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**Emergence and Functionality of Organizational
Routines: An Individualistic Approach**

**by**

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# Emergence and Functionality of Organizational Routines

## An Individualistic Approach

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**abstract**

The functionality of organizational routines, i.e. the factual value for accomplishing their purposes, is an important constraint on the capabilities an organization can bring to bear on its operations. Often falling short of its potential, the actual make-up of organizational routines invites managerial attention. Of the criteria by which the functionality can be assessed, the generic one discussed in this paper is whose interests this make-up serves. This is determined by the conditions under which organizational routines emerge, particularly the cognitive and motivational attitudes of the organization members involved at this stage. By uncovering how these enhance or impair a routine's functionality for the organization's goals, the paper corroborates the relevance of an individualistic approach in organizational theory.

*Keywords*: organization, routines, capabilities, knowledge, mental models, motivation

## I. Introduction

For its production process to work, an organization must acquire proper resources and motivate and coordinate their productive efforts. At the micro-micro level this means that an appropriate sequencing and timing of the interlocking actions of the organization members must be developed. It is at this procedural level of the intra-organizational division of labor that organizational routines of all sorts play their crucial role. The diversity of these routines notwithstanding, generically they can be characterized as repetitive patterns of interactions of the organization members (Feldman and Pentland 2003). Unlike singular, discretionarily given, managerial orders and directives, an organizational routine thus determines qua more or less automatic repetition of previous joint practice who is doing what, how, when, and on what terms in a particular context or situation. Once implemented, an organizational routine can therefore save on the scarce resource of managerial attention.

With this insight, early inquiries into the role of organizational routines not only engaged in an empirical stock-taking of specific routines used in organizations (see, e.g., Cyert and March 1963) but also made the connection with the timely debate on bounded rationality. The capacity of routines to save on scarce cognitive resources was attributed to their stereotypic repetition resulting in a gradually decreasing demand on deliberation and scrutiny, sometimes even a quasi-automated, or even mindless, behavior (see Lazaric 2000, 2008). Given the limitations that organizations face under conditions of bounded rationality, the saving effect was interpreted as a reason for the pervasiveness of organizational routines (March and Simon 1958, Radner and Rothschild 1975). However, routinization of repeated interactions can not only save on attention of the agents involved. Routines can also make the terms of interactions between organization members more regular, and hence more predictable, and can thus enhance coherence within an organization. This can ease the observational learning of members of the organization, particularly newcomers, about what is typically expected of them at a certain time and in a certain position in the organization. Moreover, it has been observed that routinization of interactions contributes to the emergence of an organizational identity and can result in a normative standard of behavior which, when complied with, legitimizes individual actions (Feldman and Pentland 2003).

The additional functions of organization routines go far beyond mere attention saving (but do not exclude this also always being present). Following Nelson and Winter's (1982) seminal work, the focus of more recent research into routines has therefore been extended to

understanding the additional functions that organizational routines can have. Besides fostering coordination and coherence, and economizing on cognitive resources, organizational routines have been found to be able to establish a truce between employer and employees, to reduce uncertainty and create stability, to function as a memory of organizational knowledge, to serve as a template, a heuristic, a strategy, and so on (Becker 2004). It has been claimed that the additional functions have positive effects on an organization's capabilities and performance (see the contributions in Dosi, Nelson and Winter 1999). It is not clear, though, to what extent this is indeed the case and, hence, whether the additional functions provide further reasons why routines are such a pervasive organizational phenomenon. This seems to hinge on the factual value of routines for accomplishing the additional functions they are supposed to have, i.e. on what is called here the functionality of organizational routine. There are degrees of freedom here that affect in an important way the capabilities an organization can factually bring to bear on its operations.

Often falling short of their potential, the actual make-up of organizational routines invites managerial attention. The functionality can be assessed under different aspects. One aspect is that of functionality in the sense of suitability for its supposed purpose(s). For example, coordination, coherence, uncertainty reduction, and stability can only be expected if a routine's stipulations are consistent, non-contradictory, and unambiguous with respect to the actions required to be taken. A routine can only serve as organizational memory and/or as template, heuristic, or strategy, if it is sufficiently robust to reliably trigger the relevant procedural knowledge. Another aspect is that of functionality in the sense of absence of conflict in underlying goals, i.e. whether the functions an organizational routine serves with its features are mutually compatible. Properties like non-ambiguity and robustness, for instance, may be dysfunctional with respect to an organization's capacity to adapt in a flexible way to changing conditions where this would be needed (the often noted tension between static efficacy and dynamic malleability of organizational routines, see Howard-Grenville 2005).

Yet another aspect is the functionality of a routine with regard to the organizational goals. A routine that is consistent, not contradictory, and unambiguous, and that does not face incompatible demands, can still fail to benefit the organization when its make-up serves interests other than those defined by the organizational goals. If the function is coordination, for whose goals does a routine coordinate behavior? If the function is to accomplish coherence, then coherence with regard to whose interests is at stake? Similarly, in whose interest is uncertainty

reduced? Whose goals are served by the knowledge that is contained in the organizational memory implicit in routines, by the use of routines as templates, heuristics, or as strategies?

The functionality of organizational routines, and hence the effect which they have on the capabilities and performance of the organization, are thus far from being uniquely determined. A discussion of the criteria relevant for the first two aspects depends on the specific functions and necessitates an in-depth analysis of the particular case. The criterion relevant for the third aspect – the functionality of a routine with regard to the organizational goals – is much less dependent on the particular functions of a routine. It can therefore be analyzed in more general terms and is, in this sense, more fundamental. This provides the vantage point of the present paper. Accordingly, the questions to be posed are: under what conditions routines are functional or dysfunctional with regard to the organizational goals, and if so why. As will be explained, these conditions depend strongly on how an organizational routine emerges and what influences the way it changes – processes that are shaped, in turn, by the task perceptions and the work motivation of the organization members involved. If this conjecture is correct, the role of agency cannot be ignored in the analysis.

The arguments are presented in the following order. Section II starts from the widely acknowledged fact that the capabilities of an organization depend in an essential way on the knowledge resources it can acquire and activate in its daily operations. By exploring in more detail the nature of these knowledge resources and the way they are activated, the analysis leads naturally to the level of individual actions that express that knowledge. Jointly expressing the knowledge that is distributed in the organization amounts to a collective action. This not only poses a problem of how the collective action is coordinated. It has been known since the seminal work by Olson (1965) that there is also a problem in explaining what motivates agents to participate in a collective action. Section III addresses the twin problems of coordination and motivation. It argues that the key to understanding these problems can be found in the mutual contingencies that exist between the cognitive attitudes of the organization members, particularly their task perceptions, and their work motivation. In Section IV both these factors are argued to affect critically the functionality (with regard to the organizational goals) of routines that are likely to emerge in an organization. The analysis points to an important reason for why the emergence of dysfunctional routines may be a rather frequent phenomenon in organizations and why this often is connected with a managerial dilemma. Section V offers the conclusions.

**II. Knowledge and Organizational Routines – What Role for the Individual?**

To set the stage for a discussion of the functionality of routines with regard to the organizational goals it is useful to first recall the context in which these routines operate. This is the continual flow of physical and mental efforts which the members of the organization undertake in their specialized, but mutually dependent, activities. More specifically, the mental effort is the expression (application) of individually held knowledge: knowledge that is useful in solving problems, knowing how to do a job, factual and procedural knowledge relating to organizational purposes etc. In fact, wherever knowledge needs to be expressed in an organization, i.e. activated or put to use, it is ultimately done by human agents who have to generate or acquire the relevant knowledge previously (Postrel 2002).

There are also passive, extra-somatic forms of human knowledge, stored in documents or embodied in artefacts and tools/machinery. But even these forms of knowledge presuppose an individual knowledge expression in the first place, namely in the act of encoding that knowledge in documents or tools and machinery. Moreover, extra-somatic knowledge encoded in documents or embodied in artefacts can only be activated by virtue of the ability of the individual mind to interpret it; and knowledge embodied in machinery and automats can only be deployed in conjunction with someone's handling and maintenance know how. In short it can thus be stated:

*Proposition 1*    All productive human activity implies an expression of knowledge that has previously been acquired by, and is held and processed in, the mind of the involved human agents.

From proposition 1 it follows that, strictly speaking, organizations as such cannot command any knowledge independent of that of their individual members. The knowledge expressed in and by an organization – the core of its capabilities – consists of knowledge expressed by its members in a *collective* action. In part this is shared knowledge, in part it is private knowledge. Knowledge of organizational routines is no exception. It is procedural knowledge (Cohen and Bacdayan 1994) that is shared (not necessarily completely identically) by several members of the organization. It emerges in a way to be discussed later. Once in existence, the experimentation and interactive learning processes of the organization members involved, particularly also those of newly entering members, can transform that knowledge over time. This may be dubbed an 'organizational' learning process, because the transformations are jointly experienced by the members of the organization or by a subset of them.

As the procedural knowledge of routines is collectively shared, the pursuit of an organizational routine does not depend on the behavior of the individual organization members who may come and go – provided that a sufficient number of members who have that knowledge remain in the organization. When this proviso is not met, e.g. because of substantial turnover of personnel, organizational routines break down and are lost – and so in this case is the organization's "repository of productive knowledge" (Winter 1988). To prevent such a loss, a managerial option is to document (encode) the corresponding procedural knowledge as far as possible and to transmit it in that way to newly hired personnel. Another option is the 'hard-wiring' of procedural knowledge into production equipment. The handling instructions of the equipment can then automatically ensure that the new staff reproduces the stereotypic behavior associated with the routine desired (Bradach 1997).

It has rightly been argued that the procedural knowledge associated with routines is specific to an organization and is an important attribute of its capabilities. But sometimes it is further claimed that organizational routines and the corresponding procedural knowledge are attributes of an organization as a whole and, as such, are not reducible to what the single organization members know (see the discussion in Nelson and Winter 1982, 63). This additional claim seems to challenge the individualistic view of the human knowledge technology suggested by Proposition 1. In a broader perspective, the apparent contradiction relates to a recent debate about the role of methodological individualism in organizational research (Felin and Hesterly 2007). The core of the controversy in that debate (as of the present discussion) is whether the behavior of an organization should ultimately be seen as a *collective* action of its individual members, in which case an explanation of individual behavior – and the role of individual knowledge – would be required in order to understand the capabilities and performance of an organization. Some contributions to organization theory reject this idea (e.g. Kogut and Zander 1992, Spender 1996, Cohen e.a. 1996, Nahapiet and Ghoshal 1998, Brown and Duguid 2001) by recourse to the above argument that organizational behavior and knowledge are attributes of an organization as a whole that cannot be reduced to individual behavior (see also Abell, Felin, and Foss 2008).

To clarify the point (and, in passing, to assess the limits that an individualistic methodology faces here), it is helpful to be more specific with respect to what precisely are the features of organizational behavior and knowledge supposed to be irreducible. It seems that what

is deemed to be more than the sums of the actions of, and the knowledge expressed by, the organization members is exactly the *shared* factual and procedural knowledge of routines. This is knowledge held in common and transformed jointly by the members of the organization, and it can rest on a joint socially constructed meaning. Shared knowledge like this, and the behavior that follows from it, are indeed specific to each particular organization. Moreover, the fact that knowledge is shared, and the fact that its meaning is often a socially constructed one, indicate that the individual agents are not acting entirely autonomously. These facts require an explanation of their own,[1] an explanation that goes beyond an isolated decision making calculus, but does not conflict with the individualistic view underlying Proposition 1. In fact, in that explanation the level of individual behavior is neither irrelevant nor obsolete. To the contrary, the advantage offered by an individualistic approach is that it can account for cognitive and motivational factors and the causal influence they have on the emergence of deficient routines which ultimately dilute the capabilities and performance of an organization.

This advantage can, however, be contested by arguing that deficient routines are anyway a transitory phenomenon and that they are therefore as much negligible as is a discussion of their causes. Support for this argument can be derived from 'evolutionary' organization theory (Nelson and Winter 1982, chap. 6).[2] In that theory, organizational routines are portrayed as a unit of selection analogously to genes in the theory of natural selection. Focus is directed at changes in the 'population' of routines of an entire industry (the 'routine pool' as the analogue to the gene pool). The changes are attributed to selection processes operating at the level of the population. It is assumed that they winnow out the less well functioning routines, over time they raise the level of average firm performance in the industry to the best practice (see also Metcalfe 1994).

It is obvious, though, that the assumed selection can just as well be exogenously caused by competitive market pressure as it can be endogenously triggered by managerial action anticipating or responding to competitive pressure. This not only means a major deviation from the theory of natural selection and its predictions concerning the shaping influence on the industry's routine pool (see Winter 1964 on this and other qualifications regarding the natural selection argument). It also means that with the selection forces being endogenously triggered the role of agency is factually resurrected. Indeed, from the managerial point of view, it would be of vital interest to identify deficient organizational routines and find remedies for them *before* the industrial selection process wipes out the own business. Once, however, individual managerial behavior is back on the analytical screen, it does not seem to make much sense to stop half way,

and exclude from the analysis the influence that the behavior of the other organization members has when deficient routines emerge.

### III. Cognitive and Motivational Aspects of the Coordinating Function of Routines

By Proposition 1, all productive activity involves an expression of knowledge that the producing agents command. When productive activities are organized in the contractual form of a business firm, an essential part of making the necessary productive resources available is therefore managing distributed knowledge (Tsoukas 1996, Loasby 1999). The agents contracted need to be motivated to make suitable efforts in bringing to bear their individually held knowledge. And they need to be coordinated on a joint pursuit of the organization's goals. Hence there is a twin problem of coordination *and* motivation. Identifying and hiring people expected to command the desired abilities is one thing, coordinating their specialized productive activities is something else. As was mentioned above, the latter requires creating concerted sequencing and timing in the (interactive) expression of individually held knowledge – a core function that is served by organizational routines. Yet the functionality of the routines in that regard can differ significantly; first in how effective they are in tuning together the actions of the organization members involved; second in how much the resulting coordination is indeed oriented towards attaining the organizational goals rather than towards the pursuit of private interests such as convenience, effort minimization, competence disputes and the like. Both aspects have a cognitive dimension.

Consider first the problem of effective coordination. The fit in the composition and timing by which the organization members express their individual knowledge can be conjectured to be the better, the better the organization members understand the mutual contingencies between them when interacting. In the case of routines that merely ensure a suitable inter-locking of basically independent individual actions, it may be sufficient to know some relevant procedures. More is required in the case of routines serving the collective (interactive) productive effort. Coordination of the own contribution with that of others works better, the more one knows about the tasks and problems of the others. This is not achieved only with procedural knowledge. Considerable factual knowledge is also necessary for mutually compatible task perceptions.[3] Task perceptions are intuitively formed and correspond with the mental model the organization members have of the organization and their role in it, with the affective valence of tasks and interactions, and other motivational forces.

An instructive example is the collective productive action required in the performing arts, e.g. in an opera performance. (An opera house is after all a sophisticated organization.) The literally concerted knowledge expression that largely rests on specific organizational routines observable in this example reveals the influence of factual and procedural knowledge of the own task and that of others, of the mental models of the artists and the technical staff, and probably also of the differing affective valence which their engagement has for them. *Mutatis mutandis* this also holds for the collective production process whether in other service industries or in manufacturing. (In the latter case, synchronization of the individual knowledge expression is mediated and supported by underlying machine processes.) Hence, the following can be stated:

*Proposition 2*   The interactive expression of individual knowledge in the organizational production process is likely to be the better coordinated by organizational routines, the better the mutual fit in the individual task perceptions and the underlying mental models of the organization members involved.

The mutual fit of the organization members' task perceptions and mental models can vary from organization to organization and organizational unit to organizational unit. In some cases there may be no cognitive commonalities except the minimal knowledge of procedural modalities when interacting. In other cases the cognitive commonalities may reach as far as including a shared mental model of the organization's purpose and the individual members' role in achieving it. This can happen because communication with, and observation of, other organization members is a major factor in guiding selective attention processes. Hearing and seeing what (certain) other agents do and think is a most prominent source of information and offers opportunities for learning without own effort. A concomitant of intense and lasting communication and observational learning is that the agents involved tend to develop similarities in the mental models and common tacit knowledge. In part, these cognitive commonalities result from the fact that the agents' selective information processing is occupied with much the same issues – and, of course, is also similar with regard to what issues are disregarded. In part, cognitive commonalities, particularly mental models in which the identification with the organization ranks highly, emerge intuitively from the tendency to avoid dissonances between the own views and those of peers.

When, over time, the organization members develop a considerable mutual fit in their task perceptions and their mental models, this promises a more effective coordination via organizational routines. In contrast, in the case of a minimum of cognitive commonalities

between the organization members, misfit between their individually expressed pieces of knowledge and the corresponding frictions are likely to be more frequent. And the more frequent this is, the more it tends to undermine the coordination, coherence, routine-based uncertainty reduction, and reliability of the organizational memory contained in the routines actually practiced. From Proposition 2 it thus follows by reverse conclusion that the less well task perceptions and mental models fit together, the more managerial attention is required to make sure, in often extensive communication and supervision processes within the organization, that the desired kinds of (inter-) actions indeed take place. When the division of labor and knowledge is organized via the market, extensive communication and control are far more needed if the participants in the market transactions do not happen to have developed compatible task perceptions, e.g., as a result of adapting to long-standing market ties. Even elaborate negotiations and contractual stipulations may then not be sufficient to ensure an efficient collective knowledge expression. In this respect, the contractual form of the firm can have an obvious advantage regarding the cognitive underpinnings of the division of labor and the coordination of knowledge resource.

Proposition 2 refers to the cognitive underpinnings of the coordination problem and its influence on the functionality of organizational routines. Consider now the twin motivational problem. It comes into play here because the way in which the organization members cognitively frame their role in the intra-organizational interactions also affects their work attitude. In order to achieve the organizational goals, the members of the organization need to continue to acquire, improve, and apply their individual knowledge at a high effort level. If, in an organization or an organizational subunit, the members share a mental model in which the identification with the organization ranks highly, it is likely that they see themselves contributing to a common goal. Successfully contributing to the attainment of the common goals is then an intrinsically rewarding experience. Simply because the own role is framed in such a way, opportunistic (extrinsically motivated) thought about how to free-ride by reducing the own effort level receives less attention (Witt 2000).

All this is very different in organizations or organizational units in which a shared view of collectively contributing to a common goal is missing (see Osterloh and Frey 2000 for a similar argument). The work attitude is then likely to support only formal, managerially controlled (inter-) action requirements – achieving common goals is not something intrinsically rewarding. The task perceptions of the organization members correspond with an extrinsic work

motivation. Single organization members with an intrinsic work motivation and high task commitment tend to be frustrated and usually adapt their attitudes. In such a situation, the organization has to rely much more, if not exclusively, on material incentives and controls to elicit a reasonable level of effort on the part of its organization members. The consequence is that moral hazard problems crop up: if the material reward can be obtained independently of the effort level (because it is not controlled or not observable and, hence, not controllable), the organization members tend to reduce their level of effort.

Whatever the nature of a work attitude is, if it is commonly shared by the organization members it tends to develop into a "social model of behavior" (Bandura 1986) with normative connotations. This means that a standard of individual commitment and effort emerges that is socially approved by the organization members – be it a low one or a high one. Newcomers quickly recognize this standard and tend to make it the basis for their integration into the organization. Conformity with, or deviation from, that unofficial standard is usually more easily accomplished within the group of organization members than by the officially responsible managerial hierarchy. Deviations from the social model of behavior tend to be informally sanctioned by social ostracism against the deviator.

The argumentation just developed can be summarized as follows:

*Proposition 3*     The extent to which the members of the organization share a mental model in which the identification with the organization is ranked highly, an intrinsic work motivation and a high task commitment can develop as a normative social model of behavior. If such a favorable social model fails to emerge, an extrinsic work motivation and a tendency to lower the level of work effort is likely to prevail.

The general relevance of Proposition 3 for the actual capabilities and the performance of an organization is evident, independent of whether routine-based behavior of the organization members is considered or their deliberate choices. But the proposition is also significant for understanding when and why a routine can be more or less functional with respect to the organizational goals. This will become apparent once the question of how organizational routines emerge, and what cognitive and motivational factors play a role here, is explored – the question to be addressed in the following section.

**IV. How Organizational Routines Emerge and Why They May Be Dysfunctional**

Keeping in mind the connection between mental models and work motivation highlighted in Proposition 3, we can now turn to the question of what happens at the level of the individual organization members when something goes awry with a firm's organizational routines. This is not to deny that in many cases organizational routines may indeed ensure coordination, reduce uncertainty, raise organizational coherence, and function as a repository of organizational knowledge. But, recalling the criteria mentioned in the introduction by which the functionality of routines can been assessed, it is not difficult to also find many cases in which organizational routines fall short of such accomplishments. The inherent properties of a routine may not suit its function so that, e.g., ineffective, improvised interim practices and perfunctory going-by-the-rule result, or a foul *modus vivendi* that hides unresolved conflicts, or stereotypy that is mistaken for safety and coherence. Apart from inherent dysfunctionalities, conflicts between different organizational goals can be evoked even by organizational routines with suitable properties. An example is when the stereotypically iterated use of the procedural knowledge encapsulated in the pursuit of routines forestalls innovations and the creation of improved procedural knowledge. Instead of elevating a firm's capabilities, routines may then make the organization unable to cope with a changing, probably even turbulent, environment (Lazaric and Raybaut 2005).

Finally, and center stage here, there are the problems with routines whose functionality for the organizational goals is hampered by divergent interests of the organization members. As will now be discussed, whether difficulties are pre-programmed or not depends on the conditions under which organizational routines emerge. These conditions have so far not been the subject of much research (see Miner, Ciuchta, and Gong 2008). However, it will turn out that they are to a large extent contingent on the cognitive and motivational attitudes of the organization members explored in the previous section, so that the insights summarized in the last two propositions can be put to use here. Organizational routines can originate in different organizational contexts and in organizational sub-groups of quite different nature (see Cohendet and Llerena 2008). These differences notwithstanding, one major distinction that can be made in all cases relates to the extent to which management is formally involved in the emergence of organizational routines. The involvement can range from the complete design and implementation of a routine by the management to an entirely unplanned, spontaneous emergence of a routine where the management acts, if at all, as only one agent among others. Since the latter case is in several respects the more basic one, it is convenient to start with a discussion of this limiting case.

Organizational routines can emerge informally without anyone designing them. This happens when the members of an organization or an organizational sub-unit – managers not excluded – spontaneously, and sometimes by chance, choose sequences of interactions and then stick to them in recurrent situations.[4] The key to routinization is here the stereotypic iteration that emerges spontaneously. The reason for keeping to precedent procedures is usually the fact that the organization members involved find them working in a way that fits their interests or does not compromise them. What precisely the interests of the organization members are when they stick to a spontaneously emerging interaction pattern depends on their work attitude discussed in the previous section. If, in an organization, the organization members share a mental model where identification with the organization, and hence intrinsic work motivation, rank highly, the interest may be to improve procedures that are conducive to the joint pursuit of the organizational goals or, where these are absent, to establish them. In organizations that lack such a culture, and in which the work attitude is therefore dominantly an extrinsically motivated one, the interest is likely to be different. Spontaneously emerging routines may then mean that the members of the organization coordinate on interaction procedures that minimize their individual effort at the expense of achieving organizational goals (where this is not controlled by the management).

Due to its spontaneous nature, the influence of management on the process of emergence of such informal organizational routines tends to be marginal. Once established, these routines are complied with by the organization members either because they are incentive-compatible and, hence, self-enforcing,[5] or because compliance is enforced informally, e.g., by forms of collective social ostracism. What is enforced in the latter case is not necessarily conducive to the pursuit of the organizational goals – the compliance enforced may reflect a low standard of individual commitment and effort rather than a high one. If the routines are not outright dysfunctional, their functionality with regard to the organizational goals is then likely to be low.

In principle, such deficiencies in routines that have emerged spontaneously can be subjected to managerial intervention, and an attempt can be made to design and implement more functional routines. This requires managerial attention for checking, planning alternatives, instructing and supervising firm members, in short, a considerable input of managerial resources. However, the necessary resources may be difficult to make available, given that routines that emerge spontaneously govern a large part of the small scale interactions in the organization.

They occur in many different places and are usually of only minor strategic importance. Unless an organization is generously endowed with managerial resources, a trade-off is therefore likely to arise that may often prevent managerial interventions. The same managerial resources needed for checking a multitude of minuscule, potentially dysfunctional, routines could alternatively be allocated to designing, implementing, and supervising functional routines that regulate the strategically important interactions within the organization.

Furthermore, even if the managerial resources can be made available, a successful switch to more functional routines cannot be guaranteed. The reason becomes clear when we turn now to the other limiting case where organizational routines are deliberately planned and formally implemented by management (whether of strategic importance or not). These routines, and the stereotypical behavior underlying them, are based on detailed directives that prescribe how to pursue particular tasks or how to proceed in particular situations. Such formal directives can frequently be found in an organizational hierarchy, sometimes documented in written form. However, formal directives alone do not automatically translate into practiced routines (Cohen and Bacdayan 1994). If compliance is not effectively controlled, the organization members may instead resort to behavior that deviates from, and perhaps conflicts with, the directive. The reason may simply be that the organization members are disoriented and/or lack information about the practical meaning of the directive; or lack of acceptance of the directive, e.g., because of conflicting interests, or because a directive is inadequate for an assigned task.

When routines originate from managerial design, there are thus two factors that are likely to affect the routines' functionality in a rather trivial way: the appropriateness of the design and the degree of compliance on the part of the organization members involved – both not necessarily mutually independent. If the management creates a poorly designed organizational routine, the functionality is likely to be low even if the routine is highly complied with by the organization members. (If not complied with, the behavior actually chosen by the organization members can, under conditions to be addressed in a moment, result in a spontaneously emerging, different routine that better suits the intended purpose.) If the management creates a highly appropriate routine, but compliance is low, e.g., because of a predominantly extrinsic work motivation not sufficiently kept in check by managerial controls, the functionality of the routine is also likely to suffer. In any case, deficiencies in either the design of, or the compliance with, organizational routines designed by the management point to managerial shortcomings.

Such shortcomings may be due to a lack of managerial competence. However, they can equally well be caused by the cognitive and motivational factors discussed in the previous section – this time relating to the managers' task perceptions and work motivation. The remedy for managerial shortcomings is therefore not necessarily to allocate more competent staff to designing and implementing organizational routines, but rather, if possible, to change the task perception and work motivation of the existing management staff. However, given the large number and great diversity of designed routines operating in a firm organization, constrained managerial resources – this time those of higher management – may again prevent sufficient attention being paid to all of them in order to identify dysfunctionalities and managerial shortcomings. The structure of causation repeats itself here at a higher level. Recognition of the dilemma arising from the allocation of scarce (higher) managerial resources at all levels of the organizational hierarchy may often be the rationale of attempts of organization leaders to create total quality management meta-routines (see Hackman and Wageman 1995).

Given its complexity, the coordination of the sequencing and timing of intra-organizational production processes is regularly based on formally designed organizational routines that interlock with informally emerging ones. Informally emerged routines complement the formally designed ones, because the latter are either not sufficiently fine-grained to cover all details of the interactions, or because management resources are not sufficient for planning and supervising all interactions. Over time, informal and formal routines – once established – do not remain unchanged. Particularly if firm organizations operate in rapidly changing environments in which it is impossible to anticipate all newly occurring requirements in the design of managerially implemented routines, adjustments in both formal and informal routines are likely to occur. Much of what has been said for the emergence of organizational routines also holds for their changes over time. The extent and frequency of checks and changes necessary to overhaul continuously the organizational routine practice can easily exceed the available managerial resources of the firm. The gap that can arise between partly outdated formally designed routines and the current coordination needs is likely to be filled spontaneously by supplementary informal routines that are newly created on the job by members of the organization.

Whether the ensemble of deliberately planned routines that was originally designed to be efficient and avoid frictions and tension is thus watered down or, to the contrary, whether they are spontaneously optimized, depends, as before, on the attitude of the organization members when they start to improvise. If their interests are dominated by an extrinsic work motivation, the

routines are likely to reflect a low level of effort and task commitment and may well degrade the functional value they have for improving or complementing managerially designed organizational routines. The organization then risks suffering from a widespread small-scale dysfunctionality in its factual routine practice that has a negative effect on its profitability and represents a competitive disadvantage.[6] This is different in organizations in which, in contrast, a widely shared mental model and a cooperative social model of behavior prevail, attempts of single organization members to resort to procedures that would undermine the collectively pursued goals can face social sanctions by other organization members.

Hence, however organizational routines originate, whether spontaneously or by managerial design, and however they change over time, their functionality is likely to be affected by the task perceptions and work motivation of the agents involved in their emergence. The main hypothesis of this paper can thus be summarized in:

*Proposition 4*    The social models of behavior informing the management's conduct and that of the other organization members crucially determine the condition under which organizational routines emerge. The routines' functionality for the organizational goals can therefore be expected to be the higher the more the prevailing social model of behavior emphasizes identification with the organization, intrinsic work motivation, and task commitment.

The causal chain from the cognitive and motivational underpinnings of the intra-organizational interactions to the (dis-) functionality of the spontaneously emerging organizational routines eventually also impacts on the capabilities of an organization and its performance. An important question is therefore whether and how the ultimate causes, the organization members' task perceptions and work motivations, can be influenced in a way that is favorable for the pursuit of the organizational goals. The answer hinges on how the organization members arrive at those mental attitudes. Obviously, these attitudes are not an object of deliberate choice, since deliberation already presupposes the existence of such disposition. In fact, mental models and the cognitive attitudes resulting from them at a certain point in time are not even consciously formed, but emerge spontaneously in the human mind. Consequently, organization members cannot be ordered by managerial directives to adopt a certain task perception or work attitude. As explained in the previous section, the formation of these attitudes is strongly affected by social-cognitive learning processes which leave only indirect influence to

managerial action.

Within these social-cognitive learning processes, informal opinion formation among organization members as colleagues and peers is a crucial dynamic. Formal order, directives, promises, and threats by the management are likely to have an effect on those collective opinion formation processes. But this is only one influence among several that determine the outcome of the process, and even that influence is highly dependent on the social skills of the management. In relation to these skills, the managers' informal behavior – via the other firm members' observational learning – is also influential. Falling short in their own conduct of what managers demand of others may discredit their orders, directives, promises, and threats. Conversely, performing at the informal level as a shining example is likely to enhance both the credibility and the influence of the managers. Regarding the influence that managers can assert by ordaining formal measures, a deliberate use for forming a strong system of organizational goals seems to be a strategy with favorable effects on work motivation and performance (see Greve 2007). The goals need to be communicated in a comprehensive way. To ensure a high acceptance among the organization members, the goals should be realistic in what they demand so as to allow the organization members to have achieving experiences.

## V. Conclusions

The correlate of the division of labor within an organization is the division of individually held knowledge that is expressed in the productive activities of the organization members. If these activities are of a repeated nature, interlocking with the activities of other organization members, organizational routines usually emerge to accomplish concerted knowledge expression. In the literature, these routines are often approved for their ability to save on scarce cognitive resources or to increase the coherence of organizational behavior, to reduce uncertainty and create stability, and to function as organizational memory, template, heuristic, and strategy. However, whether organizational routines indeed live up to these expectations depends on their actual make-up. If this falls short of the potential, the functionality of routines, i.e. the factual value for accomplishing their purposes, may suffer, and so may the capabilities of an organization.

Even if routinization does save on individual attention and effort, and even if the make-up of organizational routines does serve all the above mentioned additional functions more or less effectively, this is not sufficient to establish that organizational routines do indeed benefit an organization's goals. It can still be asked whether the routines do so in the organization's interest

or in the interest of others. Since the latter question, which concerns the functionality of a routine for the goals of an organization, is less dependent on the particular function and properties of an organizational routine, and therefore allows a more general analysis, it has been put at center stage in the present paper. More specifically, it has been argued that the conditions under which organizational routines emerge shape their functionality for the goals of an organization. Routines can originate from formally ordained, managerial directives and are then usually deliberately designed and implemented. But organizational routines can also emerge spontaneously, i.e. in a not deliberately planned convergence on iterated interaction patterns, if these serve the interests of the organization members involved.

As explained, what precisely their interest is depends on the mental models with which the organization members approach their tasks and the corresponding work attitudes. These conditions can differ dramatically between organizations – as can, correspondingly, the functionality of spontaneously emerging organizational routines. Something similar also holds, however, for the task perception and work motivation of the managers involved in creating and enforcing (more or less) compliance with formally ordained organizational routines. To find out to what extent the make-up of, and the compliance with, an organizational routine indeed serves the goals of an organization it is therefore necessary to pay attention to what is going on at the level of the individual agents and their cognitive and motivational attitudes – a conclusion corroborating the relevance of an individualistic approach in organizational theory.

The reflections on the cognitive and motivational attitudes have led here to the conclusion that the latent (or sometimes even overtly stated) social models of behavior informing the management's conduct, and that of the other organization members, is crucial for the conditions under which organizational routines emerge. The routines' functionality for the organizational goals can therefore be expected to correlate with the extent to which the prevailing social model of behavior emphasizes identification with the organization, intrinsic work motivation, and task commitment. Organizational routines suffering from dysfunctionalities obviously have a detrimental effect on the performance of an organization. In order to cure dysfunctionalities, it is possible, in principle, to allocate managerial resources to the identification of deficiencies and to the design and enforcement of more functional replacements.

However, the deficient routines, particularly the spontaneously emerging ones, typically govern a large part of the small scale interactions in the organization which, seen in isolation, are

usually of only minor strategic importance. The substantial managerial resources needed to check and remedy a multitude of dysfunctional, small scale routines could alternatively be allocated to designing, implementing, and supervising functional routines that regulate the strategically important interactions within the organization. Given this conflict over managerial resources, routines which are of low value, or even dysfunctional, for accomplishing the organizational goals may be a rather common phenomenon, once an organization's cognitive and motivational underpinnings fail to create and foster intrinsic work motivation, task commitment, and a social model of behavior in which identification with the organization is ranked highly.

**Notes**

[1] Olson's (1965) theory of collective action is, after all, a first attempt to offer an explanation of its own, though one that does not embrace the notion of imperfect knowledge and in which therefore the fact that the meaning of knowledge can be a socially constructed one has no great significance.

[2] To be sure, Nelson and Winter's evolutionary turn does not logically exclude a non-reductionist individualism. In fact, before invoking their analogy to natural selection, they extensively discuss how actions and skills of the individual organization members affect, and are affected by, the way routinization takes place within organizations (ibid., chap. 4-5). Once the selection metaphor and the corresponding population thinking focusing at the industry level have been adopted, however, they no longer take recourse to individual behavior.

[3] Postrel (2002) discusses the trade-off in the use of the organization members' time between acquiring specialized vs. shared knowledge or between problem-solving vs. knowledge integrating individual abilities. This trade-off is the more sharply developed, the more mutually exclusive the corresponding knowledge acquisition processes are. As will be argued here, stable organizations have the advantage that they allow joint learning processes and an ongoing test and/or exchange of individual knowledge so that the trade-off is a less sharply expressed.

[4] Further, equally spontaneous, adjustments can occur on a trial and error basis, see Gavetti and Levinthal (2000), and may then imply a joint experience accumulation that is often considered a pivotal by-product of the emergence of organizational routines (Zollo and Winter (2002).

[5] See Narduzzo, Rocco and Warglien (2000). Sometimes routines that have emerged informally are ex post recognized as functional by the organization leaders and are then formally declared binding.

[6] Nonetheless, such a handicap is not necessarily wiped out as the evolutionary story has it. Even in a highly competitive industry the handicap may be compensated by other, favorable, firm-specific factors like, e.g., a competitive advantage in its technology. (Market competition always evaluates the entire set of organizational strengths and weaknesses). Or competitors may suffer from similar disadvantages of small-scale dys-functionalities of their routines.

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