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Organisational Ability
- constituents and congruencies

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Abstract

In the past few years there has been an intensive debate about knowledge management and organisational learning. Knowledge and improvement of knowledge is considered to be crucial for performance and development of organisations. This perspective is emphasised by the comprehension of knowledge as organisations' most important asset. However, the asset view of knowledge is not unproblematic. It may implicate a mechanistic view of knowledge and how knowledge can be managed. Furthermore, it seems to be a claim for totalisation when talking about the organisational role of knowledge. The consequence of this is that other parts of the organisations total ability are disregarded. Due to problems concerning the mechanistic view and the claim for totalisation we have seen a need for defining and conceptualising the notion of *organisational ability*. Organisational ability is considered to consist of (1) individual knowledge, (2) institutionalised shared knowledge, (3) artefacts' functionality and (4) linguistic and pictorial descriptions of ability. For a high organisational performance these different parts must be in alignment. In other words, there is a need for congruence between these constituents. Without such congruence the organisation will not be able to leverage and take advantage of its potential ability to perform efficient and effective actions.

1 INTRODUCTION

During recent years there has been an upsurge of interest in knowledge management (KM) and organisational learning (OL). A great number of conferences, articles and more comprehensive literature have tried to get a hang of this evasive area of subject. But why focus on a subject that, at some level, has been around since the pre-Socratic philosophers? The answer to the question is manifold. One explanation is that traditional economics looked at organisation as a "black boxes", i.e. the focus for examination has mainly been the input and output of the production together with the market in which the organisation participate (Davenport & Prusak, 1998). Nowadays, theorists of many disciplines are turning their attention to what is inside the box and one of its most essential constituents is knowledge (ibid). Knowledge and improvement of knowledge is considered to be crucial for performance and development of organisations. The idea that knowledge need to be managed is a basic ground for notions such as organisational learning, knowledge-based practices and intellectual capital. Those and other similar concepts have been developed in order to find new ways to compete effectively. It is also argued that in our contemporary society knowledge is an important asset in order to reach sustainable competitive advantage (see for example Davenport & Prusak, 1998¸Quintas et al, 1997; Drucker, 1995; Nonaka & Takeuchi, 1995). One question of concern is which are the implications of seeing knowledge as an organisational asset? Comparing intangible assets, like

knowledge, with tangible assets (e.g. machines, land) they can hardly be treated as having the same properties. Another question is how we should relate knowledge to the organisation's total ability to perform actions and deliver value to its customers? Is knowledge the only constituents of organisational ability or are there other inherent parts? The purpose of this paper is to investigate those questions and thereby develop the notion of organisational ability. In order to do that we will begin with looking at some theories around the area of interest.

Due to the vast amount of the available literature it is either possible or our intention to explore all existing theories. Instead, we have selected some, according to us, relevant and current notions that have been used as guidelines for the investigation. Those notions include ”knowledge management”, ”intellectual capital” and ”organisational knowledge”.

The paper is divided into five separate parts. This introduction aims to give the reader a background and purpose of the area of interest. Next section comprises a theoretical discussion about knowledge in organisations. In the third part we make some intermediate conclusions from the analysis of the selected theories and formulate some objectives for our conceptualisation of organisational ability. Section four, the main part of our paper, consists of a description of the notion of organisational ability, its four constituents and relations between them. In the fifth section we will sum up our contribution and make some final conclusions.

2 KNOWLEDGE IN ORGANISATIONS

The existence, use and importance of knowledge itself are not new. Knowledge makes people able to act and perform different organisational tasks. In this way we can say that knowledge is what makes organisations go. What is new, according to Davenport & Prusak (1998:12), is the recognition of *”knowledge as a corporate asset”*. Viewing knowledge as an asset implies efforts to utilise, improve and deploy knowledge in the organisation. Davenport & Prusak mean, *”knowledge may be a company's greatest competitive advantage”* (Davenport & Prusak, 1998:13). Drucker (1995) fortifies this by saying that knowledge is the *only* meaningful economic resource.

To take this asset view a step further Edvinsson & Malone (1997) describe how organisations should measure their intellectual capital (IC). There are two main components of intellectual capital. One of them is human capital, which is described as individual capabilities, skills, experience and the like. The other one is structural capital, which is described as embodiment, empowerment and supportive infrastructure of human capital. The structural capital can be further divided into customer capital and organisational capital. The latter one can in turn be specified into innovation capital and process capital. Measuring the human capital is said to be the most difficult part of the IC model, still this measurement is needed. Edvinsson & Malone offer an IC equation[1] in order to measure IC. Examples of measurements of the human capital are (1) employee turnover, (2) IT-literacy of staff, (3) time in training (days/year), and (4) average duration of contract. Sveiby et al (1990) are also describing how to measure the intangible capital of organisations. Their categories of organisational capital are similar to the ones Edvinsson & Malone are presenting. However, the measurement proposed both by Edvinsson & Malone (1997) and Sveiby et al (1990) are not easy handled. One can for

[1] Organisational Intellectual Capital = *i* C, where *i* stands for the organisation's coefficient of efficiency in using the IC and C stands for the value of IC in dollar.

example question if investments in employees' education automatically lead to an increase in IC. In the same way we can ask ourselves if education will enlarge the ability of the organisation to perform and deliver value to customers. Acquired knowledge might for example not be practicable in the specific work situation or an employee might not be able to understand how to apply it to his/her particular tasks. Hereby there are some problems with treating knowledge in the same way we are treating tangible assets. It seems like knowledge sometimes is viewed as a material resource that is easy to externalise. Nevertheless we do agree on that it would be fruitful to find ways to evaluate knowledge in some way. Our suggestion is to focus on evaluation of the usefulness of knowledge, instead of trying to measure knowledge per se.

If knowledge is considered to be *the* asset of organisations: How about other capabilities? Or are there no other capabilities or functions that ought to be noticed? A lot of literature around the KM and OL emphasises for example that technology only has a secondary role in the management of knowledge. Davenport & Prusak (1998) expands this by criticising the belief that technology could replace the skills and judgement of an experienced human worker. A case of concern is for example NEC factory in Honjo, Japan, which has been replacing assembly-line robots with human workers, because human flexibility and intelligence makes them more efficient at dealing with changes. Davenport & Prusak give us more empirical examples that demonstrate that organisations cannot replace the knowledge dimension (human dimension) by implementing techniques that is supposed to carry through previous human work. The role of information technology (IT) is said to enable and facilitate the management of knowledge, but technology itself *"disappears as a sustainable source of competitive advantage"* (Davenport & Prusak, 1998:16).

The emphasis of the role of knowledge within organisations sometimes seems to be exaggerated to a degree that *knowledge is* what constitutes the ability of the organisation. This, what we call, claims for totalisation of knowledge neglects other forms of abilities that actually do exist in organisations. In contrast to some other authors Edvinsson & Malone's conception of intellectual capital take a somehow other stance. They do include the capacity of IT-systems by saying: *"organisational capital is the company's investment in systems, tools, and operating philosophy…It is the systemised, packaged, and codified competence of the organisation as well as the systems for leveraging that capability"* (Edvinsson & Malone, 1997:35). Paying explicit regard to the fact that employees are not all of the IC is an important contribution of Edvinsson & Malone (1997). In terms of the structural capital they include for example IT-artifacts as part of the IC. In this context we can also turn to the term *"core competency"* that Prahalad & Hamel (1990) have put forward. They define core competence as a unique bundle of *skills* and *technologies* that enables organisations to provide particular benefits to customers. To this is added the *"core performance capability"* that enable organisations to deliver high-quality products to the customers (Allee, 1997:21). Allee defines the notion core performance capability as generic to the success of many organisations. The capabilities could be exceptionally efficient core business processes or enabling technologies that capture detailed information about the customer.

One limitation of Edvinsson & Malone's view seems to be that they handle the structural capital (including IT-artifacts) more as a leveraging factor, than something that has a capacity of its own. Similar restriction is found in Prahalad & Hamel (1990) and Allee (1997). Of course, it is the *use* of artifacts that gives value. Still, artifacts do not exclusively support the human capital or the informative function of an organisation. Artifacts can actually perform a

lot of actions by themselves and thereby contribute with value to organisation's total performance. To get a demonstration of that we can just turn to all activities in organisations that have been automated during the last decades. Our main criticism concerns that there is not taken full consideration of the different performative functions that artifacts (e.g. information systems) actually offer organisations. Technology includes artifacts that support both information processing, manufacturing and transportation. A lot of modern organisations are dependent on these different artifacts in order to perform and create value to their customers. Artifacts need therefore to be taken into explicit consideration when talking about what organisations can do, i.e. the organisational ability.

In order to manage and create knowledge Nonaka & Takeuchi (1995) have put forward a model for knowledge conversion. The four modes of knowledge conversion are socialisation, externalisation, combination and internalisation[2]. Among those modes, externalisation is seen as the key to knowledge creation. The reason to that is that externalisation is said to create new, explicit concepts from tacit knowledge. The mode of externalisation can be compared with terms like codification of knowledge (Allee, 1997; Davenport & Prusak, 1998) and encoding of knowledge (Blackler, 1995). Nonaka & Takeuchi's model is built on Polanyi's (1983) distinction that there are two kinds of human knowledge, explicit and tacit knowledge. Explicit (codified/encoded) knowledge refers to knowledge that is transmittable in formal, systematic language. Nonaka & Takeuchi mean that explicit knowledge can be articulated in formal language and transmitted across individuals formally and easily. Allee (1997:45) exemplifies this by saying *"explicit knowledge is conveyed through documents, images, and other deliberate communication processes"*. Sometimes explicit knowledge is even ranked equal with information (see for example Mårtensson, 1999). Tacit knowledge, on the other hand, is personal, context-specific and therefore hard to formalise and communicate. That means that tacit knowledge is difficult to articulate within a formal language. Still tacit knowledge is argued to be the most important kind of knowledge and one aim of Nonaka & Takeuchi's (1995) knowledge-creation model is to transfer tacit to explicit knowledge through the externalisation process.

Even if many authors (see e.g. Nonaka & Takeuchi, 1995; Davenport & Prusak, 1998; Nilsson, 1999) comment on the apprehension that knowledge is not easily externalised, this is seldom analysed any deeper. The translation of knowledge into language and then back to knowledge again is, to our opinion, not always made from a proper epistemological understanding. Take for example Nonaka & Takeuchi's (1995) externalisation and internalisation mode. The result of the externalisation process is conceptual knowledge. This means that tacit knowledge has been transformed to explicit knowledge. The externalisation process is triggered by dialogue and often driven by the use of metaphors and analogies. Still, in the end it is the knowledge of focus that ought to be described but it is not clear how this can be done. The internalisation process concerns embodying explicit knowledge into tacit knowledge. Nonaka & Takeuchi (1995:69) mean *"for explicit knowledge to become tacit, it helps if the knowledge is verbalised or diagrammed into documents, manuals, or oral stories. Documentation helps individuals internalise what they experienced, thus enriching their tacit knowledge. In addition, documents or manuals facilitate the transfer of explicit knowledge to other people, thereby helping them experience the experiences of others indirectly"*. These

[2] Socialisation means transferring tacit knowledge between actors, externalisation means making tacit knowledge explicit, combination means combing different kinds of explicit knowledge and get new explicit knowledge and internalisation means embodying explicit knowledge to tacit knowledge (Nonaka & Takeuchi, 1995).

two examples implicate that tacit knowledge is something that resides in the brain of human beings, while explicit knowledge is something that is independent of any subjective holder (cf. Popper's (1979) view of objective knowledge). Our interpretation of this is that the latter "something" has been reified and the intrinsic question is can we really call that knowledge?

We would like to emphasise that when talking about externalised (explicit) knowledge we need to be clear of that this is not knowledge per se. It is just linguistic descriptions of knowledge, i.e. texts, which need to be interpreted by the receiver in order to become knowledge again. Due to different reasons the receiver may not be able to understand the intended knowledge meaning of the texts. For example the receiver may not have necessary background knowledge or may interpret the meaning in a different way than was the intention of the knowledge exponent. This problematic is unfortunately something that, according to us, is not emphasised sufficiently in the literature. Hereby we would like to stress the importance of a further investigation of the conversion between knowledge to externalised knowledge. To that, as stated above, we need to consider other parts of the organisational ability, i.e. not only the knowledge part. In order to do this we believe in drawing upon a perspective rooted in the philosophy of knowledge, language and action.

3 INTERMEDIATE CONCLUSIONS AND THEORETICAL OBJECTIVES

We want now to summarize the above discussion on knowledge in organisations in some intermediate conclusions. These conclusions form a basis for our elaboration on the notion of organisational ability (section 4 below).

1. We should not totalise knowledge as *the* organisational asset. It is important to acknowledge other assets as important for organisational action.
2. When treating knowledge it is important to avoid mechanistic views. It is important to maintain (and thus not blur) distinctions between knowledge as parts of human mind and its linguistic representations.
3. We should give a proper account of technology for organisational action. This means a balancing between two extremes of technology comprehension (7 and 8 below).
4. We should recognise language as having an important role for communicating and bearing organisational ability.

These conclusions will function as objectives for our further theoretical analysis of the notion of organisational ability. Besides these we would like to add four more objectives for our theoretical analysis:

5. We should consider organisations as actors without falling into the trap of reification. Organisations act through their human co-workers.
6. The importance of intersubjectivity (shared knowledge) in organisations for coordinated actions must be recognised.
7. We should avoid a reified and deterministic views of technology; i.e. giving it properties of acting and developing totally of its own. All artifacts have a human origin and they rely alwayson human purposes.

8. We should avoid to reduce all technology tro mere instruments (enablers) of human action. Some artifacts have properties that make them function partially as independent devices and they do not need constant human supervision.

4 ORGANISATIONAL ABILITY FOR ORGANISATIONAL ACTION

4.1 Organisational ability as actable assets

The notion of organisational ability -which we introduce here - is to be understood as an ability for organisational action. The constituents of organisational ability can thus be seen as assets of the organisation. Not all organisational assets are however parts of what we call organisational ability. The assets must be *actable*[3], i.e. they must be almost directly transformable into action. Human knowledge is an important asset for organisational action. It is an actable asset since it can directly be transformed into action. All human action are based on the knowledge of the actor.

There are organisational assets which cannot be regarded as actable assets. E.g. financial assets must be transformed into other assets in order to be utilized. Assets like buildings are neither direct actable assets. Buildings are parts of the infrastructutre of the organisation fascilitating different actions.

A building is an artifact produced by humans in order to be utilized for certain purposes. The non-actable character of buildings can be compared with other artifacts which have actable properties. Production equipment is more than a fascilitating infrastuctrure. Machines for manufacturing make things happen. They are parts in the production of goods and they have a (rather specialised) ability for such organisational action.

Human knowledge is an important organisational ability and asset. It can be seen as the fundamental and original organisational ability. Without human knowledge there will be no organisational action and there will no other abilities. It is however too restricted to say that human knowledge is the only organisational ability. There are other important abilities, which we describe in this paper. Organisational ability is considered to consist of - and thus depend on - the following parts:

- individual knowledge
- intersubjective institutionalised knowledge
- artifact functionality
- linguistic and pictorial descriptions of abilities

The organisational ability is what makes the organisation to create value by action for its clients/customers.

4.2 Knowledge and artifacts

A competent act is an act based on adequate knowledge. The knowledge is used for performing the action. Human knowledge is expressed in action. This is the case for both

[3] The notion of actability (in relation to information systems) is treated in Ågerfalk et al (1999). We here broaden the use of actablity to other organisational abilities/assets.

motory-material action (e.g. driving a nail) and for social-communicative action (e.g. ordering nails).

For many actions humans use artifacts. We use a hammer in order to drive a nail in the wall. The hammer, as an artifact, extends the ability of a human being. A human can perform acts with the aid of artifacts. Some acts can be improved by using tools. Other acts are enabled by certain tools. Such acts cannot even be performed without the use of appropriate tools. The artifacts are necessary for action. In order to perform tool-based actions humans need to have knowledge about the tools and how to use them. They must be *competent* tool-users. The tool must have adequate properties for the kind of intended action. Properties of a tool (artifact) are not called competence. We usually call such tool properties, that make the action possible, the *functionality* of the tool.

There are many artifacts for material actions and they play an important role in manufacturing and other enterprises. There are also important tools for communicative and informational action. Computers and other instruments of information technology are important artifacts for such action. The computer extends the ability of humans in different ways. The computer has properties (functions) for data manipulation, storage, transfer and presentation. It extends the ability of humans through such properties. There are similarities between the computer and a material tool like a hammer, but also important differences. A hammer and a computer can enable certain actions performed by humans. They enable of course different types of action. But there is also another fundamental difference between these kind of instruments. A computer have properties of independent performance which a hammer is lacking. Following the program code, a computer can execute operations without human presence or surveillance. A computer can perform tasks (partially) independently. A hammer does nothing by itself.

Ehn (1988) is dicussing how to interpret the computer as a phenomenon. Is it a tool or is it a machine? Ehn gives preference for the tool view, emphasising that humans perform their tasks in interactive support by the computer. Contrary to Ehn we think it is important to accept the dual character of the computer. It is an interactive tool *and* an automatic machine. This is in line with Weizenbaum (1976) who uses the concepts of prosthetic tools and automatic machines. The prosthetic tools extends the ability of humans as we have described above. The automatic machines have an autonomous ability to function of its own.

In some situations we use the computer as a tool. We perform actions with interactive support of the computer. In other situations the computer is utilized as an independant device performing tasks automatically and thus independendently. The independence is of course restricted and conditional. The conditions for action are expressed in the program code, written by humans, and governing the performance of the computer. We can distinguish between interactive (tool-based) usage situations and automatic situations (Ågerfalk et al, 1999).

When designing a computer-based information system, humans create an action repertoire of the system to be used interactively or automatically (ibid). The computer systems (as designed artifacts) have been given an action ability. They can perform - on their own or together with users - organisational actions of informational or communicative character. Their performance of organisational action is conditioned by the programming made for them. Computer-based systems have a functionality which directly can be transformed into organisational action. This means that such systems are considered as organisational actable assets.

Information technology is thus to be seen as an important part of organisational ability. Other types of technology have also important roles for the organisational performance. Our presentation above has focused on information technology. Much of what has been said about computers - their character and ability for tool-supported action and automatic action in organisations - is in principal valid for other technologies also.

We do acknowledge the importance of knowledge and its central role for organisational action. But we are critical towards an exaggeration of knowledge as *the* organisational asset - what sometimes seems to be made in theories of organisational learning and knowledge management. Other forms of organisational ability seem sometimes to be disregarded. Knowledge makes people able to act and perform important tasks of the organisation. What is performed within an organisation is not only restricted to knowledge-based action of people. Technology have a great importance in most companies today. The performance of organisations is usually dependent on different kinds of equipment; both information, manufacturing and transportation technology. The usage of equipment (different artifacts) makes the organisation able to create value to their clients/customers. Organisational action can be performed by people or by artifacts created and arranged by people. For a human to act skillfully in his/her organisational role there is a need for knowledge. The performance of organisational action by artifacts implies an apropriate functionality of these artifacts.

Knowledge is primary and artifact functionality is secondary. Human knowledge is expressed and externally manifested when people create artifacts. Human knowledge is built into the artifacts. The performance of the artifacts will be in accordance with the knowledge and intentions made explicit during their design and transformed into them. Their performance will also be dependent on the material conditions of their construction.

4.3 Organisations as actors - humans as organisational actors

We claim that organisations act; that organisations should be seen as actors. Is this not a reified[4] position? A view that organisations have been given an ontological status of their own outside the realm of human originators? We do claim that organisations are actors, but they are not actors of their own. They always have a human origin and purpose. Organisations are created by humans and for purposes of those humans. And the organisations act always through their human co-workers or through artifacts arranged by humans. They cannot act themselves but only through humans (Ahrne, 1994; Goldkuhl & Nilsson, 1999).

It is however important to conceive organisations as actors. A customer is not making business with individuals in the organisation. A customer is making business with the organisation and when doing this the customer must interact with the co-workers of the organisation. A business contract is made between a customer organisation and a supplier organisation, and not between any individuals. Human actors sign the contract, but not for their own sake, but for the sake of the organisation.

The co-workers act *on behalf of the organisation* (ibid; Argyris & Schön, 1996). They act in the name of the organisation. An act performed by a human co-worker is always *dual*. It is

[4] Berger & Luckmann (1967) is describing the meaning of reification and the problems and dangers of reifying social phenomena, i.e. disregarding the human origin of socially constructed products.

both an action performed by a human being, but it also at the same time an action performed by the organisation. Humans act in organisational roles. Their action is *representative*. They represent the organisation when acting.

It is important to conceive the organisation as an actor because otherwise it would not be appropriate to talk about organisational ability for action. Such an organisational ability goes beyond the abilities of individual humans. Organisational ability can manifested in artifacts outside humans (section 4.2 above). Organisational ability can also be manifested in organisational institutions (section 4.4 below) and expressed in linguistic and pictorial descriptions (section 4.5 below) .

4.4 Individual vs institutionalised knowledge

Viewing the organisation as an actor means that their human members perform different acts in the name of the organisation. These different atcs (of different humans) must be *coordinated* to a certain degree. If different acts are not coordinated enough there will be problems to create products of high quality for customers. What is said and done, at different occasions, towards one customer must be in alignment with each other; otherwise the customer will be confused and perhaps suspicious concerning the trustworthiness of the organisation.

In order to perform actions of coordinated character, there is a need for *intersubjective knowledge* within the co-workers of the organisation. The knowledge of products, production processes, marketing principles and many other aspects of the organisation must be shared among different members of the organisation. In order to be an efficient organisation there must be typical ways (routines) to perform recurrent actions. These action patterns and the knowledge about them are being institutionalised into a *common stock of knowledge* within the organisation (Berger & Luckmann, 1967; Silverman, 1970; Scott, 1995). This means that knowledge about organisational actions and action conditions is, too a large degree, shared among its members. Conceptions, objectives, norms and rules are shared between humans. Fundamental for this knowledge sharing is the existence of a *common organisational language*. Categories and terminology of such a language is used to perform many organisational tasks and to talk about them.

We do not claim that there is a total match of the organisational knowledge among all its members. There will in organisations be different ”knowledge provinces” due to different task areas. Even between members of a work team there can be degrees of intersubjectivity due to differences in personal history and organisational commitment.

Institutionalised knowledge has an origin within individual subjects. Individual ideas and experiences, with a value for the organisation beyond their individual originator, can be shared with other members, and thus becoming intersubjective and institutionalised. The deployment of such knowledge is not always made through an explicit and linguistic communication process. Tacit knowledge of a worker can be shared among fellow workers only by working together. Not all knowledge is codified into linguistic categories. Much knowledge (of both individual and intersubjective kind) are kept in ”practical consciuosness” (Giddens, 1984).

Every human actor within an organisation must be knowledgeable in order to perform actions. He or she must rely on his/hers subjective knowledge. In order to have actions coordinated, then different actors must be knowledgeable in a joint way. They must share knowledge; i.e.

such knowledge is intersubjective between the different actors. When we talk about individual knowledge we mean knowledge residing within a human subject. When we talk about intersubjective knowledge we mean such knowledge of individuals which is shared among them.

4.5 Descriptions of organisational ability

We consider knowledge to be located within humans. What is outside is externalisations and manifestations of knowledge. Artifact functionality is a manifestation of knowledge which is discussed above (4.2). Human knowledge is constantly being expressed in utterances and messages. When we talk and write, we express parts of our knowing, and this knowing can through the use of language become shared with those listening to us.

Knowledge as an ability for organisational action can thus be expressed in order to be shared among other members of the organisation, which we have described in section 4.4 above. Such descriptions can be kept and saved over time. In order to have descriptions with *permanence*, i.e. going beyond oral and casual communication, there is a need to use written descriptions, or descriptions recorded in other ways. Language is an efficient way of transfering knowledge of possible ways to act. Sometimes verbal descriptions can be enhanced by using pictures expressing how to act.

Such linguistic and pictorial descriptions become an external collective memory of the organisation concerning its ability. Organisational members can learn how to act in different situations. They can also recall knowledge, which has been forgotten, through reading instructions how to act. Such descriptions have thus a *prescriptive* and *reminding* function for the organisational ability and the expected action.

Descriptions of organisational ability can be made in manuals, hand-books, job descriptions and many other organisational documents. Such descriptions do not have the same directedness to action as knowledge and artifact functionality. The descriptions must be percieved, interpreted and understood in order to result in action. Anyway, we consider them to be part of the organisational ability and thus being an actable asset. The purpose of descritions is that they should be used as an aid for organisational action according to institutionalised and prescribed ways of action. If we compare with financial assets, which we above have claimed to be a non-actable asset, then there is a fundamental difference. A description has a close link to action by being a description of the prescribed action. Financial assets lack such links to action.

4.6 Relations and congruencies

We have described four kinds of organisational ability. These four constituents is transformed into every-day organisational action. These four constituents are not unrelated to each other. Primary to all other abilities is the human individual knowledge. Without knowing subjects there will be no intersubjective knowledge[5] and no artifacts and no descriptions. But an organisation cannot exist without having individual knowledge shared into a common stock of institutionalised knowledge. Persons can create artifacts based on their own subjective knowledge, but usually such artifacts rely on intersubjective knowledge within and outside the

[5] This is not to deny the dialectical relation between subjective and institutionalised knowledge (Berger & Luckmann, 1967). For a new employee coming into the organisation, the institutionalised knowledge within that organisation, is prior to his acquaintance (knowing) of that knowledge.

organisation. Engineering equipment is built based on technical knowledge which to a large degree can be outside the organisation. An organisation procures production equipment, with packaged knowledge manifestations of technical-material character. An organisation usually procure such equipment because they do not have the knowledge (or other ability) to create them within the organisation itself.

Sometimes computer-based information systems are created within the organisation. That is the case if the organisation has enough systems development ability. The knowledge built into such an IT artifact is of other character than a manufacturing artifact. What is built into an IT-based system is parts of the institutionalised knowledge of the organisation. It is thus possible for the organisation to create such artifacts if they have enough knowledge how to formalise and renew such institutionalised knowledge and transform it into computer code.

The institutionalised knowledge must continuously be exercised in action. Otherwise certain parts this institutionalised knowledge might be (at least partially) forgotten and thus distorted in action. Often linguistic descriptions constitute a necessary external memory for the institutionalised knowledge. Humans can be reminded of what kind actions to perform and norms and principles for their execution.

Relations between the four constituents is described in figure 1. In this model we have also described the relations to organisational action. We have made a characterization of the kind of action perfomed which is based on a certain type of ability. In many situations the actions performed are based on several parts of organisational ability. Let us e.g. assume a situation where a market assistant is handling a customer order and creates an order confirmation with support of an interactive computer-based system. To perform this action with success, it must be exercised in a competent way; i.e. based on the knowledge of market assistant. This knowledge must be in alignment with institutionalised order procedures of the company; i.e. the order confirmation must be coordinated with other actions and thus be based on this kind of institutionalised knowledge, which the market assistant must be one bearer of. To be sure that he performs this action correctly, the market assistant checks a manual which consists of descriptions of the institutionalised order procedures of the company. He makes the order confirmation with interactive support of a computer-based order system; i.e. the performance of the order confirmation is a tool-based action and must rely on both human knowledge and appropriate artifact functionality. As seen from this simple example, to perform one single organisational act there is a combined application of several parts of organisational ability. One can speak of *multi-capable actions*. Through this little example it is also obvious that there must be *congruence* between different organisational abilities.

To perform an organisational action, the knowledge of this human subject must be in alignment with institutionalised knowledge in the organisation. The intersubjective organisational knowledge needs also to be aligned with functionalities of different artifacts within the organisations. People must know what different artifacts are capable of doing and they must also possess enough knowledge how to manage them. The descriptions of human and technical ability must be correct, otherwise people may perform inappropriate actions when trying to follow the instructions.

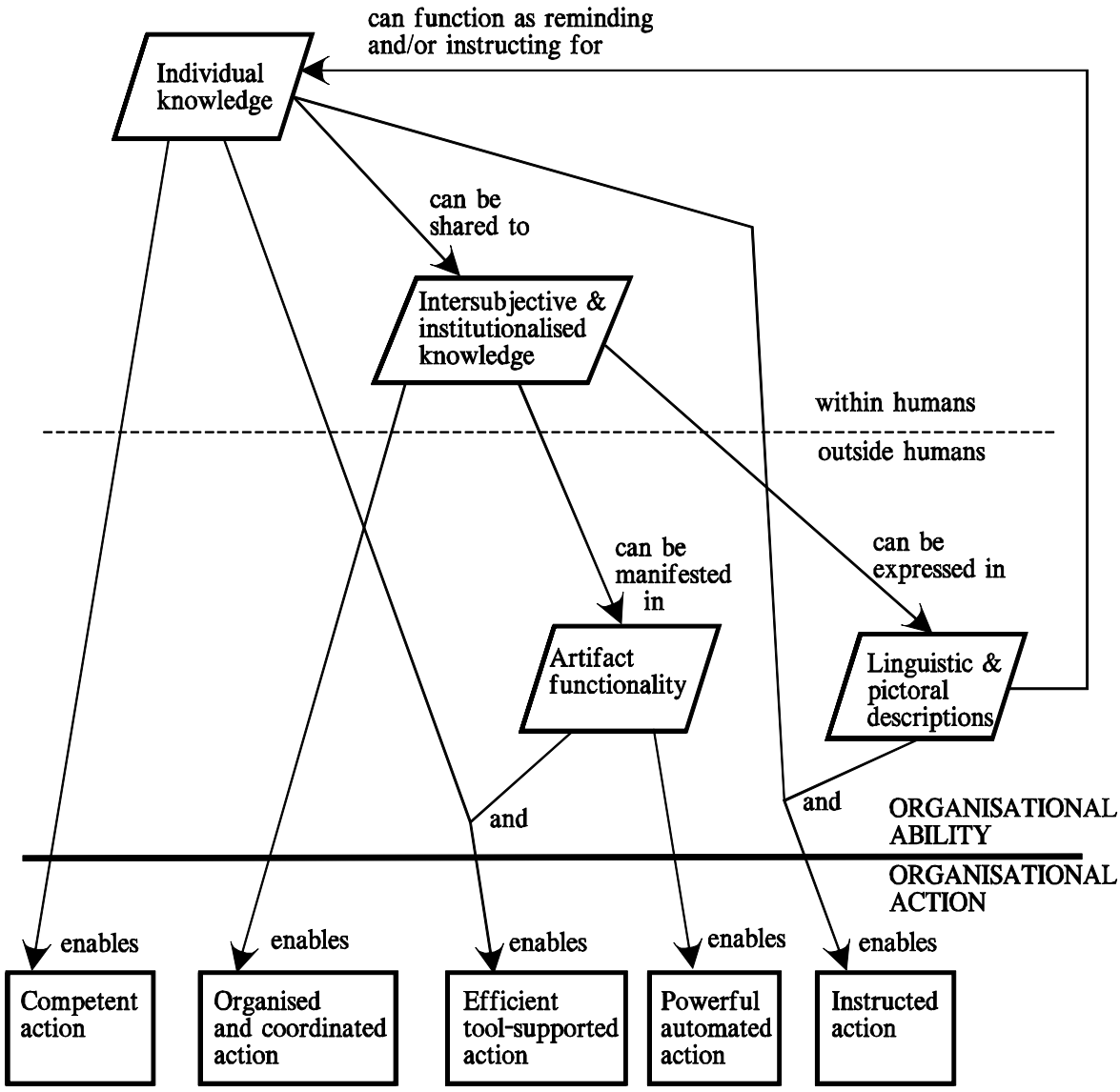

Figure 1 Organisational ability: Constituents and relationships to action

We claim the importance of congruence between different organisational abilities. We do not, however, claim that there is a total ability congruence in most organisations. Organisations evolve over time. Their abilities are gradually changing. Through learning and innovation human knowledge is changing. Other parts of organisational ability may not change in the same pace. There can be different incongruencies between the organisational abilities. There can be a mismatch between parts of the institutionalised knowledge and the descriptions how to act. This mismatch can be due to obsolete descriptions which have not been updated. The mismatch can, however, be the other way around: Intersubjective knowledge which has not been adapted to new descriptions. There can be a lag in learning of new procedures or perhaps a resistance to change when management is trying to implement new ways of working.

Problems due to ability incongruencies can be serious for the organisation. It can hamper the organisational performance in different ways. It is however important to see that an identified incongruence is an incentive for organisational change and learning.

5 SUMMING UP: FINAL CONCLUSIONS

To perform an organisational act is to exercise ability. In this paper we have defined the notion of organisational ability. We have defined the ability to consist of four principle constituents. These four constituents exist on different ontological levels:

- Subjective level: Individual knowledge
- Intersubjective level: Institutionalised knowledge
- Technical level: Artifact functionality
- Semiotic level: Linguistic and pictorial dscriptions

It is necessary that there is enough harmony and congruence between the different abilities. Too much mismatch and conflict can have severe negative consequences for organisational performance.

The organisation is gradually changing through changes in its different abilities. As said above, these abilities must be in accordance with each other. In change processes one ability can be ”moved forward” and due to this others need to be changed. A jump (i.e. a positive shift) in one organisational ability may trigger other abilities to change and then another ability can make a jump in front of others and thus trigger further changes. Organisational changes are often performed through jumps of organisational abilities, where one ability jump may trigger other abilities to jump in front of other abilities. We end this paper by stating a fundamental hypothesis about organisational change:

Organisational change is a never-ending chase between different organisational abilities to keep in touch with each others.

This is due to two main forces within organisations: The impetus for organisational change to be an effective actor in society (and thus change its organisational abilities) and the impetus to establish congruence between different organisational abilities.

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