

HOW INSTITUTIONAL INFLUENCES ON ROUTINES IMPACT ROUTINE LEARNING PROCESSES

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This paper contributes to research on routine learning based on internal change dynamics of routines. We define routine learning as a social learning process involving a multitude of actors and apply a performative routine model to analyze impacts of the institutionalization of routines within an organization on the occurrence of explorative routine learning. From an institutional perspective, we argue that the understanding of involved actors influences their possibility to recognize new opportunities based on routine outcomes and thus initiate explorative changes. A 'technical' understanding and thus effortful routine performance is more likely to lead to explorative routine learning than an 'institutional' understanding which implicates routine performance as a mindless act.

1 INTRODUCTION

Organizational learning from routines has widely been acknowledged to be one of the fundamental issues for organizations to sustain competitive advantage within fast changing environments (March, 1991; Cyert and March, 1963; Easterby-Smith and Lyles, 2003; Feldman, 2000; Levitt & March, 1988; Zollo & Winter, 2002). Routines constitute a basic unit of analysis for learning processes, since they represent an important storage for knowledge gained through learning processes within organizations (e.g. Feldman and Pentland, 2003; Feldman, 2003, March, 1991; Nelson and Winter, 1982; Schulz, 2002). Organizational learning refers to the elaboration, transformation and replacement of routines in reaction to organizational experiences which shape organizational behavior (Cyert and March, 1963; Schulz, 2002; Levitt and March, 1988).

However, the routine perspective on learning is still narrow, since routines are traditionally associated with stability and consistency creating a certain inertia and stickiness to change and learning within an organization (e.g. Becker, 2004; Feldman & Pentland, 2003; Leonhard-Barton, 1992; Nelson & Winter, 1982; Pentland & Feldman, 2005). With the elaboration of a performative model of routines, Feldman (2000, 2003) showed, that routines can also be considered as continuously evolving and changing constructs subject to organizational learning processes (e.g. Feldman, 2000; Pentland & Feldman, 2005). She (2000) has specified the change potential of routines following an incremental, continuous adaptation change model. The change potential is identified within the internal dynamic of routines. Learning in routines occurs because, "people who engage in routines adjust their actions as they develop new understandings of what they can do and of the consequences of their actions" (Feldman, 2000: 613).

Also Feldman acknowledges continuous improvement within routines, the focus lies primarily on improvement of existing routines. As e.g. illustrated in her studies of hiring routines, continuous improvements lead to changes in the performance of a routine in order to fulfil a given outcome in a better way (Feldman, 2000). Besides the exploitation of existing routines, explorative learning processes are equally important for organizations (March, 1991; Cyert & March, 1963; Easterby-Smith & Lyles, 2003). Feldman (2000) acknowledges the possibility of such learning processes involving the elaboration of new opportunities. However, little is known under which circumstances routine learning based on a performative routine model will occur respectively which circumstances might impede the occurrence of explorative learning processes.

The purpose of this paper is to shed some light on the institutional context of routines to identify impediments of explorative routine learning. We define explorative learning in routines as a significant change in their performance which might as well lead to a manifestation of change in the ostensive aspect of the routine. This changes might e.g. include the substitution of subroutines of an existing routine or the replacement of a routine by completely new created routines. Performance changes are based on the ability of actors to detect new opportunities arising from the outcomes of routine performance (Feldman, 2000: 613). We argue, that actors create a specific understanding of the function of a routine within the organization and of their expected role when performing a routine. In our understanding, learning in routines does not exclusively occur through learning of the individual actors involved in a routine. Routine learning is rather a social process and can be described as situated learning (Brown & Duguid, 1991; Feldman, 2000; Lave & Wenger, 1991). We draw on institutional theory to explain how social learning processes in routines are influenced

by the institutionalization of routines within an organization. To gain better insights into that relation, we propose to distinguish a technical (efficiency oriented) understanding of actors on a routine from an institutional (taken-for-granted) understanding. Established institutionalized routines might impede routine learning due to (1) a limited reflexivity and awareness to recognize change opportunities on the individual level of the involved actors and (2) the lack of generating a common understanding and consensus on the need for change on the collective level of actors and thus legitimize the change.

This paper starts with a confrontation of the traditional stability oriented routine perspective with the performative routine model and internal change dynamics of routines. Based on the performative model, we will define learning processes in routines as social learning processes. An institutional perspective allows us to analyze to what extent the institutionalization of a routine within an organization influences the social learning process.

2 PERSPECTIVES ON CHANGE IN ROUTINES

Generally speaking, routines represent repetitive, recognizable patterns of interdependent actions which are carried out collectively by multiple actors (e.g. Becker, 2004; Cohen et al., 1996; Feldman & Pentland, 2003; Nelson & Winter, 1982; Pentland & Rueter, 1994). They constitute a fundamental concept within evolutionary models of economic development (Cohen et. al., 1996; Nelson & Winter, 1982). In evolutionary theories of organizations, routine are a means of efficient organizing in complex organizations facing coordination problems due to the multitude of organizational members engaged in a variety of roles and processes. The primary goal of routinization from an evolutionary perspective is to create efficiency within an organization (Cyert & March, 1963; Nelson & Winter, 1982).

The notion of routines assembles "forms, rules, procedures, conventions, strategies, and technologies around which organizations are constructed and through which they operate" as well as "the structure of beliefs, frameworks, paradigms, codes, cultures, and knowledge buttress, elaborate, and contradict the formal routines" (Levitt & March, 1988: 320). Nelson & Winter (1982) define routines as patterns of behavior, which "range from well-specified technical routines for producing things, through procedures for hiring and firing, ordering new inventory, or stepping up production of items in high demand, to policies regarding investment, research and development (R&D), or advertising, and business strategies about product diversification and overseas investment" (1982: 14).

From a sociological perspective, routines live from their performance through a collectivity of actors. Their actions are linked with one another. Feldman (2000) view routines as "flows of connected ideas, actions, and outcomes" where "ideas produce actions, actions produce outcomes, and outcomes produce new ideas" (p. 613). Following this approach, we define routines as social acts represented by collective regularities of behavior, whereas the involved actions and created ideas are influenced by interpretation processes of actors in the means of negotiating a shared understanding of why and how a routine is performed.

Before illustrating routine learning as social learning processes, we will trace the development of the performative routine model as basis for an actor perspective on routine change.

2.1 Routine Changes Initiated by External Shocks

Routines are traditionally characterized as stable and reproducible constructs crucial for the reproduction of an organization (Becker, 2004; Cohen et. al., 1996; Gersick & Hackman, 1990; Miner, 1990, 1991; Nelson & Winter, 1982; Nelson, 1994). Stability is used as substantial characteristic of routines (e.g. March and Simon, 1958; Cyert & March, 1963; Nelson & Winter, 1982).

However, the possibility of change has already been acknowledged in early routine research (e.g. Cyert & March, 1963; Miner, 1990, 1991; Nelson & Winter, 1982). Routine change from this perspective is change as response to a change in conditions within the organization and/or its operating environment (Winter, 1964: 263). Nelson & Winter (1982) address e.g. the issue of routine mutations due to employee turnover or changes as a result of innovations in the organizational context which might be based on already existing routines. "One way in which the routine functioning of an organization can contribute to the emergence of innovation is that useful questions arise in the form of puzzles or anomalies relating to prevailing routines." (Nelson & Winter, 1982: 129) These learning processes are reactions to crisis situations or exceptions. The problem-solving which might lead to innovation is initiated by persons which are not part of the original routine, but external actors called in to solve a crisis situation. This approach highlights change in routines as response to 'external shocks' (Nelson & Winter, 1982: 130; see also Cohen et al., 1996; Elkjaer, 2003; Gersick & Hackman, 1990). Only in 'exceptional' situations does an organization realize the need to reflect on a routine, "as long as an existing routine gives satisfactory results, no conscious cognitive problem solving is triggered to find another way to achieve the task (Becker, 2004: 659; referring to March & Simon, 1958; Cyert & March, 1963). This approach might lead to a certain stickiness impeding the organization to realize and react to changing environments early enough to stay competitive within their business environment (e.g. Leonhard-Barton, 1992).

2.2 Routine Changes Due to Internal Routine Dynamics

Employing a sociological view on routines and dropping the evolutionary perspective, enables to move away from the rather abstract idea of routines and instead focus on the role of actors performing a routine. This view also helps to further explore the full change potential of routines by shifting the focus away from external shock situations as single source of routine change and instead promoting continuous change processes within routines (Feldman, 2000, 2003). Thus, "change occurs as a result of participants' reflections on and reactions to various outcomes of previous iterations of the routine" (Feldman, 2000: 611). We would like to add to this perspective by further analyzing how those processes of reflection and interpretation are influenced by the institutionalization of routines.

As seen above, traditionally, routines have been studied as rather abstract constructs. Feldman (2000) breaks down that abstract definition by distinguishing ostensive and performative aspects of routines. This distinction allows to better acknowledge for the

role of agency within the performance of routines. The latter are not only abstract constructs, but rather live from the active performance of the collectivity of actors involved in routine execution (Feldman, 2000). This view on routines also reflects, that actors do usually not perform their work exactly the way e.g. manuals would describe it, but actors rather perform a task according to the meaning they construct associated to the task (Brown & Duguid, 1991; Emirbayer & Mische, 1998; Sandberg, 2000). While Nelson & Winter (1982) acknowledge the individual role, they focus on organizational (control) mechanisms to limit the influence of individual actors. In contrast, Feldman (2000) highlights the importance of such individual engagement as a substantial part of routines. Feldman (2000; 2003) and Feldman & Pentland (2003) define the two aspects of routines as follows: "The ostensive aspect is the ideal or schematic form of a routine. It is the abstract, generalized idea of the routine, or the routine in principle. The performative aspect of the routine consists of specific actions, by specific places and times. It is the routine in practice." (Feldman & Pentland, 2003: 101). Routines from this perspective are effortful and emergent practices, where the actions of involved organizational members and the outcomes of those actions are strongly interrelated in a way that "ideas produce actions, actions produce outcomes, and outcomes produce new ideas" (Feldman, 2000: 613). These dynamics provide the base for continuous change of organizational routines (Feldman, 2000; Pentland, 1995; Pentland & Rueter, 1994).

3 LEARNING PROCESSES IN ORGANIZATIONAL ROUTINES

The traditional perspective on routines as stable constructs neglects that people are thinking about what they are doing while performing a routine. To shed light on the learning processes within routines, we follow the performative model of routines with a stronger role attributed to routine agents. "Routines are performed by people who think and feel and care. Their reactions are situated in institutional, organizational and personal contexts. Their actions are motivated by will and intention" (Feldman, 2000: 613). This shift in attention away from the formal patterns of routines towards an understanding of routines as situated actions involving a multitude of actors enables to learn more about how those actors can contribute to change in routines (Feldman, 2000; Howard-Grenville, 2005).

In our understanding, organizational learning is a performance improvement oriented activity for example initiated to better respond to changed environmental conditions such as technological developments, changed customer expectations or stakeholder expectations, regulatory environments etc. This change therefore has to lead to increased organizational effectiveness (Argyris & Schön, 1978 and Fiol & Lyles, 1985 in Huber, 1991). From a performative perspective, learning is initiated from within a routine by the performing actors which either change the way a routine is performed without changing the ostensive routine aspect (e.g. Feldman, 2000)¹, or both the performative and ostensive aspect. We focus on explorative learning in the sense of exploring new opportunities. This implicates to perform a routine significantly different or to create new routines in order to achieve different outcomes as opposed to the exploitation of existing ways of performing a routine to reach a given outcome (March, 1991). Initiated by changes in the performance of a routine, we assume that the realization of new opportunities leads to substantial performance changes which might

¹ Feldman (2000) illustrates this aspect with hiring routines she observed. The constituting elements and their sequence of execution remained unchanged, but the way how they were performed had changed.

also implicate changes in the ostensive part of the routines e.g. substitution of certain subroutines or the replacement of existing routines by new ones.

If learning is initiated from within a routine, this implicates a certain degree of reflexivity on behalf of the performers. The involved actors need to recognize new opportunities and link them to an overall need for organizational change. Thus, actors need to be open to perceive change opportunities. As noted earlier, routines are per definition performed by a collectivity of involved actors (Becker, 2004; Feldman & Pentland, 2003; Nelson & Winter, 1982). The multitude of actors involved in routine performance suggest to view learning in routines as a social and situated learning process instead of focusing on the individual mind as locus of learning (e.g. Elkjaer, 2003; Gherardi, 2000, 2001). We will describe routines from a social learning perspective in the following paragraphs and analyze the consequences of institutionalization processes on those social learning processes.

3.1 Routine Learning as a Social Learning Process

Applying a social learning perspective on routine learning helps to overcome the individual mind as locus of learning and instead focus on routines as participation patterns within an organization involving a multitude of actors (Elkjaer, 2003). Defining the community of actors involved in a routine as the loci of learning, implies the conceptualization of routine learning as a situated and relational process of meaning generation (Jacobs & Coghlan, 2005). Learners as the performers of a routine are perceived as "social beings that construct their understanding and learn from social interaction within the specific socio-cultural settings of an organization" (Elkjaer, 2003: 44). Routines are embedded in a broader organizational context (e.g. Becker, 2004; Cohen et. al., 1996) and as thus characterized as 'situated actions' (Suchman, 1987; see also Becker, 2004; Feldman, 2000).

From a social or situated learning perspective², the context influences learning processes (Brown & Duguid, 1991). The abstract idea of a routine is enacted by the performances of involved actors and the action these participants take. Their actions are influenced by what they "understand they are doing when they enact organizational routines" (Feldman, 2003: 728). Therefore, the performance of routines involves interpretation and sense making activities on behalf of the involved actors about the routine and its embeddedness within the organizational context (Elkjaer, 2003; Feldman, 2000; Nelson & Winter, 1982; Pentland and Rueter, 1994). According to Daft & Weick (1984), this interpretation process is described as "the process through which information is given meaning" (p. 294). The actors create an understanding about a specific situation and the appropriate actions: "Organizational participants are making conscious efforts to understand what actions make sense in the context in which the work is being performed. [...] [They] use what they understand about how the organization operates to guide their performances within the routine" (Feldman, 2003: 727). Reproducing or altering a routine is hence also about reproducing or altering the understandings of agents about how the organization functions, "since people who engage in routines adjust their actions as they develop new understandings of what they can do and of the consequences of their actions" (Feldman, 2000: 613).

² the terms social learning and situated learning are used as interchangeable terms within the paper (e.g. Gherardi 2000, 2001).

The performative perspective of routines highlights that there is a recursive relationship between the performance of routines and the understandings of the involved actors about what they are doing when performing a routine (Feldman & Pentland, 2003; Feldman & Rafaeli, 2002). According to the performative model of routines, "outcomes that fall short of ideas and outcomes that present new opportunities" (Feldman, 2000: 613) are the main drivers of continuous change. Initial thoughts on routines as social activities can be found in earlier works (e.g. Nelson & Winter, 1982: 100ff). Routines thus imply the ability of interpreting different messages highlighting the cognitive aspects of routine performances. What differentiates this traditional view from a social learning perspective is the fact, that individual cognitions and interpretations are not sufficient to initiate change in routines. Rather, the collectivity of actors has to support those change processes since individuals interact with other actors involved in a routine (Elkjaer, 2003; Howard-Grenville, 2005). The collectivity of actors involved in a routine creates a shared understanding (Jacobs & Coghlan, 2005; Feldman & Rafaeli, 2002; Weick & Roberts, 1993; Wenger, 1998). Furthermore, for individual processes of sense making, the individual actor has to relate to the actions of other actors involved in the performance of a routine to make sense of his own participation and contribution to the routine (Elkjaer, 2003; Emirbayer & Mische, 1998). Being part of the collectivity of actors involved in a routine also "involves being able to give a reasonable account of why things are done" (Elkjaer, 2003: 44).

To study routine learning as a social learning process implies to consider the specific context of a routine in which learning takes place. The questions of how organizational participants involved in a routine construct the relevant context is crucial to analyze learning in routines (Elkjaer, 2003; Gherardi et al., 1998). Drawing on institutional theory, we claim that involved actors might construct a more technical (efficiency oriented) or more institutional (taken-for-granted) understanding of a routine and their task when performing a routine. We will explore this distinction and consequences for learning in routines in the following sections of the paper.

3.2 An Institutional Perspective on Routines

As seen earlier, routine performers construct a specific understanding of a routine and their role within the routine which influences the way a routine is being performed. The understanding is a result of interpretation and sense making processes of the organizational context. Actors involved in performing a routine enact the routine according to their constructed meaning of the function of the routine within the organization and their role as actors for the accomplishment of the routine (e.g. Emirbayer & Mische, 1998; Sandberg, 2000; Weick & Roberts, 1993). We consider the organizational context of a routine and thus the development of a routine itself as a historical product (Becker, 2004; Elkjaer, 2003; Gherardi et al., 1998; Nelson & Winter, 1982; Levitt & March, 1988, Oliver, 1997), and argue that based on this path dependency, from an institutional standpoint, one can distinguish two major understandings created by actors about the function of a routine and of the expected role when performing a routine. The first understanding can be described as efficiency driven in the sense that a routine is an important performance factor within an organization. The organization is well aware of the importance of the routine for overall firm performance e.g. through efficient organizing processes. Actors are encouraged to actively engage in the optimization of the routine. A second option is identified as an institutional driven understanding. In the latter case, the organization does not consider the routine as a primary performance driver and thus does not continually invest in the

optimization of a routine. Actors are not encouraged to reflect about the why and how of a routine, but define their role rather as doing what has always been done without questioning the routine itself.

This distinction is based on the differentiation of technical and institutional organizational environment respectively task environments and institutional environments (e.g. Selznick, 1957; Zucker, 1987). While organizations are rewarded for efficiency within technical environments (Scott, 1992), the primary goal within institutional environments is legitimacy (Scott and Meyer, 1991), that is "organizations are rewarded for utilizing correct structures and processes" (Scott, 1992: 132). This distinction has to be interpreted rather as a continuum, than a mutual exclusive differentiation. Organizations are in most cases influenced by both environments. However, there might be a dominance of pressures arising from one or the other environment (Scott, 1992). Although routines, as well, serve both environments, it is likely that pressures arising from one environment might dominant the other one, thus leading to predominantly technical or institutional understandings.

Following the logic of distinctive environments, routines are, on the one hand, used to optimize processes within an organization and serve to generate satisfactory process outcomes (e.g. Cyert & March, 1963). They are developed to optimize organizational cost and control structures and increase effectiveness by reducing cost related to search and evaluation of solutions (Becker, 2004; Cyert & March, 1963; Feldman & Pentland, 2003; Levitt & March, 1988; Nelson & Winter, 1982; Zollo & Winter, 2002). This technical aspect of routines can be extended not only to pure efficiency criteria but more generally to a performance orientation that declares continuous development of routines as a major goal in order to increase firm performance. An increase in efficiency would then be one possibility to positively influence firm performance. If we talk about 'technical' understanding in this paper, we refer more generally to that performance orientation, the efficiency aspect is included as one option.

On the other hand, the presence of specific routines is also a reflection of legitimated institutionalized practices within organizations as part of an organizational field. From a macro-institutional perspective (Zucker, 1987) "organizational success depends on factors other than efficient coordination and control of productive activities. Independent of their productive efficiency, organizations which exist in highly elaborated institutional environments and succeed in becoming isomorphic with these environments gain the legitimacy and resources needed to survive" (Meyer & Rowan, 1977: 352). Acknowledging that isomorphism with environmental institutions promotes the success and survival of an organization, the incorporation of externally legitimated rational myths becomes crucial to increase the commitment of internal and external constituents of an organization and preserve its long term survival (e.g. DiMaggio & Powell, 1983, Meyer & Rowan, 1977; Oliver, 1991; Zucker, 1983, 1987). Thus, routines respond to institutional environments by adopting organizational behavior to established expectations in order to increase the legitimacy of an organization (Feldman, 2000; Feldman & Pentland, 2003; Meyer & Rowan, 1977; Miner, 1991). This perspective highlights, that efficiency criteria are not the only driving force behind decision making and organizing in organizations (Barley & Tolbert, 1997). As the transmission of routines occurs "through socialization, education, imitation, professionalization, personnel movement, mergers, and acquisitions" (Levitt & March, 1988: 320), they are very likely to be influenced by institutional forces rather than just responding to organizational efficiency and organizing problems (e.g. DiMaggio & Powell, 1983; Feldman, 2000; Meyer & Rowan, 1977). Especially throughout the

institutionalization process of a routine within an organization, the 'technical' performance orientation might decrease. The latter aspect builds the center of our argumentation.

From a micro-institutional perspective, focusing on the role of organizations as institutions respectively sources of institutions themselves (Zucker, 1983, 1987), the "implemented institutional elements commonly arise from within the organization itself" (Zucker, 1987: 446). This approach sheds some light on the underlying processes of the development of institutions such as e.g. organizational routines, rules and standard operating procedures within the organizational context and analyzes the institutionalization process in organizations (Zucker, 1977, 1983). Routines pass through a process of institutionalization (e.g. Barley & Tolbert, 1997; Becker, 2004; Miner, 1991; Pentland & Feldman, 2005; Tolbert & Zucker, 1996; Zucker, 1983) and once being institutionalized "are easily transmitted to newcomers, are maintained over long periods of time without further justification or elaboration, and are highly resistant to change" (Zucker, 1987: 446; see also Nelson & Winter, 1982; Zucker, 1977). Institutionalization in this context refers to the "process by which certain [...] activities come to be taken for granted" (Zucker, 1983: 2). Even though, individual actors have some impact on the creation and shaping of routines in their initial stage, they may continue even if the individual leaves the organization (Levitt & March, 1988; Schulz, 2002; Tolbert & Zucker, 1996; Zucker, 1977, 1983). Highly institutionalized routines "are experienced as part of the intersubjective world consisting of resistant objective structures independent of any particular actor" (Zucker, 1983: 2). They are executed automatically without being questioned as an objective fact and thus missing important premises to initiate change (e.g. Feldman & Pentland, 2003; Zucker, 1983). It is this stability characteristic of routines, which "decreases effectiveness if more efficient ways of organizing are ignored, often because they are literally not perceived" (Zucker, 1987: 446; see also Zucker, 1977). However, institutionalized routines might still be perceived by actors as the most efficient way to accomplish a task. The major difference between what we call technical driven and institutional driven, is the fact, that institutionalized routines are not questioned any longer. The institutionalized routine, even so perceived as efficient, does no longer have to prove its efficiency. In contrary, in a technical driven understanding, the actors will continue to prove the efficiency e.g. through the consideration of alternative ways to perform a routine.

In summary, based on a distinction of the function of routines from a task environment or institutional environment perspective, actors might create a more technical driven understanding or a more institutionalized understanding of a specific routine. A routine might on the one hand be perceived as an important firm performance driver, encouraging the involved actors to actively participate in the optimization of the underlying processes. On the other hand, in the case of institutionalized routines as taken-for-granted and unquestioned procedures, the involved actors might follow an approach of doing what they have always been doing without reflecting about how the routine is executed and further implications on the routine output. Even so, a routine might initially be develop as a mean of efficient organizing, this focus might get weaker the longer a routine has been established and thus institutionalized within an organization. The relation between the performance of that routine and its effects on overall firm performance might no longer be a central focus of routine actors.

3.3 Institutionalized Routines as Impediments of Learning

Scholars argue about whether routines are mindless or rather 'effortful accomplishments' (Pentland & Rueter, 1994: 488; see Becker, 2004 and Cohen et. al., 1996 for a discussions on the different positions). This position depends on one side on the fact of distinguishing ostensive from performative routine aspects or neglecting the role of agency (e.g. Feldman, Feldman & Pentland, 2003; 2000; Pentland & Rueter, 1994). We claim that, on the other hand, the response to this issue lies within the institutionalization process routines are going through (Zucker, 1987). The involved actors will interpret information about the function of a routine in an organization and about their expected role while executing the routine. If the organization does not signal the importance of a routine as performance driver and does not encourage the participants to reflect and improve their performance, the execution of a routine will not include necessary efforts to foster routine learning. If learning processes should take place within routines, than the latter have to be performed as 'effortful accomplishments' (e.g. Pentland & Rueter, 1994; Pentland, 1995; Feldman, 2000, 2003; Feldman & Pentland, 2003) instead of being a 'mindless' automatic subconscious process (e.g. Gersick & Hackman, 1990; Cohen, 1991; Nelson, 1995; Simon, 1947). If the information available within the organizational context leads actors to interpret a routine as a taken-for-granted fact, this routine is likely to be performed rather mindlessly and will not be questioned and evaluated on the base of efficiency criteria but rather executed unconsciously (Zucker; 1987). The actors will understand their role in performing a routine as doing what has always been done without further questioning this procedure and searching for alternatives which might be more efficient. Briefly, depending on what understanding of routines is dominant among the involved actors, we argue that these actors might recognize new opportunities due to variations in the outcome of routines, or not (Feldman, 2000). If the understanding of the collectivity of involved actors is above all more 'technically' shaped in the sense that actors are aware of the importance of the performed routines for the corresponding outcome and the estimated impact on firm performance, changes in those routines might be more likely to occur. However, if the understanding is predominantly 'institutional', in the sense that actors do not question the use and performance of those routines, routine learning might not take place.

Proposition 1a: Routine learning is more likely to occur, if the involved actors share a predominantly 'technical' understanding of a routine and their tasks related to the performance of that routine.

Proposition 1b: Routine learning is less likely, if the involved actors share a predominantly 'institutional' understanding of a routine and their tasks related to the performance of that routine.

This organizational embeddedness of routines influences their performance on the individual level as well as on the collective level of all involved actors (e.g. Howard-Grenville, 2005). Learning processes in routines thus involve both, individual and collective learning processes. As mentioned earlier, learning in routines is linked to the outcome of routine performance. According to Feldman (2000), continuous change is implicated by outcomes that "fall short of ideals and outcomes that present new opportunities" (p. 613). The first case can be associated with exploitative learning, since this sort of outcome will encourage people to keep on trying and make further attempts to reach the ideal result. The latter case describes more what could be labelled as explorative learning, since outcomes presenting new opportunities set the ground to

discover and develop a new understanding of what is possible and should be followed (March, 1991). Both cases, however, implicate that actors are aware of such variations in the outcomes and are able to recognize the potential for change. Thus, we argue that a certain degree of 'technical' understanding is necessary to initiate change in routines.

Our argumentation is focused on a two step approach of change initiation within routines. First of all, individual actors need to realize the potential for change. In a second step the multitude of involved actors has to be persuaded of the need for change. We assume that one way to change an institutionalized routine might be that an individual actor identifies new opportunities and serves as change agent to initiate the necessary changes to explore that opportunity (e.g. Weick & Roberts, 1993). Even so, the actors might share a predominant common 'institutional' understanding of a routine in this example, this common understanding is more likely to be an agreement to a certain degree of common understanding instead of identical understandings among actors. This variance leaves room for individual actors realizing the change potential and thus serving as institutional entrepreneurs to change institutionalized routines (Fligstein, 1997; Lawrence & Suddaby, 2006; Rao et al., 2000).

Individual actors as routine agents perform a routine according to their intentions and orientations which are influenced by the understanding of the routine and its function within the organization (Feldman & Rafaeli, 2002; Howard-Grenville, 2005; Pentland & Rueter, 1994). According to this logic, actors with a more 'technical' understanding of the role and function of the performed routine might be more aware of necessary changes and try to adapt the underlying routine in order to e.g. better fit to changed environmental conditions. On the other hand, it is argued that a rather 'institutional' understanding might impede actors to recognize new opportunities and change potentials of a routine. Therefore, if actors perceive the reflection and development of a routine as one of their major tasks, as it is the case in more technical driven understandings, learning is more likely to occur. If, on the other hand, the participants construct a more institutional understanding of routine within the organizational context and of their role while performing the routine, than learning is less likely to occur. In the latter case the necessary reflection to initiate double loop learning processes in a routine are less likely to take place.

Proposition 2a: Individual actors with a 'technical' understanding of a routine and their tasks related to routine performance are more likely to detect new opportunities in routine outcomes and initiate routine learning.

Proposition 2b: Individual actors with an 'institutional' understanding of a routine and their tasks related to routine performance are less likely to detect new opportunities in routine outcomes and initiate routine learning.

The individual initiative of actors will not lead to changes in routines, if the collectivity of involved actors is not supporting these changes (Feldman & Rafaeli, 2002; Fligstein, 1997; Howard-Grenville, 2005). As Howard-Grenville found out in its study of roadmapping routines, “agency mattered to the individual performances of the routine. Furthermore, as a collective accomplishment, a given routine performance came about through tacit negotiation of individual intentions and orientations, so the agency of multiple actors, and their relative power, mattered also” (2005: 619). Following this logic, not only the aspect of individual agency is influenced by the functional understanding of routines, but also the understanding of the collectivity of actors affects the ability to change the routine according to whether those actors recognize the

technical need to adapt the routine or not, due to some kind of institutional blindness. Actors have to legitimize the changes in a routine facing the other involved actors. The multiple actors have to construct a shared understanding about what constitutes a routine and why a routine is performed (Feldman & Rafaeli, 2002; Weick & Roberts, 1993). Actors have to provide reasonable and legitimate accounts about what they do and how they do it and sell the initiated changes to the rest of involved actors. If an actor initiates changes in the performance of a routine, he has to legitimize those changes within the collectivity of all involved actors (Fligstein, 1997; Rao et al., 2000). The difficulty lies within the implicated change of shared understandings among the multitude of actors. "Just because change is continuous and relatively unproblematic in many instances, does not mean that a specific desired change will be easy to bring about. [...] a specific desired change might require performances that are inconsistent with the understandings about how the organization operates and with the performances that create and maintain these understandings" (Feldman, 2003: 749). Only if the majority of involved actors can be persuaded of the potential arising from the detected opportunity a routine can be changed. We argue, that it is more likely for the individual agent to persuade the other actors, if they already share a more 'technical' understanding and thus are aware of the necessity of change. Thus, the more people share a 'technical' understanding, the more likely learning is to occur.

Proposition 3a: The collectivity of involved actors is more likely to support the initiated change, if the majority of involved actors share a 'technical' understanding of the routine and their role in performing a routine.

Proposition 3b: The collectivity of involved actors is less likely to support the initiated change, if the majority of involved actors share an 'institutional' understanding of the routine and their role in performing a routine.

To sum up, the embeddedness of routines within the broader organizational context influences the understanding of the collectivity of involved actors. A 'technical' shaped understanding of a routine will more likely lead to the detection of new opportunities by individual actors and might lead to an overall change of the routine, if the collectivity of actors supports that adaptation based on 'technical' judgments. The institutionalization of routines might impede the ability to recognize new opportunities to initiate change in a routine, due to the 'institutionally' shaped understanding which supports a rather mindless and automatic execution of those routines. If the majority of actors does not interpret the optimization of the routine as part of their task, changes initiated by individual involved actors might not be legitimated within the collectivity of actors and thus not lead to an actual change.

4 DISCUSSION & CONCLUSION

The aim of this paper was, to contribute to routine learning research by applying a performative routine model and analyzing impacts of the institutionalization of routines within an organization on the occurrence of explorative routine learning. We defined routine learning as a social learning process involving a multitude of actors. Learning in our understanding takes place in two steps. First of all, individual actors have to detect new opportunities resulting from variances in routine outcomes. Secondly, this individuals in their role as institutional entrepreneurs have to legitimize the need to explore that opportunity within the collectivity of involved routine actors in order to

initiate changes in the routine. These significant performative changes might then lead to ostensive changes in a routine, as well.

Applying a social learning perspective on routine learning (e.g. Brown & Duguid, 1991; Elkjaer, 2003; Lave & Wenger, 1991; Wenger, 1998), we argued that the actors performing a routine create a specific understanding about what function a routine does accomplish within an organization and about what the expected actors' role is on how a routine should be performed. The created understanding is a result of interpretation and sense making processes and influences the way people perform a routine (e.g. Daft & Weick, 1985; Feldman, 2003; Weick & Roberts, 1993). According to our argumentation, the created understanding determines in particular, how conscious a routine is performed and how much actors will be open to recognize new opportunities as premise of explorative routine learning. Thus, we argued that actors might perceive a routine as an important means of overall firm performance and interpret reflections on how a routine is performed as part of their task. We call this a 'technical' understanding. On the other hand, actors might perform a specific routine rather mindless as a taken-for-granted procedure without questioning the routine itself. This is, what we call an 'institutional' understanding.

We argued, that a 'technical' understanding is more likely to lead to routine learning, since (1) it enables individual actors to recognize new opportunities and change potentials resulting out of outcome variances in routine performances and (2) facilitates to legitimize proposed changes within the collectivity of involved actors and thus actually initiate change processes.

Furthermore, our analysis of institutional influences on continuous change processes within routines sheds more light on the debate of routines as effortful accomplishments or rather mindless automatic processes (Becker, 2004; Cohen et. al., 1996; Pentland & Rueter, 1994). We proposed that this distinction depends upon the institutionalization of a routine within an organization. Institutionalized routines are more likely to be mindless accomplishments, whereas a 'technical' understanding of routines might foster routine performance as 'effortful accomplishment' and thus contribute to the initiation of explorative learning processes.

Finally, our attempt to apply the distinction of technical or task environments and institutional environments to a micro-level of organizational practices, is targeted to advance the perspective of organizations as sources of institutions (Zucker, 1983; 1987). This distinction was proposed as one possibility to differentiate the understandings of actors about their role when performing a routine and the effects on routine performance. While this appeared to be an useful explanation for actor's behavior, it has to be acknowledged that this distinction should not be interpreted as a pure dichotomy in the real organizational context, but rather as a continuum. Organizations are likely to be confronted with pressures from both environments. However, in some cases, the pressure from one environment are dominant and strongly influence organizational decision making (Scott, 1992). Also, the definition of technical environments in earlier institutional works is dominated by a very strong efficiency focus. For the purpose of this paper, we extended that definition from an efficiency orientation to a performance orientation more generally with efficiency as one performance driver. Nevertheless, this distinction proved helpful to distinguish the different functions a routine might take within an organization from an institutional perspective.

We identified processes of interpretation and sense making as a key factors for routine learning, since these processes shape the understanding of individual actors as well as the shared understanding of the collectivity of actors. If routine learning involves change processes of shared understandings among the collectivity of actors, organizations have to be sensible to the way routines are promoted within the organization. This has implications for organizations, that want to foster learning processes in routines. The labelling and framing of information concerning the function of routines and the expected role behavior of involved actors can thus be an important change driver if it shapes the interpretation processes and thus the generated understanding of routine actors (Huber, 1991).

In summary, although certain limitations apply to our conception of routine learning, we proposed a conceptual frame to further explore the change potential of routines based on internal routine dynamics and presented an agency centred change model of routine learning. The paper identified impediments of routine learning from an institutional perspective to raise awareness of the importance of interpretation and sense making processes of routine actors and the effects on the way routines are performed.

REFERENCES

- Argyris, C. and Schön, D. A. (1978), *Organizational Learning: A Theory of Action Perspective*, Addison-Wesley, Reading.
- Barley, S. R. and Tolbert, P. S. (1997), 'Institutionalization and Structuration: Studying the Links between Action and Institution', *Organization Studies*, vol. 18 no. 1, pp. 93-117.
- Becker, M. C. (2004), 'Organizational routines: a review of the literature', *Industrial and Corporate Change*, vol. 13 no. 4, pp. 643-677.
- Brown, J. S. and Duguid, P. (1991), 'Organizational Learning and Communities-of-Practice: Toward a Unified View of Working, Learning, and Innovation', *Organization Science*, vol. 2 no. 1, pp. 40-57.
- Cohen, M. D. (1991), 'Individual learning and organisational routine: emerging connections', *Organization Science*, vol. 2, pp. 135-139.
- Cohen, M. D., Burkhart, R., Dosi, G., Egidi, M., Marengo, L., Warglien, M. and Winter, S. (1996), 'Routines and other recurring action patterns of organisations: contemporary research issues', *Industrial and Corporate Change*, vol. 5, pp. 653-698.
- Cyert, R. M. and March, J. G. (1963), *A Behavioral Theory of the Firm*, Prentice-Hall, Englewood Cliffs, NJ.
- Daft, R. and Weick, K. E. (1984), 'Toward a Model of Organizations as Interpretation Systems', *Academy of Management Review*, vol. 9 no. 2, pp. 284-295.
- DiMaggio, P. J. and Powell, W. W. (1983), 'The Iron Cage Revisited: Institutional Isomorphism and Collective Rationality in Organizational Fields', *American Sociological Review*, vol. 48, pp. 147-160.
- Easterby-Smith, M. and Lyles, M. A. (2003), 'Introduction: Watersheds of Organizational Learning and Knowledge Management' in Easterby-Smith, M. and Lyles, M. A. (ed.), *The Blackwell Handbook of Organizational Learning and Management*, Blackwell Publishing, Malden, MA, pp. 1-15.
- Elkjaer, B. (2003), 'Social Learning Theory: Learning as Participation in Social Processes', in Easterby-Smith, M. and Lyles, M. (ed.), *Handbook of Organizational Learning and Knowledge Management*, Blackwell, Oxford, pp. 38-53.
- Emirbayer, M. and Mische, A. (1998), 'What is Agency?', *American Journal of Sociology*, vol. 103 no. 4, pp. 962-1023.
- Feldman, M. S. (2000), 'Organizational Routines as a Source of Continuous Change', *Organization Science*, vol. 11 no. 6, pp. 611-629.
- Feldman, M. S. (2003), 'A performative perspective on stability and change in organizational routines', *Industrial and Corporate Change*, vol. 12 no. 4, pp. 727-752.
- Feldman, M. S. and Pentland, B. T. (2003), 'Reconceptualizing Organizational Routines as a Source of Flexibility and Change', *Administrative Science Quarterly*, vol. 48, pp. 94-118.
- Feldman, M. S. and Rafaeli, A. (2002), 'Organizational Routines as Sources of Connections and Understandings', *Journal of Management Studies*, vol. 39 no. 3, pp. 309-331.
- Fiol, C. M. and Lyles, M. A. (1985), 'Organizational Learning', *Academy of Management Review*, vol. 10 no. 4, pp. 803-813.

- Fligstein, N. (1997), 'Social Skill and Institutional Theory', *American Behavioral Scientist*, vol. 40 no. 4, pp. 397-405.
- Gersick, C. J. and Hackman, J. R. (1990), 'Habitual routines in task-performing groups', *Organizational Behavior and Human Decision Processes*, vol. 47 no. 1, pp. 65-97.
- Gherardi, S. (2000), 'Practice-Based Theorizing on Learning and Knowing in Organizations', *Organization*, vol. 7 no. 2, pp. 211-223.
- Gherardi, S. (2001), 'From Organizational Learning to Practice-Based Knowing', *Human Relations*, vol. 54, pp. 131-139.
- Gherardi, S., Nicolini, D. and Odella, F. (1998), 'Toward a Social Understanding of How People Learn in Organizations: The Notion of Situated Curriculum', *Management Learning*, vol. 29 no. 3, pp. 273-298.
- Howard-Grenville, J. A. (2005), 'The persistence of flexible organizational routines: The role of agency and organizational context', *Organization Science*, vol. 16 no. 6, pp. 618-636.
- Huber, G. P. (1991), 'Organizational Learning: The Contributing Processes and the Literatures', *Organization Science*, vol. 2 no. 1, pp. 88-115.
- Jacobs, C. and Coghlan, D. (2005), 'Sound of silence: On listening in organizational learning', *Human Relations*, vol. 58 no. 1, pp. 115-138.
- Lave, J. and Wenger, E. (1991), *Situated Learning: Legitimate Peripheral Participation*, Cambridge University Press, Cambridge.
- Lawrence, T. B. and Suddaby, R. (2006), 'Institutions and Institutional Work' in *The Sage Handbook of Organization Studies*, Sage Publications, London, pp. 108-140.
- Leonhard-Barton, D. (1992), 'Core Capabilities and Core Rigidities: A Paradox in Managing New Product Development', *Strategic Management Journal*, vol. 13, pp. 111-125.
- Levitt, B. and March, J. G. (1988), 'Organizational Learning', *Annual Review of Sociology*, vol. 14, pp. 319-340.
- March, J. G. (1991), 'Exploration and Exploitation in Organizational Learning', *Organization Science*, vol. 2 no. 1, pp. 71-87.
- March, J. G. and Simon, H. A. (1958), *Organizations*. Blackwell Publishing, Oxford.
- Meyer, J. and Rowan, B. (1977), 'Institutionalized Organizations; Formal Structure as Myths and Ceremony', *American Journal of Sociology*, vol. 83 no. 2, pp. 340-363.
- Miner, A. (1990), 'Structural Evolution through Idiosyncratic Jobs: The Potential for Unplanned Learning', *Organization Science*, vol. 1, pp. 195-210.
- Miner, A. S. (1991), 'Organizational evolution and the social ecology of jobs', *American Sociological Review*, vol. 56, pp. 772-785.
- Nelson, R. R. (1995), 'Recent evolutionary theorizing about economic change', *Journal of Economic Literature*, vol. 33, pp. 48-90.
- Nelson, R. R. and Winter, S. (1982), *An Evolutionary Theory of Economic Change*, Harvard University Press, Cambridge, MA.
- Oliver, C. (1991), 'Strategic responses to institutional processes', *Academy of Management Review*, vol. 16 no. 1, pp. 145-179.
- Oliver, C. (1997), 'The influence of institutional and task environment relationships on organizational performance: The Canadian construction industry', *Journal of Management Studies*, vol. 34 no. 1, pp. 99-124.

- Pentland, B. T. (1995), 'Grammatical models of organizational processes', *Organizational Studies*, vol. 6, pp. 541-556.
- Pentland, B. T. and Feldman, M. (2005), 'Organizational Routines as a Unit of Analysis', *Industrial and Corporate Change*, vol. 15 no. 5, pp. 793-815.
- Pentland, B. T. and Rueter, H. (1994), 'Organisational routines as grammars of action', *Administrative Science Quarterly*, vol. 39, pp. 484-510.
- Rao, H., Morrill, C. and Zald, M. N. (2000), 'Power Plays: How Social Movements and Collective Action Create New Organizational Forms', *Research in Organizational Behavior*, vol. 22, pp. 239-282.
- Sandberg, J. (2000), 'Understanding Human Competence at Work: An Interpretative Approach', *Academy of Management Journal*, vol. 43 no. 1, pp. 9-25.
- Schulz, M. (2002), 'Organizational Learning' in Baum, J. A. C. (ed.), *The Blackwell Companion to Organizations*, Blackwell-Business, Malden, MA, 415-441.
- Scott, W. R. (1992), *Organizations: Rational, Natural and Open Systems*. Prentice Hall, Englewood Cliffs, NJ.
- Scott, W. R. and Meyer, J. W. (1991), 'The Organization of Societal Sectors: Propositions and Early Evidence' in DiMaggio, P. and Powell, W. (ed.), *The New Institutionalism in Organizational Analysis*, University of Chicago Press, Chicago, London, pp. 108-140.
- Selznick, P. (1957), *Leadership in Administration: A Sociological Interpretation*, Row, Peterson, Evanston.
- Simon, H. A. (1947), *Administrative Behaviour*. The Free Press, New York.
- Suchman, L. (1987), *Plans and Situated Actions: The Problem of Human-Machine Communication*, Cambridge University Press, New York.
- Tolbert, P. S. and Zucker, L. G. (1996), 'The institutionalization of institutional theory' in S. R. Clegg, C. Hardy and W. R. Nord (ed.), *Handbook of Organization Studies*, Sage, London, pp. 175-190.
- Weick, K. E. and Roberts, K. H. (1993), 'Collective Mind in Organizations: Heedful Interrelating on Flight Decks', *Administrative Science Quarterly*, vol. 38 no. 3, pp. 357-381.
- Wenger, E. (1998), *Communities of Practice: Learning, Meaning and Identity*, Oxford University Press, New York.
- Winter, S. (1964), 'Economic "natural selection" and the theory of the firm', *Yale Economic Essays*, vol. 4, pp. 225-272.
- Zollo, M. and Winter, S. G. (2002), 'Deliberate Learning and the Evolution of Dynamic Capabilities', *Organization Science*, vol. 13 no. 3, 339-351.
- Zucker, L. G. (1977), 'The role of institutionalization in cultural persistence', *American Sociological Review*, vol. 42, pp. 726-743.
- Zucker, L. G. (1983), 'Organizations as institutions', in Bacharach, S. B. (ed.), *Research in the Sociology of Organizations*, Vol. 2, Jai Press, Greenwich, pp. 1-47.
- Zucker, L. G. (1987), 'Institutional Theories of Organization', *Annual Review of Sociology*, vol. 13, pp. 443-464.