

Revue Internationale de

ISSN 0980-1472

systemique

LA MÉMOIRE
ORGANISATIONNELLE

Vol. 12, N° 1, 1998

afcet

DUNOD

AFSCET

Revue Internationale de
systemique

Revue
Internationale
de Sytémique

volume 12, numéro 1, pages 13 - 26, 1998

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Numérisation Afscet, août 2017.



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ON THE DEFINITION AND ORGANISATION OF CAPABILITIES

Brian J. LOASBY

Résumé

La division du travail crée des cadres propice à la spécialisation des connaissances notamment des modèles de performance et de compétences spécifiques. Cette perspective cognitive incluant le « savoir-comment » fut explorée dans les travaux pionniers de Marshall et de Hayek. Une firme doit par exemple trouver des cadres d'interprétation pour ses activités mais a aussi besoin de comprendre et d'utiliser la connaissance provenant d'autres cadres cognitifs. L'autorité, la stratégie et la culture sont des moyens d'intégrer ces autres cadres.

Abstract

The division of labour creates frameworks for the development of specialised knowledge, especially of patterns and performance skills. The cognitive foundations of such know-how were explored in early works by Marshall and Hayek. A firm may provide compatible frameworks for capabilities, but also needs the ability to understand and use knowledge developed within other frameworks. Authority, strategy and culture are all means of integrating frameworks.

It is convenient to think of industry as carrying out an indefinitely large number of *activities*, activities related to the discovery and estimation of future wants, to research, development, and design, to the execution and co-ordination of processes of physical transformation, the marketing of goods, and so on. And we have to recognise that these activities have to be carried out by organizations with appropriate *capabilities*, or, in other words, with appropriate knowledge, experience, and skills (Richardson, 1972, p. 888; 1990, p. 231).

THE DIVISION OF LABOUR AND THE CREATION OF CAPABILITIES

The relevant economic context for the concept of capabilities, as Richardson (1975) has pointed out, is the increase of wealth through the division of labour,

which is the fundamental principle of Adam Smith's (1976) economic theory. (For an extended treatment, see Loasby, 1996b). It is especially relevant to note that the central importance of the division of labour in Smith's scheme derives not from its power to make the best use of differences in natural aptitudes, which had long been recognised, but from its power to create increased, and also novel, specialist competences (Smith, 1976, pp. 28-30), which make new activities possible. The evolution of capabilities is therefore a necessary element in any comprehensive theory of economic change. Capabilities are endogenous, for their development is endogenous; and they are idiosyncratic, for this development is influenced by its context, and the way in which this context is interpreted, by individuals and by formal and informal organisations.

Hayek (1937, p. 49) criticised economic theories of equilibrium for neglecting the problems caused by the division of knowledge, but he did not recognise that the principal cause of the division of knowledge was the division of labour; for knowledge grows by division. Specialisation allows each person to focus on a particular group of activities, and to create new personal knowledge about them; and it is a simple inference from Smith's (1976, pp. 20-1) account of the different sources of invention that each kind of specialist knowledge develops in a way which is likely to be in some degree peculiar to that specialism and produces results which are conditioned by the distinctive features of its development. The growth of knowledge proceeds through the differentiation and dispersion of knowledge. There is no calculable destination for this process of increasing productive knowledge, either for those engaged in that process or for those who seek to analyse it.

It may be helpful to distinguish four kinds of knowledge, which may be arranged in a simple two-dimensional matrix. The principal dimension is defined by Gilbert Ryle's (1949, p. 28) distinction between "knowing that" and "knowing how". "Knowing that" is knowledge of facts, relationships and theories, the primary subject-matter of formal education and the news; it may be subdivided into knowing what and knowing why. "Knowing how", by contrast, is the ability to perform the appropriate actions in order to achieve a desired result. The other dimension is provided by the distinction between direct and indirect knowledge. We may possess the relevant knowledge ourselves or know where we can find it; we may know how to do something or know how to get it done. Capabilities are knowhow, both direct and indirect; they represent the kind of knowledge which plays little or no formal part in mainstream economics, but which is crucial to its applicability.

Ryle's analysis is particularly, though unintentionally, appropriate because he was criticising the traditional focus on the mind as the arena for intellectual operations and the location for "knowledge that", which was regarded as separate from and superior to the practical management of the machinery of the body. He claimed that "In ordinary life we are much more concerned with people's competences than with their cognitive repertoires, with the operations than the truths that they learn" (Ryle, 1949, p. 28), and observed that it is generally not the case that effective operations depend on the understanding of truth, nor that the understanding of truth leads directly to effective operations. "Knowledge that" does not imply "knowledge how"; nor does "knowledge how" imply "knowledge that".

What is true of ordinary life is also true of economic activity, but not of orthodox theorising about economic activity. The exaltation of rational choice is also the exaltation of intellectual operations: a production function as used in economic theories is knowledge that specific quantities of output may be produced from certain combinations of inputs; it does not embody knowledge of how to use those inputs effectively, though theorists employ the concept in ways which implicitly assume that such "knowledge how" is freely available. Indeed the formulation of standard models assumes that the only obstacles to successful performance arise from inadequate incentives: knowing how is never a problem. This is precisely the sort of model of the mind that Ryle was criticising.

Knowing how to achieve a desired result may be quite independent of any understanding of the reasons why the procedure appears to work; all of us make use of procedures that we do not understand. Yet, as Ryle (1949, p. 30) points out, such activity often displays intelligence. "It is of the essence of merely habitual practices that one performance is a replica of its predecessors. It is of the essence of intelligent practices that one performance is modified by its predecessors. The agent is still learning." Like all learning, this is a process of trial and error, and intelligence is required if people are to make appropriate trials and to interpret the results sensibly - in particular, to decide which parts of the procedure to think about *next*. "We learn *how* by practice, schooled indeed by criticism and example, but often quite unaided by any lessons in the theory Even when efficient practice is the deliberate application of considered prescriptions, the intelligence involved in putting the prescriptions into practice is not identical to that involved in intellectually grasping the prescriptions" (Ryle, 1949, pp. 41, 49). Indeed those proficient in developing and expounding the theoretical structure of a discipline often seem to be remark-

ably ineffective in its practical application. This should not be surprising, for these are different skills, appropriate to different specialisms.

COGNITIVE FOUNDATIONS

Hayek (1937, p.45) declared that “hypotheses or assumptions that people do learn from experience, and about how they acquire knowledge...constitute the empirical content of our propositions about what happens in the real world”. Recognition of the importance of “knowledge how” reinforces the argument for an approach to the analysis of learning which does not rely on an extension of rational choice theorising. The modern interest in the evolution of neural networks and classifier models looks more attractive; and it is fitting that an approach of this kind was advocated in Hayek's *The Sensory Order* (1952), which contains four references to Ryle's *Concept of Mind*. The problem that stimulated Hayek's interest was the disparity between the account of the external world which has been developed by the physical sciences and our sensory perceptions of that world: “events which to our senses may appear to be of the same kind may have to be treated as different in the physical order, while events which physically may be of the same or at least a similar kind may appear as altogether different to our senses” (Hayek, 1952, p.4). This disparity clearly contradicts the routine assumption within economics that information sets are isomorphic to the phenomena that they represent, differing only in the fineness of their partitioning. Hayek's proposed explanation is that the sensory order within each individual is a network of relationships in the brain, developed as a means of classifying particular stimuli and connecting each category to a suitable action or sequence of actions. The physical sciences developed much later and are directed to the production of coherent “knowledge that”, as Adam Smith (1980) explained in his psychological theory of the growth of science. Each science develops its own “knowledge how”, which guides the evolution of that science; and the division of intellectual labour leads to substantial differences between sciences, and also between each science and its related technology.

Like Hayek, Alfred Marshall took an early interest in evolutionary psychology, and he conceived a mechanical model of the human brain as the outcome of the requirements for survival as the human species emerged (Marshall, 1994). These requirements gave priority to timely perception of threats and opportunities and swift response to them: and this was achieved through rapid access to extensive distributed storage capacity and the rapid

assembly of retrieved information into familiar patterns against which to match sensory impressions, followed by instant association between significant patterns and action sequences. Successful combinations are reinforced and unsuccessful combinations eliminated before fatal damage is suffered. This stage of Marshall's model now suggests a precursor of classifier systems, both in its development and in its reliance on a memory-based logic of appropriateness, to the exclusion of any logic of consequence.

However, Marshall then adds a second compartment which deals not with impressions and actions directly, but with ideas of impressions and actions, which can be projected into imagined futures. Thought experiments may now precede physical trial and error where errors may be very costly. But the advantages of letting our ideas die instead of ourselves, as Popper put it, do not lead to the displacement of the first brain by the second. Evolution does not work that way; and the advantages exact a high cost in time and energy. We therefore have to economise on rationality. The mathematician and philosopher Alfred North Whitehead ([1911] 1948, pp.41-2) dismissed the proposition that “we should cultivate the habit of thinking of what we are doing.....Civilisation advances by extending the number of important operations which we can perform without thinking about them”. In Marshall's model brain the imaginative faculty was stimulated into action only when there was some persistent failure at the operating level, and successful solutions were returned to the operating level, in anticipation of Whitehead's advice. Marshall thus extends the principle of the division of labour to intellectual operations, and later developed this application in his analysis of the organisation of industry (Raffaelli, 1995). We shall follow his example.

In Marshall's, Hayek's and modern artificial intelligence models, we have systems by which phenomena are represented, and linkages constructed between perceptions, actions and outcomes; but in none of these models are there any processes available which could ensure that these representations are correct, and that the linkages in the human brain correspond to the linkages which actually operate in the environment. As Adam Smith (1980) knew, patterns are invented and imposed; and if cognition is an evolutionary process, we should remember that evolutionary success requires no more than a performance which is satisfactory in relation to rival cognitive systems in the circumstances that have hitherto been experienced. Ryle (1949, p. 46) reminds us that a skill is “a disposition, but not a single-track disposition like a reflex or a habit. Its exercises are observances of rules or canons or the application of criteria”; and the effectiveness of a particular skill on a particular occasion depends upon the particular combination of variables encountered on that

occasion (Nelson and Winter, 1982, p. 84). As with scientific hypotheses, what matters is always the next trial, and the result of that can never be guaranteed; a change of circumstances or the emergence of a new or improved rival system may invalidate years of experience. Furthermore, as Ryle (1949, p. 59) points out, it is possible, and indeed common, to have partial knowledge of how to do something, or knowledge of how to perform at a particular level; but whether that level of performance will be good enough on the next occasion depends on those - such as one's customers - who make the judgement, and on the alternatives which are then available to them. The effectiveness of any capability is never immune to falsification.

A proper understanding of capabilities is crucial to an understanding of economic organisation and economic development. Although we rightly celebrate the power of human reasoning and the human imagination we should give full recognition to the pattern matching and performance skills which create time for this reasoning and imagination to be applied. The division of labour between these two kinds of activities is essential to progress. So too is the division of labour between capabilities. The human brain has the potential for developing an enormous variety of alternative networks to constitute an enormous variety of alternative kinds of "knowledge how"; but for any individual most of these are necessarily alternatives - the establishment of each set of connections precludes the development of many others. The enhancement of each person's "knowledge how", and indeed of each person's "knowledge that", requires specialisation. But if different people specialise in different areas of knowledge, then the total knowledge available within the group becomes far greater than what is attainable by any single person. The division of labour generates the growth and the division of knowledge as joint products.

ECONOMIC ORGANISATION

As Marshall (1920, p. 241) saw, both the pattern of specialisation and the relationships between specialists have decisive influences on the performance of an economic system; therefore greater differentiation must be balanced by greater integration. But this is not the economic co-ordination problem as that is normally defined. Knowledge is irretrievably dispersed; there is no way that it can all be collected in one centre. It is also irretrievably incomplete: the economy is a generator of new knowledge, and a major purpose of co-ordination is to enhance, or at least maintain, its performance as a knowledge generator. This is "the really central problem of economics as a social science"

(Hayek, 1937, p. 49). Rather than conceiving this as a comprehensive planning problem, it is helpful to focus on individual specialists each of whom, because of that specialisation, is dependent on others for almost everything (Smith, 1976 p.26), and instead of invoking a mythical set of markets, to investigate the development of direct and indirect capabilities, beginning with formal organisations.

Nelson and Winter (1982) discuss capabilities as routines, with due emphasis on the linkages between them. Routines provide the stable patterns on which selection processes can work, and also the stable patterns of individual and sub-unit behaviour which permit the development of the indirect capabilities which impose coherence on the activities of an organisation. But "routine" is an ambiguous label, as is demonstrated by Cohen et al. (1996). The most rigid interpretation is a single sequence of actions - the ideal, or perhaps caricature, of Taylorist efficiency. This interpretation can be readily extended to a complete set of condition-action rules which elicits a standard response in each situation. The first type of routine requires no co-ordination once the set of activities has been correctly assembled; the second requires the ability to identify each situation in order to predict the outcome, and therefore may give rise to the agency problems which constitute the standard economic analyses of organisation. Neither, by definition, can directly contribute to the improvements in productivity which were identified in the opening paragraph as the benefits of the division of labour, but they provide stable units which may be inserted into new combinations.

Now all change requires some elements of stability; and elements of routine may be embodied in change processes. Nelson and Winter (1982) provide a lead by distinguishing between operating, investment, and search routines, and also by challenging the standard economists' distinction between choices and productive operations, the latter being chosen but requiring no choices in their performance. Schumpeter (1934, p. 20) observed that "the necessity of taking decisions occurs in any work. No cobbler's apprentice can repair a shoe without making some resolutions and without deciding independently some questions, however small. The 'what' and the 'how' are taught him; but this does not relieve him of the necessity of a certain independence". After noting tasks which entail greater discretion, Schumpeter continues (p.21): "Now the director or independent owner of a business has certainly most to decide and most resolutions to make. But the how and the why are also taught him.....He acts, not on the basis of the prevailing condition of things, but much more according to certain symptoms of which he has learned to take heed." Nelson and Winter were particularly anxious to elide the standard dis-

inction between technologies as data and the choices of what technology to use, by drawing attention both to the technologies of choice and to the scope for choices within technologies, which generate improvements in the manner of Smith and Marshall.

I would like to reinforce this elision by emphasising the importance in all situations where action is required of what Simon (1959) has called “decision premises”, which provide partial closure by specifying assumptions about the possibilities and the criteria by which to choose between them. For the cobbler’s apprentice, the closure is almost, though not quite, complete; for the director it is a good deal less, though the how and the why are closely specified. Schumpeter’s entrepreneur, of course, is a breaker of constraints, but, by Schumpeter’s own account, not a breaker of all constraints. His new combination is based on novel premises - but not on any premises that he might fancy: it is the imagined, deemed possible (Loasby, 1996a), and so an obvious question to ask of the Schumpeterian entrepreneur is why certain things are deemed possible, and why others are not.

All knowledge depends on frameworks: the pre-selection of phenomena and of the methods by which to handle them. No one can cope with an unlimited decision space; partial closure is essential, and routines may provide such closure. However, problems may be inappropriately defined and wrongly closed; this frequently happens. Moreover, closures which are effective for one purpose are likely to be ineffective for others, and so attempts to tackle unfamiliar classes of problems by proven methods often produce disappointing results. Far from being surprising, that is a natural corollary of the advantages of specialisation; the opportunity cost of capabilities in one kind of activity is incapacities in many other kinds. There can be no universally valid framework.

CAPABILITIES AND THE FIRM

We have seen how these frameworks evolve within an individual brain, primarily through unconscious accretion but sometimes through conscious construction; and we have noted that a combination of differentiated activities and differentiated experiences is likely to produce a wide variety of frameworks. How can this variety be ordered? As a preliminary to outlining an answer we may recognise the attraction of economising on rationality, especially in a complex and uncertain environment, by adopting frameworks, or even whole repertoires of behaviour, which seem to work for other people whose situations seem to be similar (Choi, 1993). Thus the idea of sharing

“knowledge how” seems easy to understand; and since this knowledge is largely tacit, and since the circumstances of individuals are not identical, a group performing similar activities may improve their individual skills by observing each other, especially if they can discuss their experiences.

Firms formalise this learning experience by providing an institutional framework for discovery. Because the growth of knowledge, especially of knowledge how, is stimulated by the interpretation of experience, the productive activities of the members of a firm, including their interactions, constitute an interlocking set of experiments: running a business helps to develop the knowledge with which to run that business better. This was a view shared by Marshall and Penrose; Marshall’s (1920) “Principle of Substitution” was a principle of experimentation, and part of the normal task of management (see Loasby, 1990), and in Penrose’s (1959) theory the use of a firm’s resources was the means to augment those resources: “growth is essentially an evolutionary process and based on the cumulative growth of collective knowledge, in the context of a purposive firm” (Penrose, 1995, p. xiii).

Firms vary in the relative emphasis they place on discovery and current performance; but all construe phenomena with the aid of interpretative frameworks (Kelly, 1963), which have been created and refined during the firm’s history. This history is therefore reflected in the firm’s current stock of direct and indirect capabilities - what each member of the firm knows how to do, and what the firm as an organisation can accomplish even though no single person can give an adequate account of how it is done. The delivery of goods and services depends on the development and co-ordination of complementary capabilities, which are likely to depend on different ways, both tacit and conscious, of organising knowledge; thus co-ordination requires compatibility of routines, frameworks, and decision premises while continued learning (or perhaps one should say discovery) requires differences between them. This changing stock of capabilities may be interpreted in Austrian fashion, as a firm-specific structure of complementary capitals, oriented towards a range of possible futures; it provides the firm with flexibility within imperfectly-specified and receding constraints (Penrose, 1959). The structure, and each element within it, is shaped - though not determined - by the past sequence of events and the responses to them within the firm; it therefore embodies the logic of appropriateness that is the working principle of Marshall’s first-stage model of the brain. Its orientation, however, is decided by the firm’s “productive opportunity” (Penrose, 1959, p. 31), and this embodies the logic of consequence - of the imagined, deemed possible.

Not all the capabilities which a firm requires are to be found within its organisation; for many capabilities which are complementary may be too dissimilar to be managed effectively within a single framework; moreover, the attempt to do so may impose forms of closure which frustrate the further development of those capabilities (Richardson, 1972). What the firm needs is access to these capabilities. Cohen and Levinthal (1989) have drawn attention to the role of research departments in identifying and importing knowledge; but all firms require absorptive capacity if they are to make good use of capabilities and of information which is generated elsewhere. In an experimental economy every firm needs what Marshall (1920, p. 458) called an "external organisation". Governance and transaction modes should be appropriate not only to current activities but also to learning objectives.

It may be helpful to consider codification in this context. Much "knowledge how" is very poorly articulated, being controlled in parts of the brain which developed prior to consciousness; some of this is very hard to codify, particularly in detail. On the other hand, the process of codifying routines may be helpful in clarifying both the routine and its domain, thus both defining and limiting closure. Since any code should encompass all the possible situations encountered by code users, no universal code can go beyond generalities; it is a familiar experience that messages in a single language are subject to diverse interpretations, and Hayek's recognition of the disparity between the codes employed to construct sensory orders and physical theories can be repeatedly matched in other comparisons of "knowledge that" and "knowledge how". The division of labour produces a differentiation of codes, for the differentiated framing of problems is the key to differentiated knowledge. Within one specialism, codification can be very helpful: Whitehead's advice to economise on thought is used to extol the value of mathematical symbols. But it must not be complete; for ambiguity or even conflict between perceptions and established patterns are the conditions of creativity.

AUTHORITY, STRATEGY, AND CULTURE

It is an important function of both formal and informal organisations to guide members towards pre-selected premises which are believed to be relevant to the purposes of the organisation and which will facilitate co-ordination among the membership. Simon (1992, p. 6) has suggested that people may be encouraged to join an organisation because they can then accept the organisational definition of problems as their own and consequently know, without

deliberation, what they should be thinking about. He has also claimed that it is "more important, in some circumstances, to have agreement on the facts than to be certain that what is agreed on is really fact" (Simon, 1982, 2, p.339), because shared decision-premises facilitate the co-ordination of activities - and also, we may add, the growth of knowledge. Academic disciplines likewise develop categories for phenomena, methods of structuring problems and analytical techniques; and academic education is largely designed to induce students to accept these, in the dual belief that these decision premises will provide sufficient closure to focus attention and sufficient commonality to make communication easy. By operating within the shared routines of "normal science", well-educated members of a discipline can therefore develop their capabilities, improving their objective knowledge and their knowhow, and their knowledge of how to gain access to the objective knowledge and know-how of others. Much the same is true of a highly capable business.

A principal role in the prescription of decision premises is provided by authority if, like Ménard (1994), we distinguish this concept from hierarchy. Barnard (1938, p. 163) maintained that whether a communication had authority was determined not by the originator but by the recipient, and indeed it is not unknown for subordinates to ignore or evade messages from superiors. But nor is it unknown for people to accept without question messages from people with whom they have no formal relationship, or who indeed may be subordinates - to treat these messages as authoritative. We would find many decisions much more difficult, even impossible, if we did not feel able to accept many decision premises from others - in a phrase, to take their word for it. As Ménard argues, organisational cohesion is heavily dependent on authority in this sense, which comes very close to the notion of credibility. Credible messages are vital to the efficient functioning of a business; they allow people to focus on the performance of specific activities, and on the improvement of that performance.

Organisational strategy is important precisely because it provides a major premise for co-ordinating a series of decisions over space and over time, and would be superfluous in the absence of cognition costs. With no cognition costs, and the consequent possibility of common knowledge, game theoretic strategies would suffice; but the game would exclude economic development, in the sense of Smith, Marshall and Schumpeter. Strategy provides the premises for the internal selection of activities, and thus for the creation and maintenance of a firm's direct and indirect capabilities, which may provide it with distinctive - though never guaranteed - competitive advantage in its productive opportunities.

Corporate culture too can be a major source of consistent premises. It is of very limited importance in a group which is managed as a collection of separate units under strong financial control, or in a business where few people are allowed more discretion than a cobbler's apprentice; thus it is appropriate that those in charge of such organisations pay little or no attention to the development of a specific culture, other than obedience to the particular disciplines that they seek to impose. But if, in the hope of improving the identification and exploitation of productive opportunities, many people within an organisation are to be encouraged to use their discretion and their knowledge, in any or all of the four categories which were distinguished in the first section of this paper, then the compatibility of decision premises, and thus the coherence of the organisation, cannot be secured by relying on central direction and formal control systems. In such a context, principal-agent problems cannot be solved in the ways that feature in economic analysis. Indeed they cannot even be defined in those ways, for the remit of the agent is to find ways of identifying contingencies and to discover better ways of dealing with them; and in some contexts and in some organisations the nominal subordinate is effectively the principal and the function of the superior is to provide the support which will enable the subordinate to deliver improvements.

Thus it is no accident that Peters and Waterman (1982) reported that successful innovative businesses combined loose structures which permitted a wide and changing variety of interactions, with tight cultures, which generated compatible rules both of problem-definition and of social interaction for the participants in these interactions. Different kinds of partial closure may be expected to generate different capabilities; but these capabilities must be organised into new combinations. The search for total quality, to which many companies committed themselves, entails the identification of quality criteria throughout the organisation and widespread changes in order to meet them; and neither can be achieved without a widespread acceptance of responsibility for quality, including responsibility for handling interdependencies such as those between design for production and design for use, or between zero defects and on time delivery. Many companies seeking to introduce such policies have found that they cannot achieve their objective without transforming people's behaviour - which requires a transformation of corporate culture. If people are to accept new decision premises, they must be persuaded to grant authority to the new messages; and if they are to be encouraged to provide their own decision premises, then some means must be found to keep them compatible. Interfirm co-operation, and especially interfirm learning, similarly requires people to accept the authority of messages from outsiders and the

compatibility - but not the uniformity - of decision premises. Otherwise the potential for the improvement of capabilities by the use of widely-distributed and locally appropriate "knowledge how", directed by local "knowledge that", will be dissipated by co-ordination failure, instead of being realised in a demonstration of the continued power of specialisation balanced with integration.

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ROUTINES ET MÉMOIRE ORGANISATIONNELLE : UN QUESTIONNEMENT CRITIQUE DE LA PERSPECTIVE COGNITIVISTE

Nathalie LAZARIC ¹ et Pierre-André MANGOLTE ²

Résumé

L'objectif de cet article est de mieux cerner la notion de routines à partir des travaux de Nelson et Winter et de Cohen et al. (1995). En 1982, elle est définie comme la mémoire organisationnelle de la firme. L'encodage des connaissances est néanmoins imparfait car les routines s'appuient sur des connaissances tacites difficilement articulables en dehors de leur contexte initial de production. Ce concept a été développé par toute une série de travaux récents qui formalisent l'apprentissage à partir de « modèles mentaux ». Les outils de modélisation s'appuient sur des représentations symboliques visant en intelligence artificielle à séparer le corps de l'esprit pour conceptualiser ce processus à partir de règles de production généralisables. Nous critiquerons cette perspective en soulignant qu'elle est contradictoire avec l'hypothèse même de connaissance tacite. En effet, la connaissance tacite n'est pas seulement incluse dans nos modèles mentaux mais réside dans des ancrages physiques et des supports techniques. Ceci nous amènera à suggérer une autre approche de la mémoire organisationnelle incluant les travaux de la cognition incarnée tentant de mieux saisir la diversité des connaissances tacites et de mieux comprendre, par ce biais, le contexte initial concourant à la mise en place de la trêve organisationnelle (caractère situé et distribué des connaissances).

Abstract

The aim of this article is to provide a better understanding of the concept of routines. Taking into account the theoretical assumption of Nelson and Winter which has diffused this concept, we will try to show its evolution (Cohen and al., 1995). If routines are considered in 1982 as the locus of organizational memory, articulation of knowledge is far from to be per-

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