*. New York: Norton.
- Baldwin, Carliss, and Eric von Hippel. 2011. Modeling a paradigm shift: From producer innovation to user an open collaborative innovation. *Organization Science* 22: 1399–417. [\[CrossRef\]](#)
- Barney, Jay. 1991. Firm resources and sustained competitive advantage. *Journal of Management* 17: 99–120. [\[CrossRef\]](#)
- Barrand, Jay. 2006. *Le Manager Agile, vers in Nouveau Management pour Affronter la Turbulence*. Paris: Dunod.
- Beer, Stafford. 1981. *Brain of the Firm*. New York: Wiley.
- Beinhocker, Eric D. 2006. *The Origin of Wealth: Evolution, Complexity, and the Radical Remaking of Economics*. Boston: Harvard Business Review Press.
- Benkler, Yochai. 2006. *The Wealth of Networks: How Social Production Transforms Markets and Freedom*. New Haven: Yale University Press.
- Bigley, Gregory A., and Karlene H. Roberts. 2001. The incident command system: High reliability organizing for complex and volatile task environments. *Academy of Management Journal* 44: 1281–99. [\[CrossRef\]](#)
- Bijlsma-Frankema, Katrinka M., Bart. A. de Jong, and Gerhard. G. van de Bunt. 2008. Heed, a missing link between trust, monitoring and performance in knowledge intensive teams. *International Journal of Human Resources Management* 19: 19–34. [\[CrossRef\]](#)
- Boudreau Kevin, J., and Karim R. Lakhani. 2009. Should external innovators be organized in collaborative communities or competitive markets? The answer depends on three crucial issues. *MIT Sloan Management Review* 50: 4.

- Boudreau, Kevin J., Nicola Lacetera, and Karim R. Lakhani. 2011. Incentives and the problem of uncertainty in innovation contests: An empirical analysis. *Management Science* 57: 843–63. [CrossRef]
- Brondoni, Silvio. 2005. Managerial Economics and Global Competition. *Symphonya Emerging Issues in Management (Symphonya.unimib.it)*. [CrossRef]
- Brown, Shona L., and Kathleen M. Eisenhardt. 1998. *Competing on the Edge*. Boston: Harvard Business School Press, p. 28.
- Cardinal, Laura B., Sim B. Sitkin, and Chris P. Long. 2004. Balancing and rebalancing in the creation and evolution of organizational control. *Organization Science* 15: 411–31. [CrossRef]
- Chandler, Alfred D., Jr. 1977. *The Visible Hand: The Managerial Revolution in American Business*. Cambridge: The Belknap Press of Harvard University Press.
- Charbonnier-Voirin, Audrey. 2001. The development and partial testing of the psychometric properties of a measurement of organizational agility. *Management* 14: 119–56.
- Child, John, and Rita. G. McGrath. 2001. Organizations unfettered: Organizational form in an information-intense economy. *Academy of Management Journal* 55: 1135–48. [CrossRef]
- Coase, Ronald. 1937. The nature of the firm. *Economica* 4: 386–405. [CrossRef]
- Courtney, Hugh, Jane Kirkland, and Patrick Viguerie. 1999. Strategy under uncertainty. In *Managing Uncertainty*. Brighton: Harvard Business School Press, pp. 1–31.
- Cyert, Richard M., and James G. March. 1963. *A Behavioral Theory of the Firm*. Englewood Cliffs: Prentice Hall.
- Day, George S. 1999. Creating a Market-Driven Organization. *Sloan Management Review* 41: 11–22.
- Dean, Alison, and Martin Kretschmer. 2007. Can Ideas be capital? Factors of production in the postindustrial economy: A review and critique. *Academy of Management Review* 32: 573–94. [CrossRef]
- Deci, Edward L., and Richard M. Ryan. 2000. The what and why of goal pursuits: Human needs and the self-determination of behavior. *Psychological Inquiry* 11: 227–68. [CrossRef]
- Doz, Yves L., and Gary Hamel. 1998. *The Alliance Advantage*. Boston: Harvard Business School Press.
- Eisenhardt, Kathleen M. 1985. Control: Organizational and economic approaches. *Management Science* 31: 134–49. [CrossRef]
- Eisenhardt, Kathleen M., and Jeffrey A. Martin. 2000. Dynamic capabilities: What are they? *Strategic Management Journal* 21: 1105–21. [CrossRef]
- Fayol, Henri. 1949. *General and Industrial Management*. Translated by C. Storrs. London: Sir Isaac Pitman & Sons.
- Fleming, Lee, and David M. Waguespack. 2007. Brokerage, Boundary Spanning, and Leadership in Open Innovation Communities. *Organization Science* 18: 165–80. [CrossRef]
- Franco-Santos, Monica, Lorenzo Lucianett, and Mike Bourne. 2012. Contemporary performance measurement systems: A review of their consequences and a framework for research. *Management Accounting Research* 23: 79–119. [CrossRef]
- Gallwey, Timothy. 2000. *The Inner Game of Work: Focus, Learning, Pleasure, and Mobility in the Workplace*. New York: Random House.
- George, Elizabeth, and Cuili Qian. 2010. Organizational Identity and control: can the two go together? In *Organizational Control*. Edited by Sim B. Sitkin, Laura B. Cardinal and Katinka M. Bijlsma-Frankema. New York: Cambridge University Press.
- Girard, Bernard. 2009. *The Google Way*. San Francisco: No Starch Press, p. 24.
- Grantham, Charles E., James P. Ware, and Corey Williams. 2007. *Corporate Agility: A Revolutionary New Model for Competing in a Flat World*. New York: AMACOM.
- Greenstein, Shane M. 2010. *The Economics Digitalization, an Agenda*. New York: Remarks to the Sloan Foundation August Meeting, Available online: <https://ssrn.com/abstract=1889153> or <http://dx.doi.org/10.2139/ssrn.1889153>; (accessed on 4 April 2018).
- Haken, Herman. 2000. *Information and Self-Organization: A Macroscopic Approach to Complex Systems*. New York: Spitner-Verlag.
- Hamel, Gary. 2008. *The Future of Management*. Boston: Harvard Business School Press, Chapter 1.
- Hamel, Gary, and C. K. Prahalad. 1999. Competing for the future. In *Managing Uncertainty*. Boston: Harvard Business School Press, pp. 33–50.
- Hope, Jermy, and Steve Player. 2012. *Beyond Performance Management: Why, When, and How to Use 40 Tools and Best Practices for Superior Business Performance*. Boston: Harvard Business School Publishing.

- Hugos, Michael H. 2009. *Business Agility, Sustainable Prosperity in a Relentlessly Competitive World*. Upper Saddle River: John-Wiley.
- Hult, G. Romas M., and David J. Ketchen Jr. 2001. Does Market Orientation Matter?: A Test of the Relationship between Positional Advantage and Performance. *Strategic Management Journal* 22: 899–906. [[CrossRef](#)]
- Joroff, Michael L., William L. Porter, Barbara Feinberg, and Chuck Kukla. 2003. The agile workplace. *Journal of Real Estate* 5: 293–311. [[CrossRef](#)]
- Kaufmann, Stuard A. 1993. *Origins of Order*. New York: Oxford University Press.
- Keller, Scott, and Carolyn Aiken. 2009. *The Inconvenient Truth about Change Management*. New York: McKinsey & Company.
- Kirsch, Laurie J., and Vivek Choudhury. 2010. Toward a theory of relational control: How relationship structure influences the choice of controls. In *Organizational Control*. Edited by Sim B. Sitkin, Laura B. Cardinal and Katinka M. Bijlsma-Frankema. New York: Cambridge University Press.
- Kotter, John P. 1995. Leading Change: Why transformation efforts fail. *Harvard Business Review* 73: 59–67.
- Lakhami, Karim R., and Eric von Hippel. 2003. How open source software works; “Free” user-to-user assistance. *Research Policy* 32: 923–43. [[CrossRef](#)]
- Leavitt, Harold. 2005. *Top Down*. Boston: Harvard Business School Press.
- Lebas, Michel, and Jane Weigenstein. 1986. Management control: The roles of rules, markets, and culture. *Journal of Management Studies* 23: 259–72. [[CrossRef](#)]
- Loughry, Misty L. 2010. Peer control in organizations. In *Organizational Design*. Edited by Sim B. Sitkin, Laura B. Cardinal and Katinka M. Bijlsma-Frankema. New York: Cambridge University Press.
- Malone, Thomas W. 2004. *The Future of Work: How the New Order Will Shape Your Organization, Your Management Style, and Your Life*. Boston: Harvard Business School Press.
- Merchand, Kenneth A. 1985. *Control in Business Organizations*. Marshfield: Pitman.
- O’Mahony, Siobhán, and Fabrizio Ferraro. 2007. The Emergence of Governance in an Open Source Community. *Academy of Management Journal* 50: 1079–106. [[CrossRef](#)]
- Ocasio, W. 1997. Towards an attention-based view of the firm. *Strategic Management Journal* 18: 187–206. [[CrossRef](#)]
- Ocasio, William, and Franz Wohlgezogen. 2010. Attention and Control. In *Organizational Design*. Edited by Sim B. Sitkin, Laura B. Cardinal and Katinka M. Bijlsma-Frankema. New York: Cambridge University Press.
- Ouchi, William. 1975. *Markets and Hierarchies: Analysis and Antitrust Implications*. New York: Free Press.
- Ouchi, William. 1977. The relationship between organizational structure and organizational control. *Administrative Science Quarterly* 22: 95–113. [[CrossRef](#)]
- Ouchi, William. 1979. A conceptual framework for the design of organizational control mechanisms. *Management Science* 25: 833–48. [[CrossRef](#)]
- Ouchi, William. 1980. Markets, bureaucracies, and clans. *Administrative Science Quarterly* 25: 129–41. [[CrossRef](#)]
- Ouchi, William. 1981. The economics of organization: the transaction cost approach. *American Journal of Sociology* 87: 548–77.
- Ouchi, William G., and Raymond L. Price. 1978. Hierarchies, clans, and theory Z: A new perspective on organization development. *Organizational Dynamics* 7: 62–70. [[CrossRef](#)]
- Pfeffer, Jeffrey. 1997. *New Directions for Organizational Theory*. New York: Oxford University Press.
- Prahalad, C. K., and M. S. Krishnan. 2008. *The New Age of Innovation: Driving Cocreated Value Through Global Networks*. New York: McGraw Hill.
- Puranam, Phanish, and Ranjay Gulati. 2009. Renewal through reorganization: the value of inconsistencies between formal and information organizations. *Organization Science* 20: 422–40.
- Quinn, James B. 1999. Strategic outsourcing: Leveraging knowledge capabilities. *Sloan Management Review* 14: 9–21.
- Roussel, Patrice. 1996. *Rémunération, Motivation et Satisfaction au Travail*. Paris: Economica.
- Ryan, Richard M., and Edward L. Deci. 2000. Self-determination Theory and the facilitation of intrinsic motivation, social development, and well-being. *American Psychologist* 55: 68–87. [[CrossRef](#)] [[PubMed](#)]
- Ryan, Richard. M., Edward. L. Deci, and Wendy. S. Grolnick. 1995. Autonomy, relatedness and the self; their relation to development and psychopathology. In *Manual of Developmental Psychopathology*. Edited by Dante Chicchetti and Donald. J. Cohen. New York: Wiley, pp. 618–55.
- Salvioni, Daniela M. 2005. Corporate Governance, Management Control and Global Competition. *Symphonya Emerging Issues in Management* 1: 39–51. [[CrossRef](#)]

- Schramm, C. J. 2006. *The Entrepreneurial Imperative: How America's Economic Miracle Will Reshape the World (and Change Your Life)*. New York: HarperCollins.
- Sciarelli, Mauro. 2008. Resource-Based Theory and Market-Driven Management. *Symphonya Emerging Issues in Management*. [CrossRef]
- Scott, Richard W. 1992. *Organizations: Rational, Natural, and Open Systems*. Englewood Cliffs: Prentice Hall.
- Simon, Herman A. 1957. *Administrative Behavior*. New York: Macmillan.
- Simons, Robert. 1995. *Levers of Control: How Managers Use Innovative Control Systems to Drive Strategic Renewal*. Boston: Harvard Business School Press.
- Sitkin, Sim B., Kathleen M. Sutcliffe, and Roger G. Schroeder. 1994. Distinguishing control from learning in total quality management: A contingent approach. *Academy of Management Review* 19: 537–63.
- Spreitzer, Gretchen M. 1995. Psychological empowerment in the workplace: Dimensions, measurement, and validation. *Academy of Management Journal* 38: 1442–65. [CrossRef]
- Surowiecki, James. 2004. *The Wisdom of Crowds*. New York: Doubleday.
- Sutcliffe, Kathleen M., and Gerry McNamara. 2001. Controlling decision-making practice in organizations. *Organization Science* 12: 484–501. [CrossRef]
- Teece, David J. 1998. Capturing value from knowledge assets: The new economy, markets for know-how, and intangible assets. *California Management Review* 40: 55–79. [CrossRef]
- Thompson, James D. 2003. *Organizations in Action: Social Science Bases of Administrative Theory*. With a New Preface by Mayer N. Zald and a New Introduction by W. Richard Scott; New Brunswick: Transaction Publishers. First published 1967.
- Towry, Kristy L. 2003. Control in a team environment—The impact of social ties on the effectiveness of mutual contracts. *The Accounting Review* 78: 1069–95. [CrossRef]
- Tushman, Michael L., and David A. Nadler. 1977. Information Processing as an Integrating Concept in Organizational Design. *Academy of Management Review* 3: 613–24.
- Von Foerster, Heinz. 1960. On self-organizing systems and their environments. In *Self-Organizing Systems*. Edited by Marshall V. Yovits and Scott Cameron. London: Pergamon Press.
- Von Krogh, Georg, Sebastian Spaeth, and Karim R. Lakhani. 2003. Community, joining, and specialization on open source software innovation: A case study. *Research Policy* 32: 1217–41. [CrossRef]
- Wang, Catherine L., and Pervaiz K. Ahmed. 2007. Dynamic capabilities: A review and research agenda. *International Journal of Management Reviews* 9: 31–51. [CrossRef]
- Weber, Max. 1946. *From Max Weber: Essays in Sociology*. Edited by Hans Heinrich Gerth and Charles Wright Mills. New York: Oxford University Press.
- Weber, Max. 1947. *The Theory of Social and Economic Organization*. London: Hodge.
- Weber, Max. 1978. *Economy and Society*. Berkeley: University of California Press.
- Weibel, Antoinette. 2010. Managerial objectives of formal control: High motivation control mechanisms. In *Organizational Control*. Edited by Sim B. Sitkin, Laura B. Cardinal and Katinka M. Bijlsma-Frankema. Cambridge: Cambridge University Press.
- Weick, Karl E. 1995. *Sensemaking in Organizations*. London: Sage.
- Williamson, Oliver. E. 1975. *Markets and Hierarchies: Analysis and antitrust implications*. New York: Free Press.

