

Paper to be presented at the

35th DRUID Celebration Conference 2013, Barcelona, Spain, June 17-19

Management forms: when control is irrelevant

Zahra Solouki
ESADE
IIK
zahra.solouki@esade.edu

Nuria Nadal ESADE Business School IIK

Nuria.Nadal@esade.edu

Udo Zander
Stockholm School of Economics

Udo.Zander@hhs.se

Abstract

The structural aspects of organizations have been a focal point in organizational studies, being able to describe and analyze different types of organizations, while the subject of management forms has been underdeveloped. At the structural level new dimensions have been included, but no substantial changes have happened at the managerial level. Traditional management forms show limitations when dealing with ambiguous situations, because control has been viewed as a fundamental aspect of management, limiting the range and application of management under uncertainty. Therefore, this study addresses forms of management when control is counterproductive. The model presented attempts to clarify that different types of goals and tasks will lead to different forms of management as well as different organizational structures.

Management forms: When Control is Irrelevant

Abstract

The structural aspects of organizations have been a focal point in organizational studies, being able to describe and analyze different types of organizations, while the subject of management forms has been underdeveloped. At the structural level new dimensions have been included, but no substantial changes have happened at the managerial level.

Traditional management forms show limitations when dealing with ambiguous situations, because control has been viewed as a fundamental aspect of management, limiting the range and application of management under uncertainty. Therefore, this study addresses forms of management when control is counterproductive. The model presented attempts to clarify that different types of goals and tasks will lead to different forms of management as well as different organizational structures.

Introduction

While in the history of management we have been through many theories of organizational structure we have kept the same theory about management forms. This disengagement is best manifested in the distance between the work of Schumpeter (1942) and Taylor (1911). Frederic Taylor (1911) and his fellow Henry Fayol (1916) were leading the first management revolution attached to the neoclassical approach where efficiency was achieved by rationally controlling, planning and coordinating the production. Taylor's Scientific Management was based in maximum specification and measurement of all organizational tasks; relegating the notions of management and organization to a mechanistic activity. On the contrary, in the book *The Theory of Economic Development*, Joseph Schumpeter (1911) disrupted the approach to business economic studies introducing the limitations of the static equilibrium of neoclassical economics, and stressing the influence of individuals –entrepreneurs, to explain business change and development; also shifting economic thought from business circles to business cycles.

Soon after Schumpeter's work, some fellows at Harvard Business School engaged in studies on the history of industrial enterprise (Chandler, 1962) and elicited stories from experienced managers (Andrews, 1971). Although these prominent works centered on organization structure and corporate strategy, new forms of management remained understudied. For example, Chandler sensibly explained the change from the U-Form to the M-From and introduced the need to align organizational structure with strategy in order to face change (Chandler, 1962); other studies explain the change from functional to matrix organization (Davis & Lawrence, 1977). While at the structural level new dimensions were included, no substantial changes were introduced at the managerial level. Thus, it is implied that although the structure of the organization needs to undergo a change and adapt to strategy, the management form is still fundamentally based on the ideas of control, planning and coordinating.

Since then, the topic of organizational structures has been extensively covered by organizational change literature, strategy theories and institutional theory studies. For example, transaction cost approach remains focused on structure as a hierarchy, be it formal or informal, and bureaucracy as the only management form. In this approach the

functions of managers remain as minimizing coordination costs to accomplish profit maximization (Williamson, 1975). New conceptualizations emerge based on the limitations of hierarchical structures and bureaucratic functions. The governance approach identifies other types of organization structures such as clans (Ouchi, 1980), and from the cultural approach adhocracies (Mintzberg, 1985) and fiefs (Boisot,1986; Cameron & Quinn, 1999) are introduced. These new organizational types explained structures without a clear division of labor, communication flow and command. However, this change in structure was not accompanied by a shift in the management forms. The climax of the structural revolution came with the relational approach of the network organization, which introduced an organizational form that was linked to innovation (Powell, 1992).

Although literature on management forms is less developed than the one on organizations' structure, there are still some visible linkages between them. Grounded in Taylor's scientific management principles, Henri Fayol's (1916) managerial functions based on controlling, planning, and coordinating the production activity, have influenced a wide range of the management literature. For instance, in an adhocracy, the emphasis is placed on the coordination function. Coordination is achieved through mutual collaboration and little formalization in a matrix structure that combines the functional and market bases (Mintzberg, 1980). Another example comes from the effect of network structure on management functions, as Burt (1992) explains, with a shift from formal to informal control. In the network organization again management forms are not the primary topic of discussion. However, the network organization faces less clear directions and more uncertainty in coordination-related goals, successful dealing with informal control for a manager would mean higher chances of promotion and bigger financial rewards. Though a new current of managerial forms could be detected due to the proliferation of new organizational structures, still there is the classic view of planning, coordination and control as the main functions of management.

The rise of soft-control based approaches - such as managing by values, reliance on a strong organizational culture and managing through persuasion, might suggest a divergence from the traditional function of planning, coordinating, and controlling. However, these approaches do not greatly differ from the traditional ones when looking at power and authority in organizations. From the descriptions of managerial functions offered by the new structures, it is understood that the methods of management still have strong reliance on domination and control. For instance, Lukes' (1986) third dimension of power suggests that the most successful form of domination takes place where the subordinates are not even aware of the dominator and his plans. Therefore, as long as some form of control-free managerial behavior is not recognized (or introduced), the basic problem of managing innovation remains poorly addressed. Not only is the structural approach too rigid to explain what occurs in organizations dealing with uncertainty, but also it fails to introduce forms of management other than the traditional ones.

In this article we suggest looking at organizations as stages of development in order to deal with uncertainty and change to create value and introduce a more dialogical form of management dismissed by the use and focus of traditional management forms. The notion "stages of development" is appropriate to take advantage of structural designs and invites the managers to choose an appropriate management form at any stage within the overall life of an organization. The dynamics in the stages of development approach are to consider the stadium of openness and closure of a project to acknowledge what form of management it is required at each stage.

This conceptual paper is divided in three parts: the first part introduces different organizational structures and how those are related to management forms. The second

part, introduces the notion of stages of development as a new approach to the management of an organization. The third part introduces rhetoric as an antecedent to standardized forms of management that has been ignored by management literature. Finally, the conclusion, offers a synthetic view of the article contribution.

Organizational structures and management forms

Studies on organizational change focus on organizational structure and have omitted the study of management forms according to the innovations that accompanied the new structures. And they have relegated the functions of management to controlling, planning and coordinating being unable to explain and the challenges of changing contexts and growth.

Table # summarizes the organization structures that have emerged and what they suggest in terms of management forms. It is observed that managerial functions remain to be focused on coordination, planning, and control, even though the organizational structures have evolved from rigid to more flexible ones.

Organizations' Structures	Management Form	Managerial Function
Bureaucracy	 Weber (1904), Taylor (1911), Fayol (1916), Williamson (1975) "contingent claims" contracts that are impossible in the presence of bounded rationality Emphasis on technical expertise Under the neoclassical contract law considering bounded rationality, partial information disclosure, and arbitration Unable to handle excessive ambiguity Requires reciprocity and legitimate authority Works through explicit rules Takes place as a stable pattern of transactions when markets fail due to uncertainty (involving bounded rationality) and opportunism. 	Among the traditional functions of planning, coordination, and control, bureaucracies have a strong focus on planning and then controlling based on already made plans. Using rewards and punishments to reach the set standardized goals through stablished procedures is a common way to control.
Adhocracies	Mintzberg (1979, 1985) • focus on coordination through mutual adjustment and semiformal structure parameters; consistency development. • exercise influence without relying on formal controls • in dynamic and complex environments with sophisticated innovation demands • project based, an accumulation of patterns and strategies. • outputs cannot be determined by rules, standards, and plans Cameron and Quinn (1999, 2006) • external positioning with focus on competition and differentiation • innovative and entrepreneurial	Adhocracies cannot have a considerable reliance on planning, due to the high uncertainties of the contexts that they face. Therefore, their main focus is coordination. However, since there is an almost clear goal for the managers to reach, softer practices of control such as influencing and persuasion would exist.

Fiefs	Boisot (1988, 1996)	Less need for coordination	
11013	Hierarchical coordination	since there is a clear line of command coming from the	
	 Submission to superordinate goals 	leader. Though the high level	
	Charismatic and feudal relationship with the leader	of uncertainty would make it	
	Conditions of high uncertainty	very hard to make detailed plans, the ultimate shared	
	o ,	goal along with the charisma	
		of the leader contribute to	
		control mechanisms in such organizations.	
Clans	Ouchi (1980)	Practicing managerial	
	The term "clan" is taken from Durkheim's (1933) categorization of an organic solidarity among individuals, contemplating the union of objectives between individuals which stems from their necessary dependence upon one another.	functions in a way much close to the adhocracy state, in clan structures there is a strong focus on coordination through socializing individuals into the	
	 Requires reciprocity, legitimate authority, and common values and beliefs, along with socialization into traditions of the organization. Cameron and Quinn (1999. 2006) Focus on internal maintenance through smoothing activities and integration 	organization and familiarizing them with the culture, values, and ultimate	
		goals. Again, due to uncertainty of the context,	
		detailed planning is not	
	Family-like relationships	possible. However, control can take place as a result of the socialization of the clan's culture and values.	
Networks	Powell (1990)	Uncertainty reduction would	
	Reduce uncertainty	eventually ask for more	
	Fast access to reliable and responsive information	standardization and fewer options, hence more control	
	 More social than markets and hierarchies Dependent on relationships, mutual interest and reputation rather than formal structure of authority 	possibility due to asymmetry	
		of knowledge. On the other hand, with uncertainty reduction and loose	
		coordination opportunities, a network structure looks more like a market than a hierarchy.	

As summarized in the table above, the bureaucratic form of organizations, considered as the "ideal form" by Weber, is the fundamental structure to understand firms. The main characteristics of and requisites for such form are rooted in assuming rationality and predictability and through bureaucratic administration, legal formalism, and industrial capitalism (Weber, 1904). The assumption of predictability demands from the managers to make detailed plans and use them as measures to control performance. However, Ouchi (1980) argued with this assumption, considering the clan form as the appropriate structure where the detailed plans for measuring performance are missing. The main task of a manager then is to focus on coordination rather than control. The other organizational structure that believes managers to be enforcers of coordination is the adhocratic form, introduced by Mintzberg (1985) to serve under conditions of high uncertainty such as in entrepreneurial forms of organizations. With a strong focus on value related socialization of individuals in the organization, adhocracies, quite like clans, would fall under "softcontrol" types, since it is the persuasive activities of the manager that would result in belief-based acts and outcomes from the individuals. Fiefs (Boisot, 1986, 1988, 1996), as smaller hierarchical forms with the strong control factor coming from the charismatic leader, would empower managers to plan, control, and coordinate under high uncertainty. The leader would come up with the precise goals to reduce uncertainty, and managers would follow through hierarchical forms of planning, controlling, and coordinating the activities and outcomes.

A major question that appears relevant here is what managers do when there is high uncertainty but it is not to be reduced through decreasing the numbers of options and looking back at the historical reactions, patterns, and standards. Considering the traditional managerial functions of planning, coordination, and control, would only work as long as there exists at least a primary degree of clarity by the means of uncertainty reduction. However, in order to absorb uncertainty through increasing the options and adding even more information to the situation would require managers to do something else. In such conditions, in order to create more information and options, a manager would need to abandon the clarity of final goals, plans, and activities and instead look outside the "box". In doing so, the organization as a whole might appear fragile due to the lack of an adherent vision or goal, so this is not a sustainable behaviour to expect from the managers under the responsibility to absorb uncertainty. The upside is that once those options are developed after spending some time on absorbing uncertainty, then management can go back to the traditional functions in order to implement the strategic solutions.

Stages of development a new approach to the managed organization

This part of the paper develops the concepts of uncertainty and control as the basis of the proposed notion of stages of development. Opposite to the structural approach the notion of stages of development is a dynamic approach to organizations that opens the possibility to face uncertainty. The foundations of the structural approach are based on clarity and objectivity, which are intensively connected to traditional management forms. This approach offers many limitations when dealing with uncertainty, and is likely to lose viability over time due to its rigidity and often inflexibility.

Looking at organizations as stages of development we suggest that different levels of uncertainty and different levels of control would require different approaches to management. For instance, in open stages of development when uncertainty is high, control is irrelevant and a more dialogical form of management is suitable. In closure stages of development uncertainty is very low and traditional forms of management are appropriately. Stages of development consider the stadium of openness and closure of the problem or project to acknowledge what form of management it is required at each stage. According to the organization's goals, projects or problems a more dialogical form of management is require to offer a better disposition to face uncertainty, grow and innovate.

The figure below summarizes the stages of development approach considering the levels of uncertainty and control. It enables a shift of focus that lets us consider context and work activity as the focal point to determine the appropriate management form, and its relation to the organizational structure. In the bottom left quadrant, the closure stages of development are presented under conditions of low uncertainty. Then, the bureaucratic organization and the traditional forms of management are the relevant because strict control, planning and coordination are possible because a clear workflow can be envisioned, it is feasible to breakdown the work in simple tasks and responsibilities can be assigned.

Open Stages of Development	High Uncertainty	Fail	- Uncertainty absorption - Rhetorical openness
Close Stages of Development	Low Uncertainty	Bureaucratic Organization Taylorism / Fordism Control and low complexity Rhetorical Closure	Fail

Control Interpretative flexibility

The top right quadrant, the open stages of development are presented under conditions of high uncertainty. In this case, traditional forms of management are inappropriate because the unclearness of the workflow, the un-feasibility to breakdown the work in simple tasks and this makes difficult to rationally assign responsibilities. Therefore, strict control, planning and coordination are futile. An organization subjected to high levels of uncertainty where management forms based on control and coordination would possibly prove to be counterproductive. As discussed in the behavioral theory of the firm, not all goals are rational, suggesting the difficulty of efficiency-oriented planning, coordination, and control in management due to the variety of goals (March & Simon, 1958; Cyert & March, 1963).

The left quadrats show the imbalance between managerial forms and stages of development, which lead to an unnecessary situation or undesirable situation. They show the discordance between context and managerial forms. The stages of development approach offers the possibility to correlate uncertainty and control in order to appropriately face organizational goals.

Uncertainty

Sources of uncertainty, such as, growth, environmental volatility, technical developments, and changes in demand preferences or supply, claim "refashioning" organizations' strategy. Failure to respond to these changes would decrease the sustainability of the organization. Chandler (1962) asserts that in cases where changes in structure are lagging behind changes in strategy. In Chandler's words, entrepreneurial action "affects the allocation and reallocation of resources for the enterprise as a whole", while administrative management deals with decisions about resources that are already allocated (Chandler, 1962). Considering this, the entrepreneurial manager faces uncertainty, and provides a range of options from which some would be later on implemented by administrative managers in charge of day to day operations. This new role implies other functions than planning, controlling and coordinating. Another aspect of entrepreneurial and administrative managers in Chandler's industrial firm is that their roles are detached and held by different persons. This feature of the industrial firm is not consistent when looking at the larger spectrum of organizational forms. Often the entrepreneurial and administrative roles are neither clearly defined nor held by different persons. Although what it is important in the division offered by Chandler is the introduction of a new managerial role either if it is performed by different or the same person.

The entrepreneurial activity could be considered a task close to providing options in order to tackle uncertainty. Shannon and Weaver (1949) in "The Mathematical Theory of Communication" when discussing the nature of information under certainty and uncertainty, and using the probability theory, argue that freedom of choice is higher in the presence of more information. The conditions of higher freedom and more information appropriately address higher degrees of uncertainty (higher entropy). Similarly, Boisot and Child (1999) developed the notion of "complexity absorption", a mechanism to deal with complexity through "creating options and risk-hedging strategies" (Boisot & Child, 1999:238) and "complexity reduction", a mechanism to "getting to understand the complexity and acting on it directly" (Boisot & Child, 1999:238) which focuses on control, simplification, and standardization (Boisot & Child, 1999).

These notions suggest that different levels of uncertainty require different managerial forms. Higher levels of uncertainty are faced in the absence of pure rationality and objectiveness. This uncertainty tendency to free choice is often softened by sharing and engaging into conversations. This dialogical management form is appropriated in open stages of development, where uncertainty and unclearness are high.

Control

In the governance approach as in ours, the idea of control applies only in the presence of efficiency-related objectives (Ouchi, 1980; Boisot, 2011). Innovation as well as research activities, often involve managing ambiguous goals. Traditional forms of management, based on control, concrete task breakdown, and division of labor, present some limitations when dealing with ambiguous goals (Jensen, 2012; Nadal & Bonet, 2012). As organizations need to innovate in order to assure competitive advantages (Schumpeter, 1942), a management form should include the two simultaneous needs that are often at odds with each other - exploration and exploitation (March, 1991). The importance of the subject of innovation brought Management Control Systems literature to assert that accounting controls are used in creative contexts as inspirational devices rather than as monitoring tools (Davila & Ditillo, 2011); Adler and Chen, 2011) obtaining both high efficiency and control while innovating. Implicitly this holds a problem solving approach while managing innovation thus implies a higher focus on absorbing uncertainty rather than problem solving through reducing uncertainty (Boisot, 1999). Other innovation studies focus on the structure of the innovation process and assert that the sources of innovation can be external or internal (Cohen & Levinthal, 1990; Chesbrough, 2004). These studies do not focus on the problem of dealing with unclear or ambiguous goals.

A different approach to innovation is the one introduced in the sociology of technical developments, which centers its focus on the social and historical context influencing the innovation process and assessing the success and failure of models, theories, or experiments (Fleck, 1979; Collins, 1981, 1985; Latour, 1987; Pinch & Bijker, 1984). This approach considers that technological developments encompass interpretive flexibility—which emerges when problems or findings are open to more than one interpretation, and closure—that occurs when a consensus on the issue at hand is reached (Pinch & Bijker, 1984). In this paper we address different management forms considering the ambiguity of the organizational objectives or goals manifested in the openness and closure stages of development.

In our view, traditional management forms, based on control and coordination, can only be argued to be effective in contexts of certainty and goal clarity regarding the breakdown of activities, resources allocation, and outcomes. When dealing with very ambiguous goals and under uncertainty conditions, management cannot be focusing on control, efficiency

and accountability but engage into interpretive flexibility (Pinch & Bijker, 1984) and rhetorical openness (Jensen, 2011). Moreover, high levels of uncertainty and goal ambiguity have not been seriously considered. Therefore, we suggest different forms of management depending on the stage of development of a project.

Rhetoric: a function to absorb uncertainty

Management literature takes the existing functions of planning, coordination and control as sufficient while growth, change, value creation and innovation cannot be explained through them. Our purpose is to find a complementary explanation to fill this gap. Minstzberg (1973) in "The Nature of Managerial Work" already pointed that managers engage in long conversations. This stream of literature on management functions has been underdeveloped and it is our intent to bring it back as an antecedent to the traditional functions. Focusing on organizations' structure and traditional management forms have shortened the range of arguments that the managerial activity involves. Considering the evidence brought by Minstzberg we assert that managers' main activity is to engage into conversations and that the theory of management supports only a small percentage of their total activity. Therefore, the art of the conversation is likely to widen the range of important managerial functions without dismissing the most recognized ones.

Conversations take 90% of managerial time and should be taken into consideration in order to know more what is behind them. Several studies stem from this affirmation to rely on the importance of rhetoric for management studies. For instance, Bonet and Sauquet (2010) extensively disclose the role of rhetoric in management sciences and offer a conceptual framework to understand how managers use language for achieving their aims (Bonet & Sauquet, 2010). Rhetoric implies not only the logical and argumentative approach resulting in the acceptance of a theory but also a "good understanding of feelings, motivations, purposes and values" (Bonet & Sauquet, 2010:122).

In the line of the previous literature we argue that through rhetoric we can absorb uncertainty. High levels of uncertainty are faced in the absence of pure rationality and objectiveness. In the context of high uncertainty there is a tendency to free choice, which invites managers to reflect and make interpretations on their observations to finally absorb uncertainty. This dialogical management form is appropriated in open stages of development, where uncertainty and unclearness are high.

Conclusions

The main concern of this article is to explain that focusing on control and structure is limiting the approach to new forms of management that explain important aspects of the firm such as how they face uncertainty and change. We addressed these important aspects out of the structural and control approach to management. Even though these theories have been able to describe and analyze different types of organizational structures, they have placed less emphasis on the discussion of the corresponding management forms. However, we are not implying that organization structure and control are irrelevant we assert that the evolution of organization studies ignored the evolution of managerial forms. The structural approach to management fails to enrich the literature on management forms since first, management forms do not appear to be the main focus of the study of organizational structures and second, the main purpose of an organizations structure is to come up with a design that explains the production process at an explicit and rational level. This approach is relevant when the firms context is static and constrains are certain.

So far, control has been viewed as a fundamental aspect of management, limiting the range and application of management forms under uncertain environments. Traditional management forms limited also the functions of organizational structures unable to face uncertain and ambiguous situations that are common in the context of firm, at least certainly common in firms oriented through research and innovation development, such us research labs, universities and R&D departments. The new approach presented in this study attempts to clarify that different types of goals lead to different forms of management some of them still underdeveloped. With this non-static view of the organization goals, strategies, and therefore management forms, organizational structure should be given go through constant stages of development.

The notion of stages of development suggests that different levels of uncertainty require different managerial forms. Higher levels of uncertainty are faced in the absence of pure rationality and objectiveness. Engaging into thoughtful conversations managers will bring a new narrative to soften uncertainty and to enact organizational control. This dialogical management form is appropriated in open stages of development where uncertainty, ambiguity and unclearness are needed to be absorbed.

References

- Adler, P. S., & Chen, C. X. (2011). Combining creativity and control: Understanding individual motivation in large-scale collaborative creativity. *Accounting, Organizations and Society*, *36*(2), 63-85
- Boisot, M. (1986). Markets and Hierarchies in a Cultural Perspective. *Organization Studies*, 7(2), 135-158.
- Boisot, M. & Child, J. (1999). Organizations as Adaptive Systems in Complex environments: The Case of China. *Organization Science*, *10*(3), 237-252.
- Boisot, M., Nordberg, Yami, M.S., & Nicquevert, B. (2011). *Collisions and Collaboration: The Organization of Learning in the ATLAS Experiment at the LHC.* Oxford, UK: Oxford University Press.
- Bonet, E. & Sauquet, A. (2010). Rhetoric in Management and in Management Research. *Journal of Organizational Change Management, 23*(2), 120-133
- Burt, R. S. (1992). The Social Structure of Competition. (Chapter 2 from?)
- Cameron, K. S. & Quinn, R. E. (1999). *Diagnosing and Changing Organizational Culture based on the Competing Values Framework*. Upper Saddle River. NJ: Prentice Hall Series in Organizational Development.
- Chandler, A. D. (1969). *Strategy and Structure: Chapters in the History of the American Industrial Enterprise.* Cambridge, MA: MIT Press
- Chesbrough, H. W. (2003-a). *Open Innovation: The New Imperative for Creating and Profiting from Technology*. USA: Harvard Business School Publishing Corporation.
- Chesbrough, H. W. (2003-b). Towards a Dynamic of Modularity. (chapter in *The Business of Systems Integration* edited by Andrea Prencipe, Andrew Davies, Michael Hobday) NY: Oxford University Press. 174-199.
- Chesbrough, H. W. (2004). Managing Open Innovation. *Research-Technology Management,* 47(1), 23-26.

- Cohen, W.M. & Levinthal, D.A. (1990). Absorptive Capacity: A New Perspective on Learning and Innovation. Special Issue: Technology, Organizations, and Innovation. *Administrative Science Quarterly*, *35*(1), 128-152.
- Collins, H. M. (1981). Introduction: Stages in the Empirical Programme of Relativism. Special Issue: 'Knowledge and Controversy: Studies of Modern Natural Science. *Social Studies of Science*, *11*(1), 3-10.
- Collins, H. M. 1985. *Changing Order: Replication and Induction in Scientific Practice*. Beverly Hills, Calif.: Sage.
- Cyert, R. M. & March, J. G. (1963). *Behavioral Theory of the Firm*. New Jersey, NY: Prentice-Hall Inc.
- Davila, A., & Ditillo, A. (2009). Controling creativity: Design and use of management control systems in creative environments. Unpublished manuscript.
- Davis, S.M. & Lawrence, P.R. (1977). *Matrix*. Reading, MA: Addison-Wesley.
- DiMaggio, P.J. & Powell, W.W. (1983). The Iron Cage Revisited: Institutional Isomorphism and Collective Rationality in Organizational Fields. American Sociological Review, 48(2), 147-160.
- Fayol, H. (1916). General and Industrial Management. London: Pitman.
- Fleck, L. (1979). *Genesis and Development of a Scientific Fact.* Chicago, IL: The University of Chicago Press.
- Hedlund, G. (1986). The Hypermodern MNC A Heterarchy?. Human Resource Management, 25(1), 9-35.
- Jensen, H. S. (2011). The role of ambiguity in innovation. In E. Bonet, B. Czarniawska, D. McCloskey & H. S. Jensen (Eds.), 2nd conference on rhetoric and narratives in management research: Management and persuasion (pp. 49-58). Barcelona, Spain: ESADE.
- Lukes, S. (1986). *Power*. New York University Press.
- Latour, B. 1987. Science in Action. Cambridge, MA: Harvard University Press.
- March, J. G. (1991). Exploration and exploitation in organizational learning. *Organization Science*, 2(1), 71-87.
- March, J. G. & Simon, H. A. (1958). *Organizations*. Oxford, UK: Wiley.
- Mintzberg H, (1973). The Nature of Managerial Work. New York, USA: Harper Row.
- Mintzberg, H. & McHugh, A. (1985). Strategy Formation in an Adhocracy. *Administrative Science Quarterly*, *30*(2), 160-197.
- Nadal, N., & Bonet, E. (2012). Limitations of project management when managing research: An empirical study at the Barcelona Supercomputing Center. The International Journal of Management, 1(2).
- Ouchi, W.G. (1980). Markets, Bureaucracies, and Clans. *Administrative Science Quarterly.* 25(1), 129-.
- Pinch, T. J. & Bijker, W. E. (1984). The social construction of facts and artefacts: Or how the sociology of science and the sociology of technology might benefit each other. Social Studies of Science, *14*, 399-441.
- Powell, W. W. (1990). Neither market nor hierarchy: network forms of organization. *Research In Organizational Behavior*, *12*, 295-336
- Schumpeter, J. (1934). *The theory of Economic Development.* Harvard University Press.

- Taylor, F. W. (1911). *The principles of scientific management*. New York and London: Harper & Brothers.
- Weber, M. (1904/1992). *The Protestant Ethic and the Spirit of Capitalism,* T. Parsons (trans.), A. Giddens (intro), London: Routledge.
- Weber, M. (1968). *Economy and Society: An Outline of Interpretive Sociology*. Berkeley, USA: University of California Press.
- Williamson, O. (1999). *The Mechanisms of Governance*. NY: Oxford University Press.