# Corporate Taxonomy Mapping for Performance-Supporting KM

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**Abstract:** Taxonomies are controlled vocabularies and multidimensional frameworks for organizing and classifying content. This study is the first to examine the meanings chief knowledge officers (CKOs) ascribe to corporate taxonomy mapping for enabling sustainable performance-driven knowledge management (KM). Utilizing a qualitative methodology, the research corpus comprised in-depth interviews, focus groups, participant observation, and cyber-ethnography. The findings underscore the essential role of investing resources in systematic taxonomy management as a cornerstone for attaining excellence in KM. Empirical evidence is provided for the critical importance of consistent taxonomies in establishing standardized terminology, facilitating systematic knowledge retrieval, and streamlining access within KM systems. Insight is provided into the constraints of contemporary technological advancements, including the capabilities of auto-tagging and classification through artificial intelligence (AI) and natural language processing (NLP) techniques. We underscore the nuanced interaction between human cognition and automated human-like capabilities in taxonomic classification, stressing the importance of embracing a balanced leadership socio-technical approach to the dynamic development of taxonomies. Furthermore, the study proposes promising avenues for future research to enhance the depth of inquiry into this subject matter.

**Keywords:** Taxonomy, Corporate Taxonomies, Controlled Vocabulary, Knowledge Management, Knowledge Management Systems, Knowledge Item

## 1. Introduction

Knowledge is a critical organizational asset that is vital for achieving strategic goals and maintaining sustainable competitive advantage. Knowledge management (KM) is a management discipline that emerged towards the end of the 20th century with the purpose of supporting the leveraging of existing knowledge and the development of new knowledge to enhance firm performance. Since its inception, KM has been enriched by an inexhaustible abundance of academic contributions and accumulated practical experience (Chang and Chuang 2011; Dalkir 2023; Mat Nor et al. 2020; Nakash and Bouhnik 2023). To successfully implement KM within an organization, strategic planning is required, including clear definitions of long-term goals, resources, and implementation plans (Bolisani and Scarso 2015).

In a sense, corporate taxonomy serves as a common language that connects knowledge workers to organizationally relevant knowledge. By moving from broad categories to increasingly specific ones, it provides a multidimensional framework for organizing and classifying content. Successful implementation of corporate taxonomy in the knowledge management system (KMS) can enhance the navigation of organizational resources (APQC 2019, 2021, 2023; Chaudhry et al. 2008; Fouché 2006). As such, the development of a corporate taxonomic framework has been identified as a key milestone for achieving KM excellence (Nakash et al. 2023).

Despite the considerable importance of developing corporate taxonomies to support performance-enhancing KM, this topic has received scant attention in the scientific literature to date, with a notable lack of recent empirical studies focusing specifically on this issue. An integral yet understudied component of KM, taxonomies are vital for structuring organizational knowledge and promoting the discovery and accessibility of useful information for employees. Substantial knowledge gaps persist regarding best practices for optimal taxonomy design and implementation that dedicated research could help address. The present study aims to fill this gap by examining the contemporary perspectives of chief knowledge officers (CKOs) on corporate taxonomy mapping, including the meanings they ascribe to this process as well as the perceived benefits stemming from well-constructed taxonomies. Furthermore, we seek to deepen understanding of emerging innovations and future directions pertaining to the development of automated solutions in this domain.

## 2. Theoretical Background

A taxonomy is a hierarchy of categories used to classify a body of knowledge (APQC 2021; Ihongo et al. 2021; Sisson et al. 2019). It is a controlled vocabulary that expresses hierarchical (broader/narrower) or equivalent (synonymous) relationships between terms (Whittaker and Breininger 2010). The term “taxonomy” originated in biology and was later discussed extensively in library science. In organizational contexts, a corporate taxonomy represents the collection of terms used within the organization and reflects relationships between

them. It serves as a foundation for the organization's knowledge architecture (Cruz 2004; Fouché 2006; Gilchrist 2001; Gilchrist and Mahon 2004; Whittaker and Breininger 2008; Woods 2004; Zhonghong et al. 2006).

Many firms face challenges in implementing and maintaining productive KMSs (Mat Nor et al. 2020). Organizing knowledge for reuse is a major difficulty (Sharma et al. 2016). To ensure efficient knowledge use, organizations are increasingly interested in categorization. Corporate taxonomies play a critical role in organizing business knowledge (Bolisani et al., 2016; Sharma et al., 2016; Wibbenmeyer 2015) thereby easing information overload for knowledge workers (Gilchrist 2001).

In many ways, taxonomy provides a system of labels forming a hierarchical navigation scheme (Fouché 2006; Gilchrist and Mahon 2004; Ihongo et al. 2021). When standardized taxonomies are lacking, problems like inconsistencies and inaccuracies in content emerge (Munkvold et al. 2006). A logical taxonomy enables users to effectively locate, access, and retrieve knowledge items (Knox and Logan 2003). A specific methodology for implementing corporate taxonomy was presented by Wibbenmeyer (2015). A taxonomy works within ontology structures outlining organizational term relationships in KMSs (Castillo-Barrera et al. 2013). The classification scheme layout differs across organizations based on scope, role, and characteristics (Chaudhry et al. 2008).

Defining taxonomy structure is preceded by determining content volume/type and identifying target users (Lambe 2014; Nakash et al. 2023; Whittaker and Breininger 2008). Corporate taxonomy is a living, expensive entity to maintain and create (APQC 2023), requiring significant time investments (APQC 2019). Differing content catalogs across departments hamper taxonomy development (Vom Brocke et al. 2011). As knowledge organization sets, intuitive taxonomies provide basic structures and controlled vocabularies that allow effective categorization, storage, retrieval, and access to information (Lambe 2014).

## 3. Materials and Methods

The research was conducted using a qualitative methodology, relying on interpretive foundations, and adopting an inductive approach. Fifty-two CKOs participated in a semi-structured in-depth interview and/or in one of two focus groups. The participants have an average of 12 years of experience in KM methodologies and technologies and they operate in various sectors in the local and global industry. As part of their roles, they are responsible for mapping corporate taxonomies in KMS. Each meeting lasted between an hour and an hour and a half and was recorded and transcribed with the knowledge and consent of the participants.

In addition, we conducted participant observation in KM units in organizations that differ from each other in size and business lines. The observations were designed to allow us to get an impression of the structure of the corporate taxonomies that were implemented in a variety of KMS, produced by different software providers.

Cyber-ethnography, also known as web ethnography, digital ethnography, and netnography, was used as a fourth data collection tool. This method applies an adaptation of ethnographic methods to the study of communities formed in computer-mediated social interaction (Kozinets 2015; Kulavuz-Onal 2015). We thoroughly reviewed 20,349 posts and comments from two public and visible Facebook groups dealing with KM in organizations that have over 7,500 people as members. During the systematic review, we marked 3,459 posts and comments as relevant. Analytical analysis was performed on every third posting, creating a broad database for in-depth analysis of 1,019 posts and comments. The materials collected in the network fieldwork were consistently documented and we recorded field notes.

Text analysis of the data collected both in the physical and virtual spaces was performed by the MAXQDA software according to the thematic analysis method's principles. This paper incorporates authentic testimonies obtained from informants. It should be noted that the results and insights presented here are part of a more comprehensive study we conducted to clarify the position, development, and future of the KM discipline.

## 4. Findings

### 4.1 Corporate Taxonomy in the View of CKOs

As part of the process of organizing the knowledge items in KMS, CKOs build a taxonomic schematic structure. The knowledge items are indexed and cataloged in a logical and consistent manner by implementing division into categories and sub-categories of key core business issues. The categories create the classification system – it is the taxonomic framework – which captures the interrelationships between knowledge items.

The taxonomy reflects the organizational glossary, which undergoes a process of *"classification and organization, in a hierarchical and related manner of various contents belonging to the same content world"* (F330). To prepare the taxonomic infrastructure, tagging operations and adding metadata are applied to the knowledge items during their creation. Constant maintenance accompanies the treatment of taxonomy, including an ongoing need to classify each new knowledge item. CKOs are also required to decide where to place items that may possibly fall into more than one category.

Based on corporate taxonomy mapping, a computerized hierarchical tree is built, in which knowledge items are associated in a balanced manner with its branches. This is how a CKO in a global management consulting firm described the process of taxonomy building:

> *"It is important to define a structured taxonomy, that someone sits down and defines that this* [the one content type] *belongs to this* [the other content type]*, and this is somehow related to this. ... I mean, we invest a lot of thinking in this construction* [of the professional content]*. ... In serious organizations, there is an organizational steering committee that meets once a quarter to approve entries for the taxonomy, download entries* [from the knowledge tree]*, and analyze the use* [in the contents]*. That is, manage the taxonomy"* (C2).

## 4.2 Benefits of Effective Taxonomy

The informants emphasized that, first and foremost, a good taxonomy creates a uniform language between the various officials in the organization. That is, it prevents an unlikely reality in which *"substantial differences exist in the way different units in the organization define the same product or the same process"* (F105).

The ambition of CKOs to create *"performance-supporting KM"* (C6) was a recurring motif in the four data collection tools. Specifically, an effective taxonomy is seen as assuming a solid foundation for effective orientation in knowledge bases. Furthermore, it helps employees understand the broader associative relationships of the knowledge item. One of the members of the KM virtual community on Facebook explained the importance of taxonomic mapping accuracy as helping to reduce the cognitive effort required of employees to locate the knowledge needed to complete their tasks:

> *"Most employees prefer that 'we spoon-feed them' (and rightly so...), because they are not measured by the way knowledge is consumed and used, but by the results and goals they have achieved. Knowledge is only the means* [for outputs]*. This is where taxonomy and the use of metadata come into play. ... The important principle here is mapping as accurately as possible. For example, it is possible to divide the professional subject into four levels of hierarchy – a kind of funnel from the macro to the micro. Any measurement of the taxonomy used will help us further refine the search terms, make them more precise, and adapt them to the end user"* (F8).

Moreover, the results reveal that a good taxonomic infrastructure will be able to support the search engine's success in quickly retrieving relevant content: *"Taxonomy is of enormous importance for locating the specific knowledge item in real-time and with minimal effort. ... All items must contain tags and keywords which will allow them to be cataloged and retrieved"* (F77). The close interrelationships between taxonomy and organizational search engines were well illustrated in the following parable: *"The search engine will allow us to find a needle in a haystack. The taxonomy will make sure that we have reached the right haystack and that we have not gone astray in the barn"* (F279).

One of the CKOs elaborated and compared this infrastructure to *"a backbone that helps the KM activity in the organization to stay upright. ... It* [the corporate taxonomy] *is what allows me to search, retrieve content and understand its contexts"* (C8). Another parable given to the importance of adequate mapping of the taxonomic structure came up in the following quote: *"Organizations tend not to devote enough energy to it, but it is the basis. It is like architecture, like the foundations of a building"* (C2).

## 4.3 Emerging Innovations and Future Directions in Taxonomy Automation

The informants reported that today a taxonomy practice almost always requires human intervention:

> *"Auto-tagging is certainly an existing capability which is currently realized in a few organizations, and it is essential to start realizing it in others, but it does not eliminate the need for people to label according to the context known only to them"* (F112).

This argument is explained in the following online response:

> *"The automated tools* [that exist today] *know how to base themselves on the content of a knowledge item, tag it, and formulate a corporate taxonomy automatically. It's a shame that too few firms examine this possibility, but it is necessary to implement human tagging as well. It should be remembered that people have the ability to tag according to context, even if the* [related and specific] *term is not even hinted at in the content"* (F239).

However, research participants anticipate significant automation developments in this area: *"There will be tools that will run over a million documents and say, 'this is your taxonomy.' It* [the KM discipline future] *is going there"* (C2). In fact, *"the auto-tagging will take the use of tags one step further and make the search smart, advanced and above all adapted to the user and his / her needs"* (F238). We found an interesting perspective in the following quote:

> *"It may be a favorable point in time to see what machines can do in the future (which is already here) (such as smart indexing and deeper taxonomy) and reconsider the CKOs' role in the emerging reality. Technological developments will allow CKO to deal less with technique, but more in essence"* (F489).

The forecast for future developments envisages automatic extraction of unstructured content from multi-page documents, as well as automatic taxonomy creation using techniques of natural language processing (NLP), pattern recognition, and sentiment analysis.

If the situation today is that *"no technological 'monster' can manage knowledge without a touch of a human hand"* (C14), it seems that according to the predictions, human involvement in KM will decrease and it will be replaced by machines. In many ways, the development of artificial intelligence (AI) technologies, which rely on robotic abilities to imitate human cognition, is nothing but perceived by the informants as *"inevitable"* (M8). As one of the focus group participants stated: *"AI will not replace KM but will change its face"* (C1).

## 5. Discussion and Conclusions

This study provides an integrative perspective on mapping corporate taxonomies for performance-supporting KM. The results empirically validate claims in the literature regarding the criticality of consistent taxonomies for standardizing terminology, enabling systematic knowledge retrieval, and facilitating access in KMSs (Munkvold et al. 2006; Vom Brocke et al. 2011; Milton and Lambe 2016; Wibbenmeyer 2015). This substantiates why taxonomy is a foundational KM element (APQC 2019, 2023). We find that KM excellence depends on systematic taxonomy mapping while advancing understanding of taxonomies' intrinsic value in ensuring effective organizational knowledge reuse to improve performance. Well-designed taxonomies can greatly reduce KMS search times. Decreasing time wasted searching may increase productivity and generate major financial savings (Nakash and Bouhnik 2024).

Although technology is becoming central to KM, it remains an enabling rather than a disruptive force. The participants indicate that continued improvements in cognitive computing, machine learning (ML), and AI will automate KM tasks. Specifically, auto-tagging and machine taxonomic classification are emerging. However, over-reliance on software solutions to create a corporate taxonomy has long been defined as involving risk (Gilchrist 2001). CKOs in our study confirm such concerns, noting limitations of existing software in inferring broad context compared to human cognition. Thus, monitoring, feedback, and supervision needs persist. A corporate taxonomy must be scalable (Cruz 2004). But more than that, it should be adaptable. Taxonomies should change as business lines shift, tracking contemporary content domains of interest to employees. Therefore, CKOs should continually reexamine classification schemes to align with strategic priorities.

To summarize, advances in AI, specifically ML and NLP, are poised to transform the creation and ongoing evolution of corporate taxonomies. leveraging ongoing exponential advances in AI for corporate taxonomy construction appears set to accelerate mapping of organizational knowledge architectures. However, a purely technology-centric approach discounting human guidance risks suboptimal structures. instead, an integrated socio-technical solution harnessing both algorithmic insights and expert assessment shows promise in improving taxonomy development and evolution to strengthen KMSs. This distributed development pathway will leverages complementary human and machine capabilities.

## 6. Implications

### 6.1 Theoretical Implications

This study makes several key contributions to KM theory regarding organizational taxonomies. First, it provides empirical validation of taxonomy's foundational role in enabling effective knowledge reuse, navigation, and access in KMS platforms. This confirms and strengthens theoretical perspectives on the intrinsic value of taxonomies for overall KM outcomes. Second, the findings reveal sophisticated, context-dependent aspects of taxonomy development, such as the need for human judgment in inferring implied content meanings. This advances conceptual thinking on taxonomy design, going beyond basic structural issues to complex cognitive challenges requiring blended human-machine input. Finally, identifying the adaptable, “living” nature of effective taxonomies makes a theoretical contribution, revealing that static classification schemes will likely fail. This insight can shape taxonomy models and best practices emphasizing flexibility and continual alignment with shifting organizational priorities.

### 6.2 Practical Implications

For industry practice, documenting the substantial productivity and financial benefits derived from streamlined taxonomy-enabled knowledge access provides tangible evidence for justified investments in taxonomy development and maintenance. Firms now have a greater rationale for allocating resources and leadership attention to taxonomy creation. Additionally, illuminating the gaps between human cognition and AI capacities regarding taxonomic classification cautions managers against over-dependency on software tools without ongoing human guidance and correction. A blended socio-technical approach balancing automated classification with expert oversight is recommended to mitigate risk.

## 7. Future Research Directions

Several productive avenues exist for further research on organizational taxonomies. As adopting NLP expands, researchers could examine how effectively these tools automate taxonomy mapping versus requiring supplemental human input. Studying taxonomy evolution across longer timeframes would also offer practical insights into sustainably managing “living” taxonomies. Additionally, comparative case studies on taxonomy approaches between high and low performing firms could uncover best practices for maximizing taxonomy value. Taken together, such research directions hold promise for uncovering best practices that enable high-performing organizations to leverage taxonomies as strategic drivers of competitive advantage.

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