

# Beyond Skill Management: Innovative Ways of Competency Catalogue Application

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## ABSTRACT

In dynamic business environment of today companies have to deal with an increasing complexity in knowledge- and competency-structures. The paper summarizes research-based concepts how companies can cope with the challenge of processing complex competency-structures. In the first two chapters the authors give an overview about skill and competency management models. Based on this, different types of skill structuring methods are outlined and conclusions for their practical application are drawn. Finally, a best practice scenario from DaimlerChrysler AG will be considered as an innovative example to increase competitiveness of the company by using semantic mapping technologies.

## 1. INTRODUCTION

Enterprises have to cope with an increased pace in adopting internal and external knowledge and competence resources to its business processes and structures. The accomplishment of this complexity is challenging for managers and employees as well (cp. [14], [15]). The fast changing environment is basically driven by structural and behavioural changes – a shift from work- and capital-intensive to information- and knowledge-intensive activities [1] as well as the global utilization of information and communication technologies. The results are complex competency-structures inside and outside of an organization. Since the 1990s, researchers have started to investigate how an effective management of competencies could be designed. The question resulting from this is:

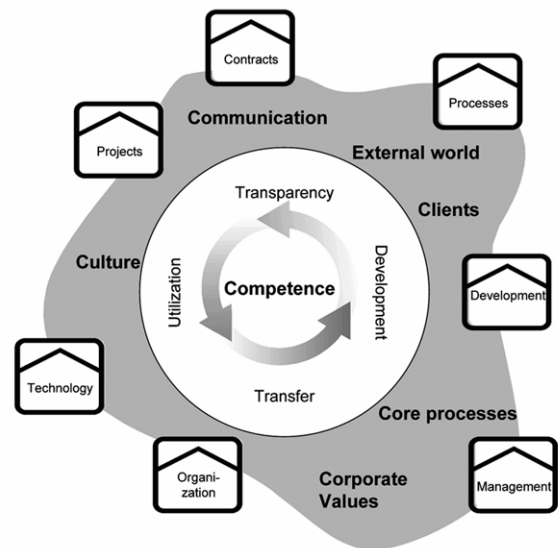
*Which influence has the utilization of competency catalogues on the competitiveness of the enterprise?*

## 2. FROM SKILL TO COMPETENCY MANAGEMENT

More and more companies tend to structure their internal competencies with the ambition of better knowledge utilization and transfer. Due to this, most common methods and tools for identification, codification and transfer of tacit knowledge are developed by practitioners and are focussed on an operational application – e.g. competence profiles, competence mapping, competence matrix etc. (cp. [6], [19]). Those methods can be grouped under the term of “*skill management*”. All skill management methods primarily imply a more operational than a strategic character, e.g. for personnel development or staffing purposes.

However, the more complex knowledge structures become the less effective is the utilization of those methods. Current experiences from industry show: the more holistic a competency-management framework is, the more successful are companies by dealing with complex skill structures (cp. [1], [6], [19]). For this reason, the purpose of current research is the modelling of “*integrated competency management*

Figure 1. Interventions in Competency Management



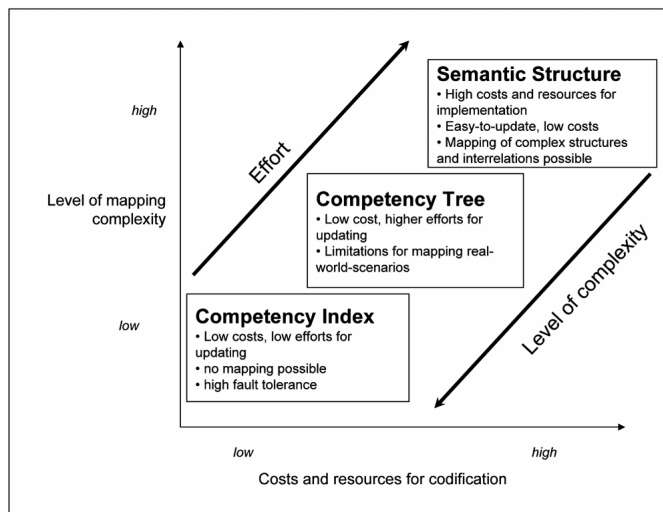
*models*”, which ought to surmount the current strategic lack in the application of skill management methods.

We define *competency management* as an organisational-driven approach to the corporate-wide management of competencies. The purpose is to align employees’ skills with the strategic goals of the company to substantially sustain the competitiveness of the company [6]. In contrast to skill management, competency management is not restricted to a single method or organizational department. It goes far beyond the traditional understanding of employees’ education by applying methods of self-learning, self-organisation, utilization and transfer of employees’ competencies [1]. Hence, competency management has a strategic character instead of a merely executive character. The interventional fields of competency management application are much wider than in the skill management view, as depicted in the following figure:

## 3. MODELLING COMPETENCY STRUCTURES

When a competency management framework is implemented the most important question is: How to structure and codify competencies? The kind of method for structuring and codification directly affects the

Figure 2. Trade-off between complexity and resources



complexity of the system, accuracy, applicability as well as its implementation and running costs. During the last years, different practical methods have evolved to structure and codify competencies, e.g. keyword indexing, structural trees or semantic structures. However the more sophisticated the method is, the more financial and technical resources will be needed for its implementation and operation.

Therefore, companies have to accept a trade-off between structuring real-world competence scenarios and tying up resources for its application. Industry analysis shows that the trade-off results in different types of “competency catalogues” [20]:

### 3.1 Core Competency Catalogues

Companies can structure strategically relevant competencies in a core competency catalogue. Core competencies represent the competitiveness of an organization [16, 17]. In contrast to single skills, core competencies are semantically heavy-weighted. Operational goals can hardly be reached. The main characteristics are:

- Purpose is to map a small number of strategically important competencies
- Single competencies are semantically heavy weighted
- Catalogue structure is undifferentiated

### 3.2 Skill-Management Catalogues

Skill-management catalogues are used to create a detailed and fine grained picture of the operational competency-reality by assessing as much skills as possible. Internal and external factors determine the complexity of the catalogue, e.g. business diversification, organizational structure. The major threat is that a detailed mappings cause high costs and allocate lot of resources. The main characteristics are:

- Purpose is to map the skill base realistically
- Single skill are isolated from each other
- Business conditions influence the complexity of the structure

### 3.3 Competency-Management Catalogues

Competence-management catalogues are created by combining a core-competence- with a skill-management-catalogue. Skills do not represent a single ability of a person any more; skills are rather semantic parts of one or more ontological concepts. The result is a complex competence model with incorporated organizational interdependencies. The main characteristics are:

- Core competences and skill libraries are consolidated to one structure
- Complex interrelations can be mapped and expressed
- Analysis of interdependences of former isolated information is possible

## 4 IMPLEMENTING COMPETENCY CATALOGUES

Companies have to choose an appropriate process model for the implementation of competency catalogues. Depending on the implementation model, the competency framework is more or less sustainable and expandable in the future.

### 4.1 Common Mapping Procedure

A common way is to map employees' skills in conjunction with the assessment of skill levels. This can be done by mapping either job-based or role-based skills. Job-based skills represent job-related requirements on an employee whereas role-based skills representing skills apart from the hierarchical and organizational position of an employee. The job-based and role-based skills are consolidated in a main competency catalogue. Every skill can be sub-classified in professional, methodical and social skills. Beside this, skills can be assessed by the level of expertise [6].

### 4.2 Extended Mapping Procedure

Because the common mapping procedure is restricted to static skill structures, the authors recommend the utilization of semantic structures by mapping interdependencies and inferences of single skills by using ontologies [8] with the KAON framework [9]. This framework is open enough to make an extension with more sophisticated accessing and visualization technologies possible. As a result, a complex system evolves which is based on semantic interrelations and similar instances within the ontology. In contrast to text-based applications (comparison of vocabulary and terminologies) KAON incorporates semantic instances, combinational and expressional types for deeper analysis issues (e.g. KPIs for recruitment).

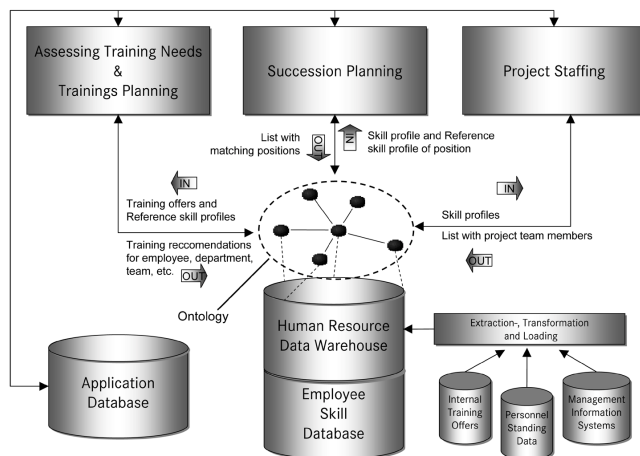
### 4.3 Best Practice: Competency Catalogues at Daimler Chrysler

DaimlerChrysler is one of the worldwide leaders in the automotive industry. 30 percent of all employees are working in the commercial vehicle division whereof 13,000 people are employed in the assembling plant in Wörth/Germany. At this division an *integrated competency management* has been implemented based on the software PeopleSoft. The competence strategy was based on three pillars: 1. individual development, 2. transparency of employees' skills and 3. administration of formal qualifications. The idea behind the system is to track employees' competencies from recruitment until retirement.

The challenge for the middle-management was to operationalize the main competence strategy. First, three *main competency sections* were defined: professional skills, language skills and formal qualifications. After several coordination processes a *skill catalogue* with about 700 single skills was derived. Every employee had to assess and rate his own skills on basis of the skill catalogue [18]. Each skill was classified into social, methodical or professional and weighted on a 4-level scale (basic, intermediate, expert and trainer). The competence profiles are used for HR-related tasks, e.g. internal recruitment, internal job markets etc. So far, implementation and mapping procedure follow the traditional method.

As part of a research project *semantic mapping technologies* were implemented to support selected employee development processes, as needs analysis, succession planning and project staffing. The prototype of a HR-data-warehouse-system and an employee-competence-database were created on basis of a central *ontology-based competence catalogue* in which all modules were semantically interrelated. A common ontology-based matching-component can be used for comparing general skill-sets. Common HR-tasks can be done much more effectively and

Figure 3. Ontology-based HR-framework at DaimlerChrysler



precisely than with a static skill-catalogue, e.g. comparing similar semantic instances of prospects for an open position or matching job-based reference profiles with current employees' skill profiles ([12], [13]). Recapitulatory, due to the semantic extension standardized HR-processes have been simplified and uncoupled from subjective factors. Isolated processes were linked and new, innovative processes were created.

## 5 CONCLUSION

This paper outlined, that the methods and processes of competence structuring are crucial for an effective management and transfer of competencies within an enterprise. Common methods for preparation and maintenance of skills catalogues can be judged as technically and organizationally matured, but have natural limitations regarding their integrated application. Modern approaches like semantic technologies will become more important in the near future. This statement can be mainly applied for large enterprises rather than for small and medium enterprises. SMEs tend to be "served well" with traditional approaches and methods. Despite the fact that the research of catalogue-based ontologies and semantic concepts is a quite young discipline ([11], [12], [13]), it will have a major impact on further concepts and models how to identify hidden knowledge resources within a company. Generally, to stay competitive in a dynamic business environment, it is indispensable for a company to utilize competency structuring methods beyond common catalogue techniques.

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