

Dynamic Capabilities

How can we make them work?

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Getting Started

This project aims at *contributing to the literature on dynamic capabilities by critically examining it with the help of three theoretical traditions: social cognition, organisational learning and motivation*. The project will pursue three case studies on three different firms in knowledge intense industries and with this test and develop the framework of dynamic capabilities. The concept of dynamic capabilities refers to organisational features or practices that a firm has developed to cope with a changing uncertain market environment better than its competitors and by this help to sustain competitive advantage due to its ability to add value in the market. The main question is *how dynamic capabilities are formed and sustained?* And to seek an answer to the question the project will pursue methodological individualism, i.e. seek to explain dynamic capabilities by reconstructing the framework on an individualistic foundation.

Methodological individualism here does not mean that we will try to reduce everything to the individual while treating her as an atomistic entity. Rather this project will present the relation between individual and social phenomena—in this case dynamic capabilities—as a tension manifested in practices. Due to this rules, norms, routines etc. will both refer to the cognitive schemas possessed by individuals as well as the organisation in which they emerge; however, these two levels need not to be isomorphic to control behaviour (Schneider & Angelmar, 1993: 354-6). Thomas Kuhn has called this “the essential tension”—the tension between the tradition in which we stand and how we examine and evaluate it—meaning that it is in this tension that we can find the inspiration for our future path to take (Kuhn, 1977). Methodological individualism sees this as a conscious process; it is the individual who evaluates the environment in which she finds here self, but in this she has to take into account that practices (rules, norms, routines etc.) are not that easily changed. Hence, it is a tension between the environment and the individual actions in that environment that creates the future path.

When pursuing a case study it is important to have theories that guide us to the points of inference—the theories help us to select cases and how to penetrate them (Eisenhardt, 1996 & Yin, 1989: 106-7). But the theories will be tested and developed in their interaction with the cases, which makes this project an abductive process moving between theory and case. To do this we first have to develop a theoretical framework building on dynamic capabilities. This framework will then be broken down into the sub-theories that will help us explain the formation of dynamic capabilities.

Theories of social cognition refer to individuals possessing cognitive schemas that help them evaluate the environment in which they act. The cognitive schemas can then be related to organisational learning in that individuals use them to predict behaviour of their colleagues and to interpret events on which they have to act. The cognitive schemas will thus help us to capture the

dynamics of organisational learning. It is though important that we also relate organisational learning to a concept of efficiency since dynamic capabilities are said to cope with a market environment in a productive way.

Motivation theory, or more precisely principal-agent theory, will help us to investigate the incentive system of the firm. I will though try to broaden the analysis of the incitement structure by relating it to learning and intrinsic motivation. The main point of inference is though the contract and how they are formulated in a firm that is said to possess dynamic capabilities. But since dynamic capabilities refer to practices that are hard to formulate in a contract intrinsic motivation can help us to explain its formation.

These theoretical frameworks will then used as a heuristic tool in the practical part of the project where I, hopefully, will be able to map the dynamic capabilities and the cognitive and motivational structures as well as their relation to one another. For this I will chose three different companies—R&D, management consultant, and design—that have in common the internal as well as the external environment that the theory of dynamic capabilities presume. From this I hope to draw strategic conclusion for the inner practices of the firm within the framework of dynamic capabilities.

The first to take into account for the practical part of the project is the choice requirement of the companies used in the cases, which are given by the definition of dynamic capabilities. For an outside observer this means that the companies should have a history of renewing its products and that this renewing has helped them to sustain competitive advantage in the market.

As strategy to overcome the problem of external validity this project will pursue three case studies in different industries (Yin, 1989: 43-45), though with the feature in common that their production is knowledge intense and are operating in a market environment of rapid change. The interest of this study in not a specific industry it is some features spoken of in dynamic capabilities. Due to this we can draw general conclusions since we apply the study across different industries. In this I use a “literal replication” (Yin, 1989: 53) since I am looking for the same result—sustained competitive advantage—in different companies.

Dynamic Capabilities

The feature of dynamic capabilities, on which this project will focus and critically examine, is that dynamic capabilities give the ability to renew or innovate on its capabilities within the firms market position. That is, widen this market position or use its capabilities to develop “similar activities” (Richardson, 1972) and thus enter new markets, i.e. the choice of trade off between exploration and exploitation (March, 1991). “[T]he capabilities must be dynamic, allowing the organisation to continuously improve the performance of its product market activities, continually advancing the production frontiers.” (Collis, 1996: 150) The same point can be found in Teece et al.:

The term ‘dynamic’ refers to the capacity to renew competencies so as to achieve congruence with the changing business environment; certain innovative responses are required when time-to-market and timing are critical, the rate of technological change is rapid, and the nature of the future competition an markets difficult to determine. The term ‘capabilities’ emphasises the key role of strategic management in appropriately adapting, integrating, and reconfiguring internal and external organisational skills, resources, and functional competencies to match the requirements of a changing environment (Teece et al., 1997: 515).

Capabilities generally refer to routines, identity, norms and values, learning, or vocabulary, that come into existence when individuals posses tacit knowledge (E.g. Collis, 1996, Grant, 1996, Kogut & Zander, 1996, Leonard-Barton, 1992, Spender, 1996, and Teece *et al.*, 1997). These organisational phenomena, which I will give the common notion *practices*, then become part of what is called organisational capabilities.

Partly due to tacit knowledge and that learning is local the capabilities will also be *firm specific*; the resources or activities of the firm have come to create idiosyncratic practices since they have come into existence within the firm. These practices are no general phenomena, in that we cannot find them on the market. “Hence competencies and capabilities are intriguing assets as they typically must be built they cannot be bought.” (Teece *et al.*: 1997: 518) The *firm specific practices* that come into existence within the firm may acquire the characteristic of “causal ambiguity”, meaning that an outside observer cannot find a strict causal relationship between what goes into the firm and what comes out (Reed & DeFillippi, 1990). This does not have to mean that the “insiders” do not understand what goes on in the firm. It can, for example, be understood with the help of Thomas Kuhn’s concept “incommensurability”. (Kuhn, 1996) Related to the view that firm’s have their own vocabulary or routines it is first when you get to know the firm specific vocabulary that you can understand the inner practices of the firm¹.

¹ For a longer discussion on this matter see Bernstein (1983).

To operationalise dynamic capabilities this project will focus on two important practices that a firm possessing dynamic capabilities is said to handle swift and with high performance: integration of new knowledge (Grant, 1996) and reconfiguration of knowledge in the creation of capabilities (Leonard-Barton, 1992). Integration of knowledge in Grant refers to the “integration of knowledge to perform a discrete productive task” (1996: 337). We can also think of other forms of knowledge, the issue that we will focus on since the project pursues methodological individualism is that integration changes the way the individual copes with inner environment of the firm (the firm specific practices)—solves a problem, performs a task or how a situation is conceptualised—when integrated into the firm.

Reconfiguration of knowledge is a restructuring of the core capabilities. As defined by Leonard-Barton these are knowledge and skills, technical system, managerial system, and values and norms (1992: 113). Also here the main focus will be on the relation between the individual and the inner environment of the firm, but the factor inducing the reconfiguration can come from all four of the core capabilities.

So when the entrepreneur (or the top management team) has mapped out a new strategic path to take, she has to turn her head around and direct her interest to the inner practices of the firm.

Definition 1: A firm possessing dynamic capabilities has as part of its firm specific practices a practice (or inner strategy) for integrating new knowledge in the creation of capabilities.

Definition 2: A firm possessing dynamic capabilities has as part of its firm specific practices a practice (or inner strategy) for the reconfiguration of knowledge in the creation of capabilities.

It may turn out that these two propositions are one, but there is, at least on the analytical level, a significant difference between the two since the former also includes an insider-outsider problematic.

Definition 1 and 2 helps to make the practical study more concrete in that it guides us into the cases. Instead of trying to capture the dynamic capabilities direct I use practices of integration and reconfiguration to make dynamic capabilities operational (Yin, 1989: 45). The theories to be discussed in the next section—social cognition, organisational learning and motivation—will then be used to disentangle practices of integration and reconfiguration and thus make the case study even more operational.

The project will pursue methodological individualism and individualise in two dimensions; both the employees as well as the management will be treated as individuals. I will treat management more as entrepreneurs—we are in the paradigm of *dynamic capabilities*—and the inertia that the companies’ face will be conceptualised as “cognitive opposition”, i.e. the cognitive structure of the employees needs to be reconfigured to enable

changes of the inner practises to take place (Reger et al. 1994). So, for example, the integration of new knowledge means the integration of new people possessing cognitive structures that to some extent differ from people inside the firm.

By studying the “dynamic interaction of project and capabilities” Dorothy Leonard-Barton (1992) illuminated some of the problems underlying what Richardson called ‘similar activities’. While some dimensions of the core capabilities will be aligned with new projects and thus favour them, other dimensions of the core capabilities will be misaligned and thus hamper new projects. The latter sets of capabilities that hamper the new project are called core rigidities and are defined as “inappropriate sets of knowledge. Core rigidities are the flip side of core capabilities. They are not neutral; these deeply embedded knowledge sets actively create problems.” (Leonard-Barton, 1992: 118)

This is the cost of being good at something; specialisation means focusing and will narrow the horizon of opportunities. Leonard-Barton also emphasises this in the end of her article where she refers to Pfeffer who uses the Kuhnian term “paradigm” to conceptualise this problematic. “Thus, he warns, ‘paradigms have within them an internal consistency that makes evolutionary change or adaptation nearly impossible’” (Leonard-Barton, 1992: 122). To be pointed out here is the relation between cognition and paradigm. Cognitive theory refers to “that people are limited in their epistemological capabilities” (Laukkanen, 1994: 324), which is also the case with Kuhn (1996: postscript), and both refer to thought structures as the carriers of a persons worldview.

In this we have a reference to the above note that the firm specific practices are also inflicted by the insider-outsider problem due to that different individuals within the firm are initiated or non-initiated in the new project. If we take the use of paradigm in the Kuhnian sense meaning that “though the world does not change with a change of paradigm, the scientist [the employee] afterward work in a different world” (Kuhn, 1996: 121) the skill of the leader has to be to “disclose new worlds” (Spinosa et al. 1997). This renders the need for entrepreneurial skills operating also within the firm. Due to this the project cannot be satisfied with answering the question of which help to explain dynamic capabilities but also have to answer how these are to be applied.

Definition 3: A firm possessing dynamic capabilities will need leadership that comes closer to entrepreneurship, than management (classically defined), especially in relation to reconfiguration.

The distinguishing mark between management and entrepreneur is that the latter contains a component of vision; it is directed towards future possibilities (Mintzberg et al., 1998: 123-147).

This project will use the concept “entrepreneurial skills” as defined by Spinosa et al. (1997) which explicitly links to this question of reconfiguration and application to deal with this

proposition. With their central concept “everyday history making” they take the concept of entrepreneurship to the level of practical problems.

Theories of social cognition, organisational learning and motivation

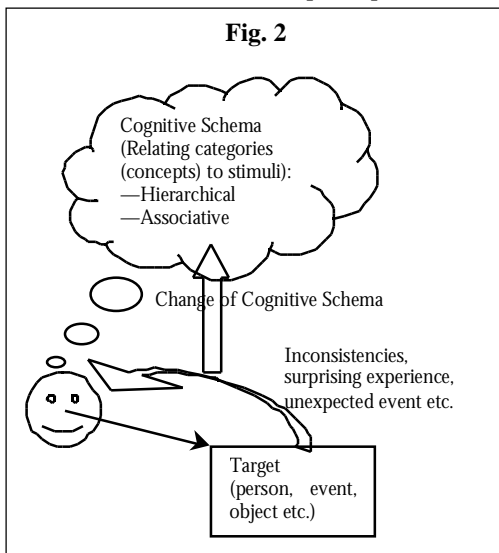
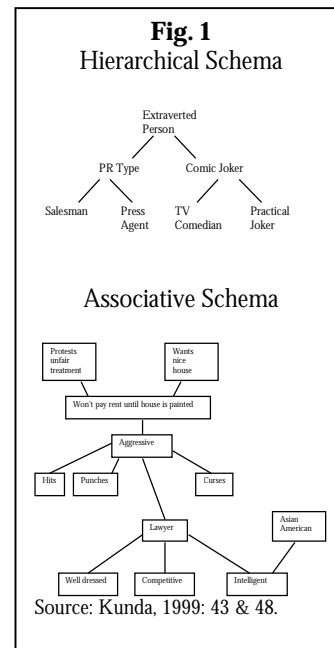
The overall question to be dealt with in this section is if we can use theories of social cognition to illuminate the problematic and give answers to how dynamic capabilities are formed and sustained. As a middle step I will use theories of organisational learning, which also can be said to be part of the firm specific practices spoken of above. Then by looking on the dynamics between individual and organisational learning we can learn more about the practices of integration and reconfiguration.

Dual-Process theories in social cognition separate between perception in a “top-down” and “bottom-up” processes, where the first is categorical knowledge like stereotyping and attribution, the second process is the evaluation and examination of our perception. The first process of categorisation is considered passive, mindless or automatic, while the second is active, mindful and controlled. The dynamic is then when the latter (evaluative) process affects the former resulting in a change of structuring (Moskowitz et al., 1999).

The first process will be defined as cognitive schema and its structure can take two forms: hierarchical and associative (See Fig. 1). The hierarchical structure has a top-category (e.g. active) and sub-categories (e.g. entrepreneur and sports man) with several levels. This then form a tree like structure in which we place the target (e.g. individual) that we perceive. The associative structure is more flat and by relating different categories to one another it creates different stereotypes or personal traits.

The categories of the cognitive schema are perceptions in which the person relates

concepts to stimuli. These categories will always be limited in their accuracy, but as Fiske (1993) puts it “people are good-enough perceivers”. However, since our perception is limited we will run into inconsistencies, unexpected events or surprises in relation to our cognitive schema (See Fig. 2). Then the question arises: “Do people pass over and forget inconsistencies, leaving their



expectancies intact, or do they focus on and remember the inconsistencies, thereby apparently showing more accuracy?” (Fiske, 1993: 159).

The answer to this question takes us to the “bottom up” process, which can be seen as the reaction to inconsistencies in the cognitive schema—“the basis for the inconsistency is typically evaluative rather than descriptive” (Wyer & Carlston, 1994: 57). Following the logic of cognitive schema a person thinking on a specific topic (e.g. lawyers are crooks) may encounter new information that shows a failure in that schema. Detecting such a failure the person intentionally tries to avoid thinking in categories. “When such a failure is detected, a controlled operating process (i.e. cognitive inhibition) is then instigated, the task of which is to remove the errant thought from mind” (Bodenhausen et al., 1999: 284).

How does this theoretical reasoning fit into the larger framework of this project? This is the first research question to be considered, which at this stage is purely theoretical.

Research question 1: How do we combine theories of social cognition and organisational learning in a way that makes it possible to explicate the forming of dynamic capabilities.

Kim (1993) develops a theoretical model that has the criteria so far discussed in this project. By relating individual mental models (i.e. cognitive schemas) and individual learning and placing them in an organisational learning model taken from March & Olsen (1975) he argues for the importance to individualise on organisational features when we want to understand learning and action. “The cycles of individual learning affect learning at the organisational level through their influence on the organisation’s shared mental models. An organisation can learn only through its members” (Kim, 1993: 43). Hence, the theory developed by Kim can be used to address questions concerning the efficiency of practices of integration and reconfiguration by looking at the cycles of learning (single as well as double loop) taking place due to the reconfiguration of the organisation.

When the cognitive structure of how I behave in a certain situation starts to converge with how I believe that other people behave in this situation and this cognitive structure of behaviour-situation is possessed by a group of people we have a practice. A group of people (e.g. a firm) create mutual expectations of behaviour-situation events that can be captured with cognitive schemas. Walsh & Charalambides (1990) have shown that “publicly self-conscious individuals” changed their cognitive schemas while in a working group where exposed to different knowledge structures. This supports the thesis that organisations create firm specific practices that are cognitively founded, but they do not address the question if the practice can be made more efficient.

A further finding within social cognition facilitates a separation between practices and formal organisation in that it shows a difference in interpersonal behaviour depending on the degree of interaction.

When a group is described as close knit and composed of members who interact frequently, subjects have better recall of individual members' behaviour that are inconsistent with their expectations for the group as a whole. In contrast, when the group is composed of members who do not necessarily interact with or know one another, individual members' behaviours are better remembered if they are consistent with group-based expectations. (Wyer & Carlston, 1994)

In highly formal organisations (e.g. bureaucracy) the individual cognitive schemas will be more consistent with group-based expectations—i.e. the formal organisational schema. From an organisational perspective this, does not have to be seen as negative, since the role that organisation is said to play is “to transform confusing, interactive environments in less confusing, less interactive ones by decomposing domains and treating the resulting subdomains as autonomous” (Levinthal & March, 1993: 97) However, the higher degree of interaction is closer to the paradigm of dynamic capabilities, since it emphasises the creation of practices that are to be flexible to some degree. We can use this to understand how firm specific practices are created.

Further, with the help of the dual-process view we can also distinguish between two characters on the individual level: one that is more categorical in their perception of reality and one that is more evaluative and examining. And what dynamic capabilities demands is the creation of latter kind. There are models within social cognition that make it possible to distinguish environments that induce the motivation to be accurate (Fiske, 1993: 172-8), hence, social cognition can help us to explicate what facilitates practices that induce an open mind by the employees. This, in turn, can then be used to better understand the creation and forming of dynamic capabilities in that we can also add an dimension of efficiency of the creation of these practices.

In arguing for a trade off between exploration and exploitation Marsh (1991) shows that it might not be beneficiary from a dynamic perspective to have too much convergence of the individual belief structures with the organisation.

Mutual learning leads to convergence between organisational and the individual beliefs. The convergence is generally useful both for individuals and for an organisation. However, a major threat to the effectiveness of such learning is the possibility that individuals will adjust to an organisational code before the code can learn from them. Relatively slow socialisation of new organisational members and moderate turnover sustain variability in individual beliefs, thereby improving organisational and average individual knowledge in the long run. (1991: 85)

This, thus, points at one of the core features of dynamic capabilities, that we have to keep a diversity in the belief structure

of the firm to be able to uphold a level of future possible paths to take, and thus, a competitive position.

With the help of these theoretical reasoning and empirical findings we can now formulate research question for the practical study.

Research Question 2: How can we combine social cognition and organisational learning to a efficiency standard and in what way can this help of make practices of integration and reconfiguration of knowledge more efficient?

Ghoshal and Moran (1996: 34) means that we have to “recognise that efficiency has both static and dynamic properties” and relate it to an entrepreneurial view in stating: “The efficiency of a transaction is changed by actions that expand the set of available options” (Ghoshal and Moran, 1996: 34). However, efficiency will put a constraint on the flexibility of the inner practices of the firm. Both from a knowledge perspective, since to high degree of flexibility will lower the efficiency of co-operation and communication, as well as from an economic perspective, since with to high degree of flexibility the capabilities will not be fully exploited.

This relates to the study of how shared cognitive schemas are formed and how we can induce the accuracy of these schemas. But from social cognition we can learn that the cognitive schemas are not to be too tight—we what people who evaluate, not categorise—if they are to generate good judgements of the reality. And from March we can learn that the shared cognitive schemas has to be left flexible to some degree if the firm is to find a good trade off between exploration and exploitation of their market position. So, we can see a trade off between flexibility and rigidity both on the individual as well as the organisational level that effect the choice of emphasises between exploration and exploitation.

Research Question 3: What is the trade off between flexibility and rigidity in cognitive schemas and organisational learning and how does this affect the choice of emphasises between exploration and exploitation.

This question can be investigated by mapping the cognitive schemas of the employees in relation to one another and to the overall ideas, projects and internal strategies of the firm. By interviewing newly hired and old employees, project leaders and other members of the project, employees of different departments or people in different stages of a project we can find out how the dynamics between individuals as well as between individuals and organisational learning.

The next question to be dealt with in this project is how contracts are written in a company that is said to possess dynamic capabilities. The main interest is how employee’s reward system is

formulated and we will investigate if the formulation of the reward system gives the correct incentives to the employees.

Research Question 4: How do firms formulate the reward system to create the correct incentives within the firm.

To do this I will utilise the principal-agent theory. Since this project work within the framework of dynamic capabilities I will concentrate on some specific models to evaluate the reward scheme of the contracts.

The first is “multitask” in which the principal (employer) has several different tasks that it wants the agent (employee) to perform. Due to the trade off between exploration and exploitation the individual will be in a multitask situation and it is thus important when writing the contract that this is taken into account. The multitask principal-agent analysis tells us that it is important that the different tasks are given the same incentives otherwise the agent will spend more time or effort on one task relative to the other tasks that should also be performed. One of the results in multitask principal-agent analysis is that low-powered incentives are preferable in some situations. (Holmström & Milgrom, 1991)

The multitask view can also help to formulate incentive systems where we want to have a higher attention on specific tasks, i.e. using that theory prescriptive. This can be of help for the questions concerning integration and reconfiguration of knowledge where the principal wants a higher attention on specific tasks.

Relating to issues of interaction discussed above there are results in principal-agent theory that are important to avoid. Prendergast (1999: 28-29) point out “that when agents are placed on individual pay-for-performance schemes, they are less likely to help their co-workers”. This can then have negative effect on the formation of dynamic capabilities since it demands high performance in interaction among individuals. Another result of interest for this project is that “team-based compensation schemes improves the performance of those who were less productive on individual schemes but *decreases* that of the more productive” (Prendergast, 1999: 41). This problem, Prendergast means, arises when workers have different abilities, so a solution to the problem is to put workers with similar ability in the same team. This can of course be quite difficult since it is hard to judge the ability of the workers, but it gives a direction to how team-based compensation can be designed, thus, to some degree relaxing the constraint of efficiency on flexibility.

A further result that Prendergast discusses is that profit-sharing schemes have a positive effect on productivity. This is a result that is aligned with dynamic capabilities in that it shows that productivity that can be gained from practices of interaction and organisational learning. These results are actually contrary to what the principal-agent theory predicts since it shows that the free-rider

problem is not that big (Prendergast, 1999: 41). That team-based compensation demands similar ability and that profit-sharing is align with interactive practices are important for the understanding of integration and reconfiguration of knowledge. We can create inner practices of the firm that both are flexible and give incentives.

In this section I will also try to add another component to the principal-agent theory. By integrating into the model that ability can increase through learning I will investigate what effects this can have on the incentives of the individual. The first effect that this can create is that the reservation utility will rise, that is, a more skilful worker will be able to get a higher price (wage) on the market. Due to this we get a dynamics in the incentive system that demands of the reward system that the compensation rises as learning takes place. The learning spoken of here does not have to be deliberate from the principal, as time goes by the individual will learn the skill that he performs better, and thus, the reward system (wage or promotion) has to follow that development.² This effect will though be hampered to some extent if the learning is firm specific in that it needs a social environment to be fully utilised.

Research Question 5: How can learning be integrated into the principal-agent theory and what effects will it have on the general results within principal-agent theory?

The combination of learning and incentives takes us to the last issue to be discussed in this draft. Theories of intrinsic motivation show a relationship between learning and motivation. This can help to explain that profit-sharing gives a higher productivity were the principal-agent theory fails to predict. The theories on intrinsic motivation emphasising sense of meaningfulness, choice, competence, and progress (Thomas, 2000) or self-control, self-obligation and self-determination (Osterloh & Frost, 2000: 15) lets it be combined with individual as well as organisational learning.

Research Question 6: How can combinations of intrinsic as well as extrinsic motivation and individual as well as organisational learning help to explain dynamic capabilities?

For this project a combined approach, that focus on the relation between intrinsic and extrinsic motivation, with concepts like crowding-out and crowding-in effects is of great interest since the investigation is within the market (Frey, 1997 and Osterloh & Frost, 2000). Crowding effects refer to how external environments affect intrinsic motivation. Frey (1997), for example, gives a list of eight propositions of crowding effects. However, most of them are concerned with crowding-out effects—among others that incentive system can have a negative effect on intrinsic motivation.

² The same can be shown with type-contingent reservation utilities if we let the different types be defined as different levels of ability. For a theoretical discussion on this see Fredrik Andersson (1995).

The crowding-out effects can only give us a negative explanation telling us when dynamic capabilities do not work. In a market economy crowding-out effects will though always be present, since employees will always to some degree be exposed to extrinsic motivation, i.e. an incentive system.

Two of the propositions fit well to dynamic capabilities. First: “Hard regulation crowd-out intrinsic motivation, soft regulations tend to leave it unaffected and may even crowd it in” (Frey, 1997: 32). The argument from Marsh above gave a similar conclusion. That ‘variability in individual beliefs’ foster dynamic capabilities and to allow for this is to have ‘soft regulations’. Second: “The more interesting a task is for the agents, the higher their intrinsic motivation to perform well, and the more an external intervention diminishes perceived self-determination and self-evaluation, and therewith the intrinsic motivation” (Frey, 1997: 28). This is also in the line with the reasoning of dynamic capabilities and that of Marsh. But to explain dynamic capabilities we will need a middle step if concepts like self-determination and self-evaluation is to have an explaining power. Here once again organisational learning might help us if it can be shown that it can foster self-determination and self-evaluation.

References:

- Andersson, Fredrik (1995) "On the Screening Power of Incentive Schemes", *Essays in the Economics of Asymmetric Information*, Dissertation at Department of Economics Lund University. Lund Economics Studies No 59.
- Bartunek, Jean M., Catherine A Lacey & Diane R. Wood (1992), "Social Cognition in Organisational Change: An Insider-Outsider Approach", *Journal of Applied Behavioural Science*, Vol. 28, No. 2, June 1992, pp. 204-23.
- Bernstein, Richard J. (1983) *Beyond Objectivism and Relativism: Science, Hermeneutics and Praxis*. Oxford: Basil Blackwell.
- Bodenhausen, Galen V., C. Neil Macrae & Jeffery W. Sherman (1999), "On the Dialectics of Discrimination: Dual Process", *Dual-Process Theories in Social Psychology*, Ed. Shelly Chaiken & Yaacov Trope, 1999, pp 271-90. New York & London: The Guilford Press.
- Collis, David (1996), "Organizational Capabilities as a Source of Profit", *Organizational Learning and Competitive Advantage*, Sage: London, pp 139-63.
- Eisenhardt, Kathleen M. (1989), "Building Theories from Case Study Research", *Academy of Management Review*, Vol. 14, No. 4, pp. 532-550.
- Fiske, Susan T. (1994), "Social Cognition and Social Perception", *Annual Review of Psychology*, 1994, Vol. 44, pp. 155-94.
- Frey, Bruno S. (1997) *Not Just For the Money*. Edward Elgar Publishing.
- Grant, David (1996), "Prospering in Dynamic-competitive Environments: Organizational Capability as Knowledge Integration", *Organizational Science*, Vol. 7, No. 4, July-August 1996, pp. 375-87.
- Henderson, Rebecca M. & Kim B. Clark (1990) "Architectural Innovation: The Reconfiguration of Existing Product Technologies and the Failure of Established Firms", *Administrative Science Quarterly*, Vol. 35, 1990, pp. 9-30.
- Holmström, Bengt & Paul Migrom (1991), "Multitask Principal-Agent Analyses: Incentive Contract, Asset Ownership, and Job Design", *Journal of Law, Economics and Organisation*, Vol. 7, 1991, pp. 24-52.
- Jensen, Michael C. & William H. Meckling (1992), "Specific and General Knowledge, and Organisational Structure", *Contracts Economics*, eds. Lars Werin & Hans Wijkander. Blackwell.
- Kim, Daniel H. (1993), "The Link between Individual and Organisational Learning", *Sloan Management Review*, Fall 1993, pp. 37-50.
- Kuhn, Thomas S. ([1972] 1996) *The Structure of Scientific Revolution*. Chicago and London: The University of Chicago Press.
— (1977) *The essential tension: selected studies in scientific tradition and change*. Chicago: University of Chicago Press.
- Levinthal, Daniel A. & James G. March (1993), "The Myopia of Learning", *Strategic Management Journal*, 1993, Vol. 14, pp. 95-112.
- Marsh, James G. (1991), "Exploration and Exploitation in Organisational Learning", *Organization Science*, Vol. 2, No. 1, Feb. 1991, pp. 71-87.
- Minkler, Alanson P. (1993), "Knowledge and Internal Organisation", *Journal of Economic Behaviour and Organisation*, Vol. 21, 1993, pp. 17-30.

- Moskowitz, Gordon B., Ian Skurnik & Adam D. Galinsky (1999), "the History of Dual-Process Notions, and the Future of Preconscious Control", *Dual-Process Theories in Social Psychology*, Ed. Shelly Chaiken & Yaacov Trope, 1999, pp 271-90. New York & London: The Guilford Press.
- Penrose, Edith T. (1955), "Research on the Business Firm: Limits to the Growth and Size of Firms", *The American Economic Review*, Vol. 45, May 1955, pp. 531-543
- Reed, Richard & Robert J. DeFillippi (1990), "Causal Ambiguity, Barriers to Imitate and Sustainable Competitive Advantage", *Academy of Management Review*, Vol. 15, No. 1, 1990, pp. 88-102.
- Richardson, G. B. (1972), "The Organization of Industry", *The Economic Journal*, Vol. 82, Issue 327, Sept. 1972, pp. 883-96.
- Thomas, Kenneth W. (2000), "Intrinsic motivation and How it Works", *Training*, October 2000, pp. 130-5.
- Schneider, Susan C. & Reinhard Angelman, (1993) "Cognition in Organisational Analysis: Who's Minding the Store?", *Organisational Studies* Vol. 14, No 3, 1993, pp. 347-74.
- Spender, J. C. (1996), "Competitive Advantage from Tacit Knowledge? Unpacking the Concept and its Strategic Implication", *Organisational Learning and Competitive Advantage*, pp 56-73. London: Sage.
- Spinosa, Charles, Fernando Flores, & Hubert L. Dreyfus (1997), *Disclosing New Worlds: Entrepreneurship, Democratic Action, and the Cultivation of Solidarity*. The MIT Press: Cambridge, Massachusetts, and London, England.
- Teece, David J., Gary Pisano, and Amy Shuen (1997), "Dynamic Capabilities and Strategic Management", *Strategic Management Journal*, Vol. 18, No. 7, 1997, pp. 509-33.
- Walsh, James P. & Leonidas C. Charalambides (1990), "Individual and Social Origins of Belief Structure Change", *Journal of Social Psychology*, Vol. 130, No. 4, Aug. 1990, pp. 514-33.
- Wyer, Robert S. Jr. & Donal E. Carlston (1994), "The Cognitive Representation of Persons and Events", *Handbook of Social Cognition: Vol. 1 Basic Processes* Ed. Robert S. Wyer Jr. & Thomas K Srull, 1994 2nd ed., pp. 41-98. Hillsdale, N.J. L. Erlbaum Associates
- Yin, Robert K. (1989), *Case Study Research: Design and Method*. Sage Publication.