The practices of knowledge – investigating functions and sources

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Abstract:
The paper describes an approach for contextual knowledge analysis. This approach is used for investigating knowledge functions and sources in a workpractice. It is based on a practice-theoretic and socio-pragmatic perspective. Activities of generation, transfer and utilisation of knowledge are seen as contextually bound and determined by the workpractice. The research is based on a workpractice theory with generic categories for analysing knowledge sources. The contextual knowledge analysis has been used in an action research based case study within elder care (home care service).

Keywords: Knowledge, practice, workpractice theory, socio-pragmatism, elder care

1 Introduction

The knowledge management movement has contributed with an emphasis on knowledge aspects when developing information systems (IS) and other parts of organisations. It is however not unproblematic how to develop IS with a knowledge focus. There are traps of knowledge reification, i.e. knowledge is treated as an abstract object, which is seen as easy to store and transport. Confer e.g. Scarbrough et al (1999) about dangers of treating knowledge as a commodity. The concept of knowledge management can in itself be problematic. It may contain a conception that knowledge is something that can be managed separately; as a distinct object separated from the human bearers and the workpractice which it is part of.

In order to avoid such dangers of knowledge reification in development of organisations and IS, we claim that one should start such analysis from "knowledgeable persons" and not from abstracted knowledge types (Goldkuhl & Braf, 2001). The analysis can proceed from knowledgeable persons to an investigation on how knowledge can and should be used (the *functions* of knowledge) and from where knowledge originates or may be captured (the *sources* of knowledge). Knowledge management (KM) efforts should not only concentrate on deployment of knowledge (how knowledge is codified, stored and disseminated). It must include an interest on usages of knowledge for organisational action. It should also include an interest on how knowledge is generated and not simply take for granted that it exists. We thus de-emphasize the "middle" part of the knowledge transfer process (how to organise and implement knowledge deployment) and instead we emphasize the first part (generation) and the last part (usage). This follows from accentuating purposefulness and relevance of knowledge. Not all knowledge that exists or can exist in an organisation is worthwhile to disseminate in that organisation.

We do not rule out knowledge deployment and issues how to design this part. Our claim is however that knowledge deployment should be seen as a means, and that organisational purposes and relevancies must govern this activity. Purposes and relevancies can be traced from knowledge usage contexts (functions) and knowledge origin contexts (sources). We also claim that knowledge origins and usages are not only a matter of knowledge. It is a matter of work and practice. *Knowledge is an integral part of workpractices* and this will be one main theme of this paper.

Our research is dealing with knowledge focused workpractice development. This includes development of KM-based information systems, but goes beyond a restricted IS approach. The main purpose of this paper is to present an approach for *contextual knowledge analysis* (CKA) and to describe its possible application. We will use a case study to demonstrate its applicability. The concepts of knowledge functions and sources are central in our approach. The paper will also contribute to a deeper theoretical understanding of these concepts. We can label such a contribution a step towards a theory on 'the practices of knowledge'.

The development of the CKA approach is partially based on earlier developed theory. We have been using a *workpractice theory* as a main source of inspiration. This theory has been presented elsewhere (Goldkuhl & Röstlinger, 1999; Goldkuhl et al, 2001). We have used it here as frame for interpretation and analysis. This means also that one part of this reported research implies a test of the applicability of this theory. The test of the workpractice theory is concerned both as a part of the CKA approach and as a general means for understanding organisations (or more specifically workpractices and their knowledge bases). The application of the workpractice theory in this case study has lead to further validation but also to refinement of the theory. This means also that one sub-purpose of this paper is to present such validation and refinement.

The practice notion is central in our approach. We will therefore discuss this notion in the next section before we will present the CKA approach through the case study (section 3). In section 4 we pursue a theoretical discussion based on the case study, which contains a refinement of the workpractice theory. Some conclusions in section 5 are ending our paper.

2 A practice turn in contemporary research

There has been a long debate between micro and macro perspectives in social science, especially in sociology as a core social science (e.g. Cuff & Payne, 1979). Macro perspectives emphasize the use of systemic and supraindividual concepts. Micro perspectives emphasize the use of individually related concepts. This long battle can be seen as a struggle between holism and atomism. The micro advocates argue for founding scientific reasoning in "atomic building blocks" of human action. They are accusing macro researchers for using reifying concepts; the human actors and their actions are lost and the used concepts are too abstract and thus unintelligible. The macro advocates argue for a holistic approach with societal forces and functions of systemic character. They accuse the micro researchers for a narrow detailed focus without contextual understanding.

One can consider the introduction of the practice concept in social science as a dialectical synthesis between these oppositions. Schatzki et al (2001) talks about 'a practice turn in contemporary theory'. A practice is considered to be "embodied, materially mediated arrays of human activity centrally organized around shared practical understanding" (Schatzki, 2001 p 2). Human actions are performed within a practice and determined by the practice which they are part of. A practice is constituted by human actions, which means that these phenomena are fully acknowledged as in a micro perspective. However, the practice approach goes beyond the atoms of human actions. A practice is considered to be a meaningful entity of holistic character. A practice is something more than the sum of human actions. A practice has an existence that transcends individual actions. A practice determines which actions are adequate within the practice; i.e. what actions count as enactments of the practice. A practice consists not only of human actions; it consists of humans and their shared practical understandings, and codifications of such understandings in a common language,

and also of material objects (artefacts) used in the practice. This entails that a practice is a holistic notion. It does not however mean a reifying stance towards human actions and products. We assert that the practice notion can be seen to be holistic and atomistic at the same time. Or perhaps expressed in a more clear way: We can alternate between viewing the practice as a whole and viewing its different parts (e.g. different human actions) as going round in a hermeneutic circle when shifting between the whole and its parts (Bleicher, 1980).

The micro – macro conflict can thus be resolved in a constructive way (Schatzki et al, 2001). Coulter (2001 p 35) argues that practices should be seen as "praxiological instantiation of macro-social phenomena" (cf also Schatzki, 2001 and Barnes, 2001).

Schatzki et al (2001) have a broad view on what can count as a practice. We have delimited ourselves to workpractices. We define a workpractice in the following way: "A workpractice means that some actors - based on assignments from some actors - make something in favour of some actors, and sometimes against some actors, and this acting is based on material, immaterial and financial conditions and a workpractice capability which is established and can continuously be changed." (slightly modified from Goldkuhl & Röstlinger, 2002). Among other things this means an important differentiation between the roles of workpractice producers ("some actors make something") and its clients ("in favour of some actors"). It also acknowledges that what is done in a workpractice is dependent on assignments directed to the workpractice. Assignments are one kind of important coordinative force for workpractices, but there are other important ones as well (norms, instructions and other kinds of knowledge). This is fully in line with the statement by Schatzki (2001 p 5): "Practice thinkers usually acknowledge the structuring and coordination import of agreements, negotiations, and other interactions, as well as the undergirding significance of skills and interpretations."

This workpractice theory was originally developed and presented in Goldkuhl & Röstlinger (1998). It has later been refined and further described in Goldkuhl & Röstlinger (1999) and Goldkuhl et al (2001). These papers also contain applications of the theory in workpractice diagnosis. Its theoretical foundations in socio-instrumental pragmatism have been articulated in Goldkuhl & Röstlinger (2002). One main part of the theory is a generic model of workpractices consisting of roles, role relations, actions and action objects of communicative and material character (preconditions for actions and results of actions). The theory has so far been called *Theory of Practice* (ToP). We will not describe the theory any further in this section. It will instead be done later in this paper, implicitly when applied in section 3 below, and more comprehensively in section 4 below when suggestions for refinements are presented.

3 Contributions of a case study: Investigating knowledge functions and sources

3.1 Research approach
We have performed a case study within municipal home care service for elderly people. We, as researchers, have participated in a change endeavour at an elder care centre. The purpose of the change project was to develop an IT system to support home care work and at the same time improve competencies and knowledge utilisation within the home care unit. One can consider the change project to be a workpractice development with special emphasis on knowledge and IT issues.

The case study has been performed on an action research basis by the authors together with several other research colleagues. Different qualitative research methods have been used: Interviewing managers and home care assistants, observation, collection and analysis of documents, participation in development seminars. A closeness to the empirical phenomena was necessary in order to gain reliable data. A participatory approach has been taken, including active cooperation with the personnel at the home care unit. Experiences from the case study have been reported in several papers earlier. The inquiry concerning knowledge utilisation has been described earlier in Goldkuhl et al (2001) and Goldkuhl & Braf (2001). Experiences from the IT development work has been reported in Cronholm & Goldkuhl (2002a,b).

3.2 Case description

The home care service consists of different kinds of support for the elders in their homes. The home care assistants help the elders with dressing, daily hygiene, food, minor medical tasks, cleaning, laundry, shopping etc. Normally, an elder is visited by a home care assistant several times each day.

One main objective for the home care service is the individualisation of the home care. To perform home care is not a standardised service. Each client has individual needs and therefore the tasks that will be performed for the different clients varies. The needs for each client will also vary over time. The home care unit strives for maximum individualisation. The elders should be able to live their lives in their own desired ways. The home care assistants should support the clients in their living. In order to do this there is a great need for knowledge. The home care assistants must have a good understanding of every person, about their personal life history, their current social and medical situation and their habits and needs. This partially changing knowledge must be transferable to all members of the home care team since there is not one single assistant who takes care of a particular elder.

The core knowledge for the elder care unit is thus the knowledgeability of the home care assistants. They need to be knowledgeable in order to perform individualised service of high quality. The knowledge must be practical. It must be practical in terms of both phronesis and techne – to use the old concepts of practical knowledge from Aristotle (cf Aristotle, 1947; Dunne, 1993). The home care assistants must be capable to "technically" perform different tasks (techne aspect) as well as being knowledgeable concerning values and goals and appropriate conduct towards the elders (phronesis aspect). They must also be able to link these different aspects together in order to arrive at practical rationality (Weber, 1978; Habermas, 1984). The concept of practical rationality means an integration of purposive rationality and value rationality.

The home care assistants perform their work in coordinative nexuses. The home care assistant must adapt their actions not only to the elders but also to other home care assistants, since there may be other assistants rendering elder service in antecedent and subsequent visits. The home care work is not just one single individual helping another single individual. It is taking place in an institutional frame with contracts between the elder and the municipality and based on regulations on both municipal and state level. The home care assistants must melt together different knowledge items from different origins in order to act in competent ways in their service duties.

In Goldkuhl & Braf (2001) parts of a contextual knowledge analysis of the home care unit was presented. This knowledge analysis was based on a classification framework. Knowledge

was classified into different degrees of generality (typical vs particular) and into different types of action orientation (declarative vs procedural knowledge). These categorisations were utilised for identification of different knowledge types. The knowledge types were related to each other and to actions and to documents and other knowledge sources. This was done in a knowledge diagram. This performed contextual knowledge analysis is a starting point for a deepening of the analysis. In figure 1 a knowledge diagram is presented. This is a refinement of the diagram presented in Goldkuhl & Braf (2001). We have included more knowledge sources now.
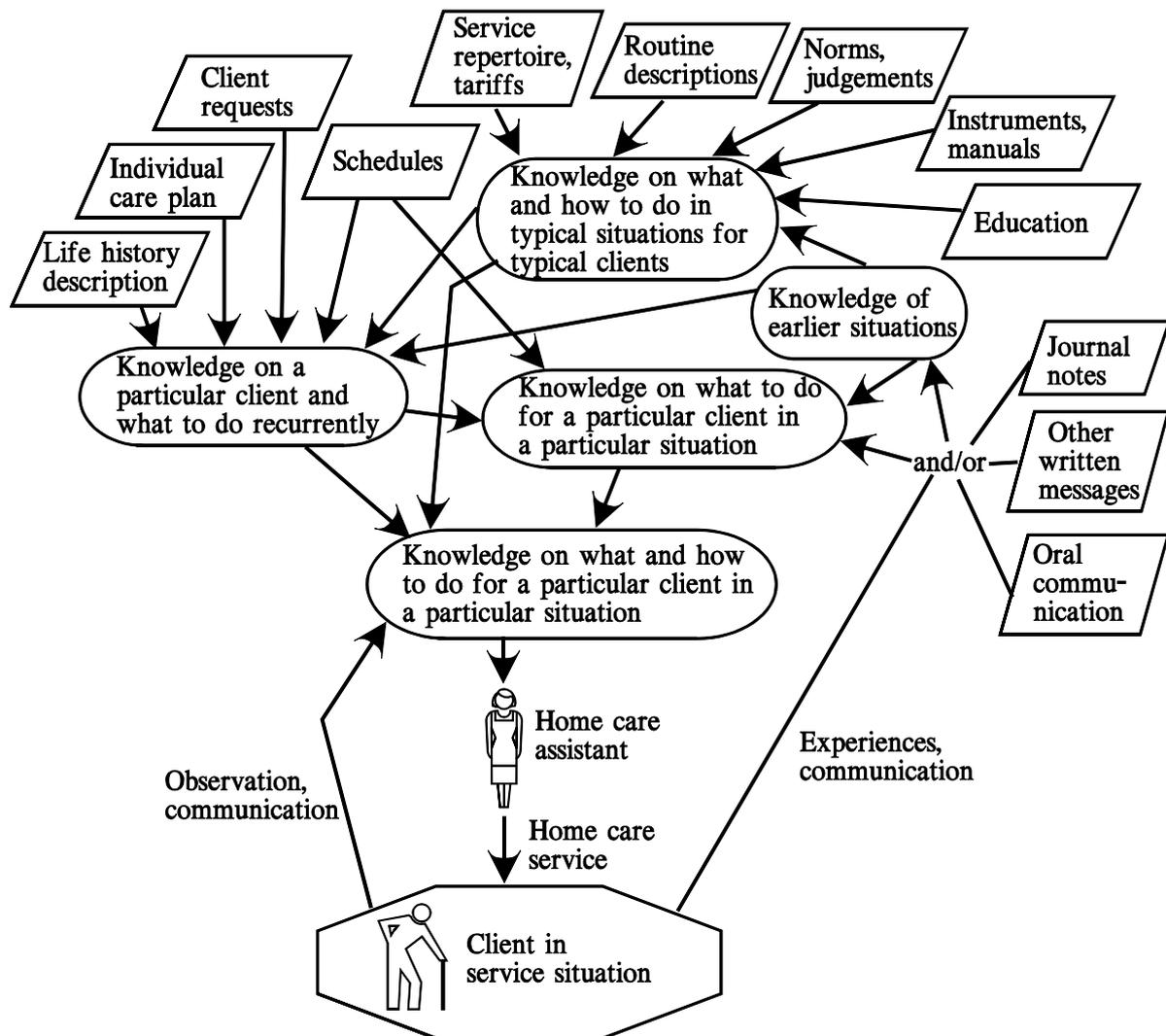

Figure 1 *A knowledge diagram describing different knowledge types, their relations and bases and links to organisational action in a home care service context*

There is a great need for communication in the home care unit to ensure knowledgeability and high quality services. This communication is performed orally in face-to-face communication and with written messages of both informal and formal character. There are many different documents used for communication. Some of the documents can be labelled as formal documents. One example is the order for personal home care from the client which must be approved by the Social Welfare Administration. The home care team has developed - in an evolutionary manner - documents for the daily care. Weekly and daily schedules and

other documents are used. These more informal documents are often handwritten, and thus sometimes hard to interpret. There are also often additions and changes made on the documents. There are no exact rules for what to write in different documents. There exist also a lot of small hand-written messages (note pads) within home care teams concerning different temporary measures to take for certain clients.

A home care assistant must know what to do for a particular client in a particular service encounter (see figure 1). The home care assistant is checking the daily schedule before she is visiting the elder. In the daily schedule different service measures are described. But why are just these measures appearing in the schedule? To answer such a question (as part of a contextual knowledge analysis) we must search for the origins of this expressed knowledge. Results of this knowledge source analysis will be described in the following. A summary is found in figure 2 below.

The elder must be a client to the home care unit. This is on a steady basis. A contract must exist. This originates from a service order made by the elder or some relative if the elder cannot make this himself/herself. The service order must be approved by the Social Welfare Administration of the municipality. When this is done, the elder can be registered as a client at the home care unit. An individual care plan is now drawn up. This is done by a home care manager and a responsible home care assistant together with the client. The individual care plan serves several purposes. One can interpret it as a transformed and operationalised order from the client. This plan should thus govern the daily care work. The care plan includes also general descriptions of the client (the social and medical situation). The plan should be signed by both the home care manager and the client, which means that it functions as a contract.

The individual care plan functions as a base for the daily schedule, which is prepared by one or several home care assistants. This means that the daily schedule can be seen as a forwarded (to other home care assistants) service order. The daily schedule is a further transformed and detailed service order. New items can be added to it in relation to the individual care plan. The daily schedule is adapted to the particular circumstances of the time, e.g. temporary measures. The individual care plan gives a more general account of the client's needs.

The measures on the daily schedule which are added (in relation to the individual care plan) arise from additional service requests from the client. A client can ask a home care assistant for some specific help. Such additional service requests can be seen as an orally specified and clarified service order from the client. A home care assistant can also make some observations concerning the clients, which give rise to modified or additional measures. Such an adaptation may be an isolated case, which is executed at once. In such cases there is no need to change any plans. But if the request concerns more than the actual visit, this knowledge should be forwarded to other home care assistants and thus also documented in plans (e.g. schedules).

Such additional service requests must be evaluated by home care assistants before they are added as measures to the schedule. Not all requests are acceptable. A request can be checked against the individual care plan. If the request is evaluated as an operationalisation of what is stated in the care plan, then the measure can be added. The home care assistant must also have knowledge about the general principles of home care services in the municipality. These general principles express what is permitted and what is not permitted to perform as elder care. The municipality distinguishes between two service types: Personal care and residence

service. There are different tariffs for these two service types. This means that it is important to classify a requested measure in an adequate way.

Knowledge source	*Workpractice characterisation and classification*
Service order	Formal *product order* from client approved/forwarded by Social Welfare Administration
Individual care plan	Transformed and forwarded *product order*/contract including knowledge on clients and relatives (side clients)
Daily schedule	Transformed and forwarded *product order* (= action plan)
Additional service requests	Orally specified/clarified *product order* from client
Descriptions of service contents	*Product repertoire* issued by the municipality
Service tariff	Description concerning *compensation* principles
Life history description	Summarised description of the *client* as a *base*
Current observations	Influences from actual service encounter (immediate *experiences*)
Journal notes	Recorded observations/*experiences* from earlier service encounters; = explicit workpractice *memory*
Written messages and oral communication from colleagues	Informally mediated observations/*experiences* from earlier service encounters
Memorized experiences	Remembering *experiences* from earlier service encounters (personal *memory*)
Client feedback	Positive and negative *judgements* from clients
Routine descriptions	*Role assignments* from home care management to personnel
Social welfare law, other regulations	Legal *norms*
Normative discourses	Reflected discourses focusing *norms* and actions among those engaged in home care services (=articulating norms)
Complaints from superintendence	Critical *judgements* concerning particular incidents
Debate/opinions in public (e.g. mass media)	External *judgements*
Lifting equipment, manuals	External *instrument* to support home care service and supplemented by *procedural knowledge* in a manual
Education (books, journals, instructions)	*General knowledge* on elders and elder care mediated through planned education

Figure 2 *Summary of knowledge sources (home care example)*

In order to perform customised services it is necessary for the home care assistants to have good knowledge on the clients. The individual care plan gives, besides planned measures, an overview of the client and his/her actual medical and social situation (e.g. relatives). A more detailed description of each client is found in a "life history description". This serves as giving proper background knowledge of the client. Knowledge about each client is also gained by the continuous care. Important observations are recorded in journal notes. Other less important observations may be informally transferred between home care assistants. Each home care assistant will of course also have personal memorized experiences of a

served client. The client may give feedback concerning the service rendered. If so, the client expresses what she likes or dislikes, and these judgements should be remembered by the home care assistant for future appropriate actions.

The daily schedules have a strong governing force for every day action. There exist also different routine descriptions for how the home care assistants should perform their work. These are, in contrast to the individual references in the daily schedules, prescribing the work on a general (non-individual) level. The routine descriptions are used when introducing new employees and later they may be consulted on particular occasions when a home care assistant encounters some problem. The home care managers are responsible for issuing the routine descriptions, and these will thus function partially as job descriptions for the home care assistants.

Elder care is a regulated practice. There exist laws, which regulate the care of elders. This is particularly expressed in the Social Welfare Law. There exist also some regulations concerning elder care on the municipal level. The home care assistants must have adequate knowledge about these different legal norms. The norms express for example how the elders should be treated and what kind of service they can expect. The laws and regulations are on a general and fairly abstract level. It is not always easy to translate the general prescriptions to concrete service situations. Ethical dilemmas encountered in service situations may be brought back by a home care assistant to discussions with her colleagues and the managers. Such a specific problem situation may give rise to principal discussions concerning ethical conduct. These discourses may involve articulations and reflections on norms, and they may serve as normative guidelines for future actions. This means that norms governing the home care unit can be both externally furnished (laws and regulations) and internally created (or at least translated and operationalised).

The regulated character of the elder care involves also superintendence. Serious incidents must be reported and evaluated. This may give rise to complaints from superintendence. Such a complaint concerns a particular historical event. It may however function as a normative remainder for the future.

Elder care is considered an important area in society, which means that it is often discussed among people. Opinions and debates are often expressed in mass media. These external judgements may have a normative impact on the home care work. Different norms and judgements, both from outside and inside, concern the quality of elder care. What kind of life the elders should live and how they should be treated. This kind of general normative knowledge is important for the home care assistants in order to render good care for the elders.

In elder care not many external instruments are used. There exist however some instruments supporting the work of the home care assistants. To lift heavy persons, they can use special lifting equipment. The home care assistants must have knowledge how to use this equipment. This can be gained from manuals and from the lifting equipment itself and of course through instructions from colleagues.

Knowledge about elders and their care will continuously emerge among home care assistants through working with the elders. To learn from the growing general body of knowledge concerning elders and elder care, home care assistants may participate in education, as following courses, lectures and demonstrations and reading books and journals.

The description above has aimed at clarifying knowledge functions and sources concerning the knowledgeability of the home care assistants. The different sources have been summarised in figure 2. In this figure we have also characterised and classified the different sources. When doing this we have used categories from the workpractice theory. This will be further commented in section 4 below.

4 Practices of work and knowledge: Theory grounding and refinement

The central role of *workpractice knowledgeability* has been emphasised in the contextual knowledge analysis performed in the elder care setting (described above). The analysis has revealed different knowledge sources, which also have been categorised. When doing this we have used inspiration from the workpractice theory (cf also fig 2 above). One important source is the service request emanating from the client. This is a *product order* coming from the client as an assigner to the workpractice. The product order exists in different "versions". The individual care plan, the daily schedule and the additional client requests are examples of such order versions. These are different kinds of refinements of the product order. Since the home care assistants sometimes must be able to evaluate (additional) service requests, they must have knowledge about the *product repertoire* and corresponding *compensation principles* of the elder care. The home care assistants must hold deep knowledge about the elder as the *client*. One main reason for this is that the client is what is treated (transformed) in the production process of home care service. The client and his/her residence are *base for transformation*. Much of this knowledge on the client arises from *experiences and memories* from the daily work of the home care assistants. Knowledge about how to perform the home care comes to some degree from routine descriptions. These function as *role assignments* from management to personnel. Normative knowledge (*norms and judgements*) plays an important role in the work. The home care assistant must have know-how concerning used *instruments*. This *procedural knowledge* can partially be gained from *manuals*. *General knowledge* about the area may be gained from *education*. These general categories, which are summarised below, can be used as a template ("check list") when investigating knowledge sources in a contextual knowledge analysis:

- Product order
- Role assignment
- Product repertoire
- Client
- Base (what to transform)
- Compensation principles
- Norms
- Judgements
- General knowledge/education
- Instruments and manuals (procedural knowledge)
- Experiences and memories

The workpractice theory (ToP) has partially served as a guideline for the contextual knowledge analysis, but it is also to some extent a result of this empirical inquiry (cf Walsham, 1995 about different theory functions). This case study has contributed with empirical validation of the theory and it has also given a basis for modification and improvement. It is important to state that we did not use the theory in a strict deductive sense.

We did not impose the pre-defined categories of the theory on the empirical material. Our main strategy for empirical analysis has been situational and inductive. We have tried to be open-minded and let the empirical case "speak". The workpractice theory has been in the background, and we have used it explicitly, for our knowledge analysis, first when we did not find apparent categories from the empirical material. When bringing the theory in the fore (i.e. using it actively), we found some categories from the case, which we otherwise probably would not have done. All identified knowledge sources have been classified according to the theory (figure 2). As said above some sources from this empirical case have given rise to new categories in the theory.

We present below a new version of the *generic model of a workpractice* (figure 3), which is seen as a graphical conceptualisation of the theory. The interested reader can compare with the earlier versions in Goldkuhl & Röstlinger (1999) and Goldkuhl et al (2001). We make here some brief comments about the changes.
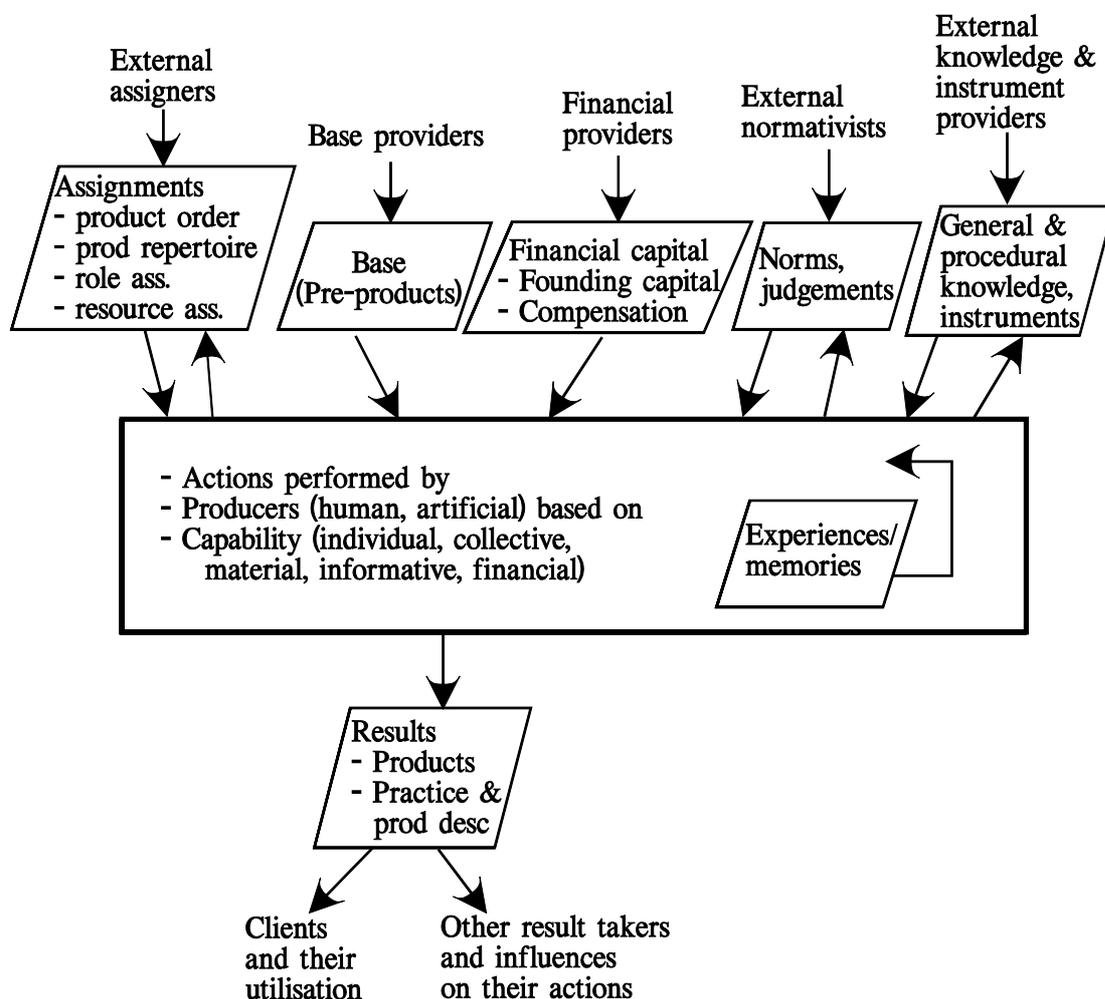
Figure 3 *A generic model of workpractices (ToP model)*

The elder care case has given rise to the category of judgements, which was not part of the ToP model earlier. Product repertoire, as one kind of assignment, has also been introduced due to the case study. Another important finding from the case study, which is however not explicitly shown in the model, is that there may exist several versions of product orders with

different degrees of refinement. Actors within the workpractice itself can transform and forward the product order and this can be done in different documents. The concept of workpractice capability has been modified through this case study. The different preconditions (assignments, norms, procedural knowledge, instruments etc) must be internalised and integrated in the capability, which is what is exercised through the workpractice enactment. The workpractice capability is an integration of human competence, artefact functionality, informative capacity of signs and financial capacity and these different parts must be congruent in order to function well (Goldkuhl et al, 2001).

We gave in Goldkuhl & Röstlinger (2002) some suggestions for improvement of the theory. These two suggestions (1. practice and product descriptions are another kind of result besides products; 2. not only humans, but also artefacts can be producers) have here been added to the ToP model. We have also taken the opportunity to make some further improvements (clarifications). Some of the preconditions of the workpractice (assignments, norms, judgements, other knowledge and instruments) can be externally furnished as well as internally developed. This has now been made explicit in the model. From this follows also that the workpractice capability can be developed in three ways: 1) through external furnishing of preconditions, 2) through internal development of explicitly manifested preconditions and 3) through internal implicit (experience-based) emergence of capability (not manifested in explicit preconditions). This means also that the workpractice capability does not only consist of explicit elements. Tacitly emerged know-how and routines are other important elements. The workpractice language, which is seen as a part the capability, is decisive for coordination and other exertion of the workpractice.

5 Conclusions

This paper can be seen as an argument and a demonstration of a procedure (CKA) to investigate knowledge functions and sources. It has given a theoretical contribution and account concerning the role of knowledge in workpractices. Knowledge is practised. Knowledge is generated, transferred and utilised within practices. In order to avoid atomistic and restricted descriptions and explanations of knowledge and knowledge use, the workpractice should be seen as the determining context. The activities of generation, transfer and utilisation of knowledge are contextually bound and defined by the workpractice, which they are parts of (Schatzki et al, 2001; Cook & Brown, 2002).

Knowledge management, for example in terms of knowledge focused IS development, cannot be restricted to recording knowledge about "objects and processes". It is important to acknowledge that management of knowledge within a workpractice to a large degree consists of "coordinative" knowledge, i.e. knowledge about agreements, assignments, commitments, requests, judgements, permissions, obligations, regulations and other norms. All such knowledge is socio-relational, which means that it is created through full communicative actions. Communication in such perspective is not restricted to mere transfer of referential knowledge. As an intended effect of a communicative action, social relations between actors are established (Habermas, 1984). A workpractice is a nexus of coordinative socio-relational forces, which is well shown by the ToP model.

These conclusions are fully supported by the empirical case study and they are also in line with theories within socio-pragmatic and practice-theoretic traditions (e.g. Dewey, 1931; Berger & Luckmann, 1967; Giddens, 1984; Habermas, 1984; Argyris & Schön, 1996; Schatzki et al, 2001). One important claim of the paper is that practice is important for

knowledge and how to study knowledge. This is so, because the reverse is also valid: Knowledge is necessary and decisive in practices. An enactment of a practice is, as Barnes (2001 p 21) states it, a "knowledgeable, informed and goal-directed enactment".

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