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Identificatie van cruciale kennis

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Summary

Crucial knowledge is essential to an organisation: it is determinant to the organisation's identity and distinguishes the organisation from its competitors. Crucial knowledge is the basis of the economic value the organisation adds.

The objective of this research is the development of an instrument for identification of crucial knowledge in organisations. The central subject of this dissertation is the design, the construction and application of the research instrument *Identick*. The instrument should enable to inventory and analyse knowledge within an organisation and to identify crucial knowledge. The main motive behind the development of this instrument is that previously no instrument was known to be suitable for the identification of crucial knowledge.

Based on a number of different organisational theories, in this dissertation it is established that the importance of knowledge for organisations manifests itself as (1) a critical success factor, (2) a determinant production factor, and (3) an integral part of delivered products and services. The strategic position of organisations can be deduced from their core competence, their competitive advantage, and the way in which the primary processes in the organisation are structured. The concept of core competence denotes the fact that an organisation has one or more central activities, from which it derives most of its added value. Competitive advantage denotes the organisation's market position with regard to its competitors. The primary process is the collection of interconnected, activities that result in products or services.

In the first conceptual model of this dissertation (see Figure 2.2), the notions mentioned previously form the guiding principles for the concept of crucial knowledge. This knowledge mostly developed within the organisation, expanded within the organisation (specified), is unique for that reason and therefore crucial. The extent to which an organisation's knowledge is crucial, depends on the way the organisation is internally structured, but also on the ways in which the organisation and its environment interact.

In the second conceptual model (see Figure 2.3), an organisation is viewed as a collection of different kinds of knowledge, carried by different, cooperating agents (knowledge-carriers) who perform goal-oriented activities. The connectedness of these activities is apparent from their function within the process and from the communication between the carriers.

As the cruciality of knowledge domains is associated to the organisation's position in its environment as well as the internal structure of the organisation, the conceptual models have to be taken into consideration together to enable identification of the crucial knowledge domains.

To be able to operationalise the models discussed above and to make visible the crucial knowledge in an organisation through those models, it requires mapping of the knowledge in an organisation. This results in a so-called knowledge map. With the help of knowledge maps, insight can be gained into how knowledge is

structured in the organisation. A knowledge map can act as a starting point for operational management and strategical considerations.

The different working-methods for drawing up a knowledge map, similarly display a central role for the description of knowledge domains as the basis for a knowledge map. When drafting a knowledge map, one constructs a taxonomy of the knowledge in an organisation. The description includes a survey of knowledge that belong to employees. In addition, some authors agree that knowledge domains should be related not only to the employees, but also, among other things, to the products and services package, the organisational processes, to the suppliers and to clients. In this dissertation, these knowledge-related characteristics of an organisation will be denoted as 'organisational components'. A knowledge map is drawn up by displaying knowledge domains, knowledge carriers, and other organisational components. The depth to which the relationship between knowledge domains and organisational components is elaborated, depends on the objective the drawing of the knowledge map is aimed at.

At the design of the research instrument Identick the choice was made to separate variables into those that apply to the description of the organisation (see Figure 2.2: Conceptual model of crucial knowledge) and variables that relate to the individual as knowledge carrier (see Figure 2.3: Conceptual knowledge of the knowledge carrier on the individual level). These two models were the starting point of the construction of the research instrument. In this study, knowledge mapping is done by describing and investigating the organisational components and their properties. The following components are involved:

- the strategical position
- the primary process
- the knowledge domains
- the knowledge carriers and their activities
- the communication networks

In the instrument these components are transformed into variables that subsequently were worked out into a questionnaire.

For analysis of the research data a system was selected for arranging and interrelating data. By using the Dutch bibliographic classification system (Basisclassificatie Nederlandse Bibliotheken, BNB), the knowledge domains are named and further linked to the names that are used within the organisation itself. By using this classification, a structured and connected overview is provided of all knowledge domains that were gathered.

The identification of crucial knowledge can be accomplished by verifying the knowledge domains' score to a certain threshold level and the interpretation of this score by the researcher and the organisation involved. After analysis, the crucial knowledge of an organisation can be identified through these overviews. This is the last step in the research process: providing feedback to the workers in the organisation and, based on the obtained feedback, concluding on which are the crucial knowledge domains.

Two case descriptions will be used to explain experiences with the instrument in practice. Firstly, the case of Wolfard's *Werktuigbouw en Elektrotechniek* (machine construction and electrical engineering, WWE), followed by the second case, the *Transfer & Liaison* group (TLG). These cases can be regarded as a test for the usability of the instrument in identifying crucial knowledge.

The first case involves WWE, a company that is aimed at design, subassembly, build in and project management of modular engine room components for ships in the North-Dutch and German shipbuilding industry. WWE's buyers are shipyards.

Knowledge domains that have been identified as crucial show to be mainly related to the mechanical design of engine rooms and related management activities. The costs of design and engineering make up 10% of the total cost of building an engine room. Still almost all carriers of crucial knowledge are involved in these activities. Most employees (80%) are involved in the construction itself. This is where WWE's vulnerability lies as the greater part of its activities is aimed at productive tasks that are hardly knowledge-intensive and therefore very sensitive to competition from low-wages countries.

The second case involves the *Transfer & Liaison Group* (TLG), a division of the University of Groningen. TLG is aimed at the realisation of contract funding for researchers and the marketing of the knowledge and research activities that are present in the University. The composition of the case description of TLG resembles the case description of WWE.

TLG's crucial knowledge domains are mainly aimed at the design and creation of research proposals, where the emphasis is on background knowledge of the topic in hand, knowledge of rules and regulations, and knowledge of formats for research applications or business plans. As well as in the first case, in this case design activities are also dealt with.

In both cases it shows that by applying *Identick* it is possible to identify crucial knowledge domains, even though the organisations are considerably different. WWE is a supplier of engine rooms; it designs and produces a physical product. TLG's activities, on the other hand, focus on the interface between policy and business services. Therefore, there is no physical product.

It can be concluded that by the execution of this study an instrument has been developed which includes the characteristics of the organisation and its environment as well as the knowledge of the individual knowledge carriers in the organisation. This connection enables the possibility of considering characteristics of the knowledge domains of the individual carriers in relation to the importance they have to the organisation and the organisation's position in its environment. The systematically structured description renders a more complete image of the knowledge that is present in the organisation and enables the identification of crucial knowledge. This results in a better overview than a random description, without applying the instrument, would produce. By joining the data, new information comes into being that showed in two cases to lead to the identification of crucial knowledge. Herewith, the instrument appears to have met the expectation

