Capturing Functional Affordances of Enterprise Social Software

Full Paper

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Abstract

Over the last decade, a plethora of Enterprise Social Software (ESS) has emerged in various shapes, yet difficult to compare what they enable or constrain their users to do. Neither the prior frameworks nor the ambiguous concepts shed light on the fine-granular similarities and differences among them. In particular, organizations can consciously design and adjust their ESS artifacts. Hence, it is relevant to assess the possibilities for goal-oriented action they offer and spot the differences among them. Following a structured method, we identify eight distinct dimensions with subordinate characteristics that enable the classification of functional affordances of ESS. This paper presents the resulting taxonomy that has been built and evaluated over six iterations. We contribute to practice by supporting practitioners to assess ESS, inspire the innovation of existing ESS and the development of future ESS. Furthermore, we build a foundation for future research to systematically develop and investigate ESS.

Keywords

Enterprise Social Software, Enterprise Social Media, Enterprise Social Network, Taxonomy, Affordance.

Introduction

Today, billions of people are using numerous forms of social software to interact with friends, co-workers and acquaintances. Connecting with people and sharing content has become relatively easy. Despite this, social software continues to evolve (Kim et al. 2010). Besides the impressive growth of consumer-facing social software, various types of Enterprise Social Software (ESS) have been introduced, e.g., over 90% of Fortune 500 companies implement enterprise social networks (Lee et al. 2013). From that, productivity increases of up to 25% and annual contributions of $1.3 trillion are expected (Chui et al. 2012). ESS is profoundly changing the capabilities of employees in terms of communicating and collaborating (Aral et al. 2013; Herzog et al. 2015). Grounded at the core of digital technologies, ESS facilitates, mediates and enables digital interactions (Sundararajan et al. 2013). In turn, digital networks become ubiquitous (Yoo 2010). While traditional relationships, informal and formal, are often represented in these emerging digital networks, a multitude of new ways to be related emerge, e.g., networks emerge from people sharing or tagging the same resource (Trier and Richter 2015). Thus, expertise can be identified and knowledge can be memorized (Kane 2015). ESS plays an important role in how people form new relationships (e.g., by making connections of connections visible) and influencing how the content is consumed (e.g., by recommending the content of peers) (Aral et al. 2013).

However, the value of ESS is not determined by its design. Instead, it is determined by how it is harnessed for value creation (Majchrzak et al. 2009). Accordingly, appropriating ESS may lead to positive effects, such as the positive influence of connectedness on the performance of employees that has been corroborated empirically (Kügler et al. 2015), and negative effects, such as social overload (Waizenegger et al. 2016). Nevertheless, the conscious (or unconscious) design of ESS allows and constrains certain interactions. More specifically, it builds the causal potential upon which value is created through an eventual actualization by users (Bernhard et al. 2013). In contrast to public social software, organizations have the power to adjust,

customize and extend their ESS, namely to shape their ESS artifacts in terms of their features and goal-oriented action potentials they offer to their users (i.e., their functional affordances). Consequently, we pose the following research question (RQ): What are relevant dimensions and characteristics to describe functional affordances of ESS?

Providing scholars and practitioners with a set of relevant dimensions (e.g., the type of action) and the corresponding characteristics (e.g., share), enables them to assess ESS, inspire the innovation of existing ESS and the development of future ESS. We achieve this by building a classification model, namely a representation of how things are (March and Smith 1995). More specifically, classification models are well-known in providing a premier descriptive tool to reveal different types and enable a side-by-side comparison of types (Bailey 1994). They reduce complexity and facilitate the identification of similarities and differences (Nickerson et al. 2009). Thus, it is a valuable tool to compare ESS, in terms of their functional affordances, and to identify the corresponding similarities and differences among them. This prevents researchers and practitioners from being lulled into a false sense of (dis-)similarity. The problem's significance is the ever-increasing diversity of ESS features and the new dynamics of digital platforms. Being able to classify functional affordances of ESS is relevant for practitioners who deal with a set of ESS systems, as it is crucial for them to gain an overview of their ESS systems and their possibly overlapping feature sets.

Prior research is lacking in in three major areas. First, the existing body of research only focuses on coarse-grained means to assess ESS. For instance, Kim et al. (2010) breaks down social websites into eight essential features (e.g., personal profiles, establishing connections, participating in groups, sharing content). Against the backdrop of the variety of ESS, most of the proposed high-level features are omnipresent and do not reveal the similarities and differences among ESS artifacts. This is especially crucial in the organizational context, where multiple systems are often used in parallel and employees constantly and consistently compare affordances and constraints between systems (Glowalla et al. 2014). An alternative way to classify ESS is based on the dimensions of information management, identity and network management and communication (Koch 2008). Kaplan and Haenlein (2010) distinguish between self-disclosure and social presence. From an affordance point-of-view, Treem and Leonardi (2012) propose visibility, persistence, editability, and association. In fact, the available means of classification are coarse-grained, focused on platforms as a whole and do not allow for a comparison of individual functional affordances. Second, a common shortcoming of prior IS research is the lack of theorizing the underlying information technology (IT) artifact (Benbasat and Zmud 2003; Orlikowski and Iacono 2001). Taking IT artifacts, such as multi-purpose ESS, for granted limits the ability to understand the possible implications of the design of artifacts (Orlikowski and Iacono 2001). Prior research places emphasis on multi-purpose ESS. Today, the functionality of IT artifacts increasingly grows dynamically as a result of their openness (e.g., through application programming interfaces) and extensibility (e.g., through possibilities to develop and leverage add-ons) (Um and Yoo 2016). Given the ever-increasing diversity of ESS unleashed by this generativity, high-level comparisons of feature bundles (e.g., blog, wiki) are losing their significance. Hence, diving deeper and breaking down ESS into individual functional affordances seems fruitful. Third, prior research has fabricated a significant ambiguity of interchangeable terms, which detract from a structured assessment, e.g., ESS (Kügler et al. 2015), Enterprise Social Media (Leonardi et al. 2013), Enterprise Social Network (Behrendt et al. 2014), Social Business (Kiron et al. 2013) or Enterprise 2.0 (McAfee 2006). Hence, it is a difficult endeavor to describe social technologies without using these buzzwords. And due to the blurring distinctions among them, it is difficult to study the phenomenon as a such.

In the following section, we outline the concept of ESS and the theory of affordances as theoretical foundation. Next, the methodology is described, and then, the results and possible usage scenarios are illustrated. Finally, the article ends with a conclusion, limitations and recommendations for future work.

Research Background

Enterprise Social Software (ESS)

Continuously authoring and sharing content in a participatory and collaborative way is referred to as Web 2.0 (Kaplan and Haenlein 2010). Social Software builds on that notion and amplifies the social capabilities of social entities by affording a set of interaction possibilities, leading to emergent digital networks (Hatzipanagos 2009). Forming communities and sharing user-generated content are said to be the core of social features (Kim et al. 2010). Within the narrowed scope of ESS, we consider the term enterprise as a

restriction of possible users to those belonging to a particular organization (e.g., internal employees, external co-workers). In contrast to traditional enterprise systems (e.g., groupware), social software is: (1) more user-centric than group oriented, (2) takes a bottom-up perspective of voluntary participation, instead of top-down enforcements, (3) is about co-evolving conventions, rather than determined ways of working together, and (4) is available beyond the project limitations (Koch 2008). Furthermore, ESS is often open to various use contexts, which is referred to as malleability (Richter and Riemer 2013).

Functional Affordances as the Theoretical Lens

Originated in ecological psychology, the theory of affordances emphasizes that animals perceive the opportunities that objects in their environment offer to them (Gibson 1977). In IS research, the concept of functional affordances is widely adopted to refer to the "possibilities for goal-oriented action afforded to specified user groups by technical objects" (Markus and Silver 2008, p.622). Although our main focus lies on the ESS artifact, we draw on the relational concept of functional affordances for several reasons. First, functional affordances are objective, i.e., they exist without being perceived, and valued by a user in terms of meaning and interpretation, and they are subjective, as a specified user group is required "as a frame of reference" (Pozzi et al. 2014, p.2). In line with our goal to enable the structured assessment of ESS, the point of reference is the group of users with access to the investigated ESS. Scholars and practitioners that use our classification model are then able to describe the causal potential of their ESS artifacts, while taking into account the complex relationship between the ESS artifact and the user. Second, the interplay between the social structure within technology and the social structure within action is a central and controversial issue in IS research, because they are continually intertwined and each shapes the other (DeSanctis and Poole 1994; Markus and Silver 2008). ESS artefacts entail social structures, which enable and constrain certain interactions by manifesting rules (e.g., possibilities to react to the existing content) and resources (e.g. possibilities to store and assessing the information) (DeSanctis and Poole 1994). As technology is used in context, social structure is brought into action, leading to an instantiation in social life (DeSanctis and Poole 1994). By drawing on affordances, we emphasize both. This is useful when building a classification model, as it underlines the non-deterministic nature of IT effects to the users of the model (Bernhard et al. 2013). In addition, functional affordances prevent the problem of repeating decomposition, which is the case when theorizing the features of IT artifacts (Markus and Silver 2008).

Research Methodology

Grounded in design science research, we aim at creating a taxonomy (Hevner et al. 2004). A taxonomy was chosen, among other types of classification (e.g., typologies, morphological boxes), due to the empirical nature of the entities to classify (Bailey 1994). Namely, action potentials afforded by ESS artifacts to its users. Taxonomies bring order into complex areas and create a research foundation to describe the phenomenon of interest (Nickerson et al. 2013). Therefore, we follow the rigorous and structured IS taxonomy development method of Nickerson et al. (2013). By considering a taxonomy to be a set of mutually exclusive dimensions and collectively exhaustive characteristics, each object of interest (i.e., an action potential offered by an ESS artifact to its users) has exactly one characteristic for each dimension (Nickerson et al. 2013). The iterative nature of the approach leads to a continuous evaluation and respective adjustment of the dimensions and characteristics. First, a clear purpose and ending conditions are defined. Then, Nickerson et al. (2013) suggests conducting inductive empirical-to-conceptual and deductive conceptual-to-empirical iterations. In the case of the former, dimensions and characteristics are derived from empirical data, while the latter identifies significant domain knowledge.

Meta-Characteristics and Ending Conditions

According to Nickerson et al. (2013), the core of taxonomy development lies in defining so-called meta-characteristics based on the purpose, which, in turn, follows the expected use of the taxonomy. The intended users of this taxonomy are people assessing existing or designing novel ESS artifacts for organizations, e.g., community managers or corresponding decision makers. The taxonomy is intended to be used in two ways. First, as a tool to assess the functional affordances of a given ESS artifact to a specified group of users by classifying the action potential offered to them. Second, as a source of inspiration during the design and development of ESS features. Consequently, the purpose of our taxonomy is to classify the possibilities for goal-oriented action that ESS artifacts afford to their users. The corresponding meta-characteristics are: (1)

the action potential offered by the artifact to its users, (2) the content that is eventually affected by the action, and (3) the context diversity. The objective and subjective ending conditions have been adopted from Nickerson et al. (2013). Objectively, the taxonomy has to consist of dimensions, each with mutually exclusive and collectively exhaustive characteristics that must not have been changed during the last iteration. Subjectively, the taxonomy has to be concise, robust, comprehensive, extendible, and explanatory.

Build and Evaluate Iterations

We followed a structured and iterative approach (Table 1). Continuous cycles of building (i.e., to collect and alter the dimensions and characteristics of the emerging artifact) and evaluating (i.e., to apply the taxonomy to the latest list of functional affordances) were repeated until all ending-conditions were fulfilled.

Iteration	Research Design	Approach
#1	Literature review	conceptual-to-empirical
#2	Classifying 3 existing ESS	empirical-to-conceptual
#3	6 explorative interviews	empirical-to-conceptual
#4	2 expert interviews	empirical-to-conceptual
#5	Focus group with 3 researchers	empirical-to-conceptual
#6	Innovation project with a novel ESS	empirical-to-conceptual

Table 1. Overview of the Taxonomy Development Iterations

To build upon the existing means of classification, we started with a conceptual-to-empirical iteration in March of 2016. This involved a structured literature review (Webster and Watson 2002) using the following scholarly databases: ProQuest, AISEL, Emerald, Science Direct and Web of Science. Specifically, we searched with keywords that represent ESS (i.e., "Enterprise/Corporate/Organizational", "Social/2.0", "Network/Media/Software/System/Site/Platform") together with keywords related to our meta-characteristics (e.g., affordances, activities, action, opportunities, use cases) or means of classification (e.g., framework, typology, taxonomy). We read the titles and abstracts of the initial results and included articles for further investigation if comprising potential dimensions and characteristics or enabling their derivation. In total, we obtained dimensions and characteristics from a set of 33 articles. If possible, we collected concrete dimensions and characteristics (e.g., the action types view, create, update, delete, share from Rosenberger et al. (2015)). In order to build on coarse-grained classifications, we derived dimensions and characteristics for each meta-characteristic (e.g., the action type "to establish" and the content type "connection" from the essential feature "establishing online connections" proposed by Kim et al. (2010)).

In Iteration 2, we cooperated with one of the largest insurance corporations to assess the functional affordances of their existing ESS (i.e., their customized Jive, the social features of GitHub for Enterprise and Atlassian Confluence). Therefore, we utilized the initial version of the taxonomy that resulted from Iteration 1. While classifying the objects of interest, we added novel dimensions and characteristics based on empirical evidence, resulting in an updated version of the taxonomy.

For Iteration 3, an explorative qualitative research design was chosen. A set of open questions were asked to probe what ESS affords to them, to explore relevant dimensions and to identify relevant objects of interest for subsequent classification. Striving to gain insight from different stakeholders, we selected interviewees (users of ESS) such that half of them works in an innovation field (Innovation Architect, Chief Scientific Officer, Software Engineer in a startup) and half of them work for a large insurance company.

Iterations 4 and 5 were aimed at verifying the relevance and clarity of the dimensions and characteristics (e.g., instead of distinguishing the level of self-disclosure in terms of low and high (Kaplan and Haenlein 2010), clear characteristics were elaborated). In addition, we evaluated how well the artefact performs not only in classifying existing ESS artifacts but also brainstorming novel ESS features. At this point, we applied the taxonomy together with the experts and in a focus group (Morgen 1996).

Iteration 6 followed the calls to consider the applications that may be forthcoming (Kaplan and Haenlein 2010) and to build extendible taxonomies (Nickerson et al. 2013). In line with our objective to inspire the design of future ESS features, we decided to include empirical observations from innovation projects as an additional empirical-to-conceptual iteration. Over nine months, four project teams (four graduate students each) cooperated with companies from different industries (pharmaceutical, insurance, telecommunication and software industry). Due to the user-centered approach applied in the projects, we hope to capture

potential future characteristics by considering multiple sources of evidence (Yin 2008), i.e., documentations and qualitative interviews. In one of the innovation projects, a novel ESS artifact was designed (i.e., an ESS that enables micro feedback) and served as an additional source to evaluate the taxonomy by classifying the corresponding objects of interest.

Results

We now present the resulting taxonomy, at a glance, in Figure 1, prior to elaborating on how each dimension emerged from the six iterations described in the previous section.

Dimensions		Characteristics							
Action Potential	**D1. Type of Action**	C1.1 View	C1.2 Search	C1.3 Request	C1.4 Create	C1.5 Update	C1.6 Share	C1.7 Delete	C1.8 Build on
	D2. Actualization Constraints	C2.1 None		C2.2 Time		C2.3 Space	C2.4 Quantity		C2.5 Mixed
	D3. Actualization Disclosure	C3.1 Undisclosed		C3.2 Anonymous Disclosure		C3.3 Disclosure of User Attributes	C3.4 Disclosure of Identify		C3.5 Configurable
	D4. Interaction Scope	C4.1 Oneself		C4.2 Individual		C4.3 Group		C4.4 Organization	
Content	**D5. Type of Content**	C5.1 Profile	C5.2 Group / Community	C5.3 First-Order Relationship		C5.4 Second-Order Relationship (Reaction)	C5.5 User-Generated Content		C5.6 Platform Extension
	D6. Granularity	C6.1 Individual			C6.2 Multiple			C6.3 Aggregated	
Context Diversity	**D7. Malleability**	C7.1 General-Purpose					C7.2 Purpose-Specific		
	D8. Adaptability	C8.1 None	C8.2 To Configuration			C8.3 To Social Data		C8.4 To User Context	

Figure 1: A Taxonomy to Classify the Functional Affordances of ESS

Dimensions Related to the Offered Action Potential

Dimension 1 - Type of action potential: A fundamental factor that constitutes an action potential is its type of action. Iteration 1 revealed the action types view, create, update, share and delete (Rosenberger et al. 2015) and the high-level distinction between consumption, participation and production (Heinonen 2011). We adopted the former fine-granular characteristics, because they reveal concrete action possibilities. In addition, we acknowledge the possibility of the search and request of content. While these characteristics were initially included in Iteration 1 (McAfee 2006), the subsequent iterations underlined their relevance (e.g., to classify features designed to request various types of user-generated content such as micro feedback in Iteration 6). Grounded in the empirical evidence from Iteration 2, we added the characteristic "build on", which arose from ESS that enables their users to build on others user's content (e.g., template features and the fork feature on GitHub for Enterprise). In contrast to sharing, the focus lies on starting to work on a copy of someone else's work, while sharing allows for the facilitation of propagation.

Dimension 2 - Actualization constraints: Striving to compare ESS features, we found that the differences often manifested themselves in the systematic constraints of the facilitated action potential. Many limitations, bound to time and space, disappeared in digital artifacts (Yoo 2010). In Iterations 3 and 4, it was mentioned that the possibility of constant social connectivity, however, might be limited by design (e.g., by limiting the actualization of an action potential in time or space). While, others have distinguished between the interactions that take place synchronously or asynchronously, we do not dedicate a dimension to this aspect. Instead, we look at it as a potential action constraint, because real-time response is often supported, but not required (Kim et al. 2010). For example, Slack can be used to synchronously and asynchronously, depending on the appropriation. With time constraints, a well-known consumer example is Snapchat, which limits the time users can view photos. Relating to the enterprise context, Iteration 6 yielded ESS features that are limited to regular working hours to encourage recreation. Besides constraints

in time and space, Iteration 1 revealed that the possibilities for action are often limited in quantity, e.g., Facebook constraints users to add 5'000 friends (Kane 2015).

Dimension 3 - Actualization disclosure: Derived from Iteration 1, we started to distinguish people-focused from activity-focused action potentials (Keenan and Shiri 2009). Iteration 5 revealed disagreements and ambiguity in deciding on what to call people-focused. Therefore, we put the stress on the level of self-disclosure (Kaplan and Haenlein 2010), i.e., to what extent an eventual actualization of an action potential is disclosed. Anchored in the descriptive nature of taxonomies, we specified clear characteristics within the focus group of Iteration 5. Undisclosed means that it remains invisible that a certain action was conducted (e.g., that the content was viewed). Anonymous disclosure implies that the actualization is visible, but without association to the identity of the user (e.g., "someone has updated"). Also, in some cases, the attributes instead of the identity are disclosed (e.g., "someone with job title Software Engineer"). Identity connotes that the full name, username, or similar is disclosed (e.g., "Max posted article X"). In the case of configurable disclosure, actualizing users may determine the level of self-disclosure.

Dimension 4 - Interaction scope: As represented in definitions of ESS (e.g., Kügler et al. 2015), Iteration 1 pointed out that ESS may facilitate interactions between individual co-workers or groups of co-workers. It may also enable the broadcast of content within the whole organization. More specifically, interactions may occur one-to-one, one-to-few, one-to-many or many-to-many from a dyadic point of view. In Iteration 5, we renamed these characteristics to fit our individual action possibility perspective (i.e., a user may view content from oneself, from an individual person, from a group of persons or from many persons).

Dimensions Related to the Content

Dimension 5 - Type of content: At the core of ESS, and thus, relatively stable throughout the iterations, is the possibility of exchanging user-generated content (e.g., article, event) and reactions to suchlike (e.g., likes, emoji's, ratings, votes, comments to these objects) (Behrendt et al. 2014). Enterprise Social Networks are especially known to allow the exchange of profile information and the ability to connect with other users (Behrendt et al. 2014). Derived thereof, and from the building blocks of Kietzmann et al. (2011), the object types of Rosenberger et al. (2015), the affordances proposed by Treem and Leonardi (2012) and the components of McAfee (2006), we included the content types of profile, group, relationships, reactions, user-generated content in Iteration 1. While social ties are labeled as a first-order relationship, digital networks may also emerge from the reactions to the content, which we refer to as a second-order relationship (Yoo 2010). ESS might offer the potential to make these visible. Groups enable users to establish and manage communities. Originating from Iteration 3 and 4, we additionally consider the extensibility of platforms (McAfee 2006). This allows for covering action potentials related to the extension and modification of the ESS artifacts, e.g., the possibility to share Yammer apps and Slack integrations.

Dimension 6 - Granularity of content: While classifying the functional affordances of ESS in Iteration 2, it became evident that the content may be exchanged in various levels of granularity (e.g., an ESS may offer the possibility to view an individual, a list of multiple individuals, or aggregated content postings). In fact, aggregation potentials are key to turn private judgments into collective wisdom (Surowiecki 2005).

Dimensions Related to the Context Diversity

Dimension 7 - Malleability: The existing body of literature differs malleable from purpose-specific software (Richter and Riemer 2013), general-purpose from vertical software (Kim et al. 2010) and infrastructure from tools (Riemer 2012). While ESS, as a whole, are widely considered malleable, our unit of analysis is an individual functional affordance. When classifying suchlike, the question arises as to what extent the offered action potential implies a particular form of usage (e.g., the potential to create a CRM entry directly from ESS, as offered by Jive plugins, is purpose-specific). Therefore, the distinction between possibilities of goal-oriented action that are general-purpose and purpose-specific has proven to be relevant in Iteration 2 and in the subsequent iterations, e.g., to classify the purpose-specific possibilities to react to content.

Dimension 8 - Adaptability: Iterations 3 and 4 underlined the need to differ the extent an ESS feature adapts to the considered user (e.g., is the way a user is enabled to create content fixed or does it adapt to the context of an employee?). Therefore, we differ adaptability in terms of the following characteristics that emerged empirically: adapting statically to configurations (e.g., user preferences), dynamically to social data (e.g., social graph, social text), and dynamically to the user context (e.g., situation of an employee).

This is in line with literature that points out ESS data types (e.g., Behrendt et al. 2014; Vatrapu et al. 2015). For example, social data according to Vatrapu et al. (2015) includes social graph data (e.g., the actors involved, actions they take, activities they undertake, and artifacts they create and interact with) and social text data (e.g., the topics discussed, keywords mentioned, pronouns used and sentiments expressed). Moreover, adapting to the user context reflects possible gradations from segmentation to personalization (Albert et al. 2004) and the context-awareness of ESS features, e.g., by actively adapting to the context automatically or by passively offering appropriate options based on the context (Barkhuus and Dey 2003).

Usage Scenarios

As of the last iteration, the proposed taxonomy satisfies all objective and subjective ending conditions. By continuously applying the taxonomy, it has proven to be robust, but yet still provide scope for future extensions. Specifically, after each iteration, we classified all objects of interest collected up to that point (i.e., a list of functional affordances of the considered ESS). Throughout the iterations, we resolved the trade-offs between the comprehensiveness and conciseness by iteratively adjusting the number of dimensions and characteristics, each being mutually exclusive and collectively exhaustive. The ultimate taxonomy has enough dimensions and characteristics to clearly differentiate between the ESS features, but is still manageable and presentable at a glance (Figure 1). Finally, applying and evaluating the taxonomy with experts and within a focus group further improved and corroborated its distinctiveness, conciseness, robustness, comprehensiveness and extendibility. The proposed taxonomy has proven to describe the possibilities for goal-oriented action that ESS artifacts afford to their users in a rich and explanatory way.

The usefulness of the proposed taxonomy is illustrated with two usage scenarios that emerged from applying the taxonomy together with experts (Iteration 4), within the focus group (Iteration 5) and the innovation project (Iteration 6).

Usage Scenario 1: Classifying an individual possibility for goal-oriented action that an ESS artifact affords to a particular user group. As illustrated with the gray-colored cells in Figure 1, an individual functional affordance can be described by means of assigning exactly one characteristic to each dimension.

Usage Scenario 2: Brainstorming novel ESS features by selecting two dimensions (Figure 2). It has proven to be useful, but not necessary, to cross meta-characteristics when selecting the first two dimensions. In particular, the type of content (Dimension 5) and the malleability (Dimension 7) turned out to be useful dimensions to start a brainstorming process of possible ESS features (e.g., one element might be a general-purpose status posting). The types of action potentials afforded to a specified user group (Dimension 1) can then be brainstormed for each element (e.g., an ESS may afford an employee to create a general-purpose status posting). Finally, the remaining dimensions can be subsequently used for classification purposes.

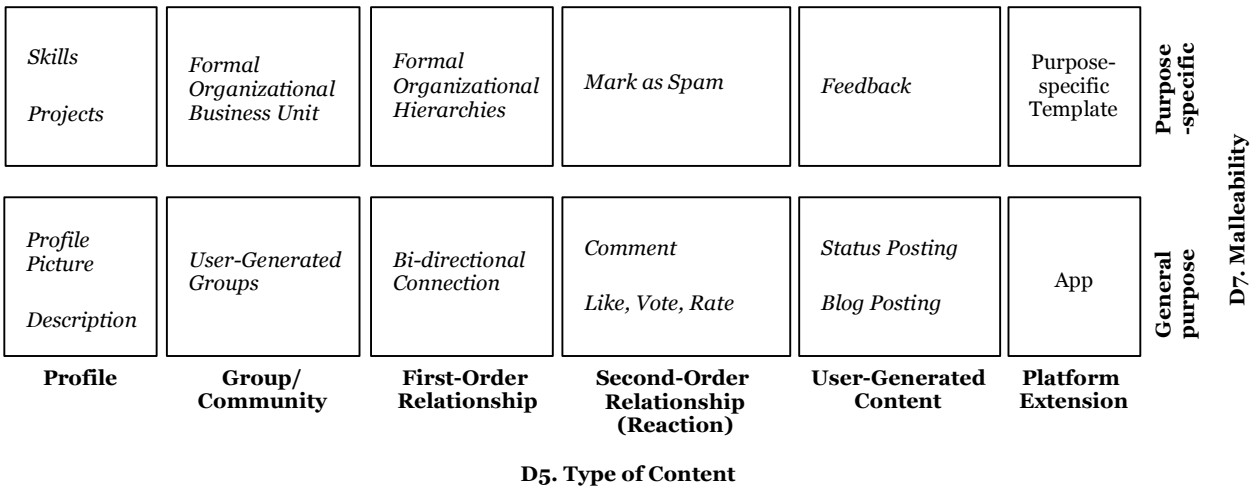

Figure 2: Exemplary Utilization of the Taxonomy to Brainstorm Novel ESS Features

Conclusion, Limitations and Future Work

This paper reports on the iterative development and evaluation of a taxonomy that enables scholars and practitioners to classify functional affordances of ESS, i.e., possibilities for goal-oriented action that ESS artifacts afford to their users. To answer the research question, eight dimensions with subordinate characteristics are proposed to describe the phenomenon of interest. A possibility for goal-oriented action that an ESS artifact affords to their users can be characterized by: (1) the type of action it enables, (2) how the actualization of this action potential is constrained, (3) its level of self-disclosure, (4) its interaction scope, (5-6) the type and the granularity of the content that is exchanged and (7-8) the context specificity and adaptability. Throughout six iterations, different sources of evidence with objects of interest from different industries were collected and classified.

By taking a more fine-grained view of ESS, we hope to provide researchers and practitioners with a better understanding of the diverse action possibilities of ESS and build a foundation for the systematic assessment, maintenance and development of ESS. We make a valuable contribution for practitioners who deal with a broad set of ESS systems. They can use the taxonomy to assess and compare different types of ESS side-by-side and detect the possibly overlapping and missing features. This will assist practitioners in the procurement, implementation and maintenance related to ESS. The taxonomy also serves as a basis and inspires the design of future ESS features.

Contributions to the theoretical body of knowledge occur in several ways. First, the taxonomy will help as a structuring element that contributes to a systematic understanding of what ESS enables their users to do. On the one hand, this can serve as a foundation to derive design principles. On the other hand, the fine-granular means of classification reveals the diversity of available ESS features, which seems to be more and more important with the advent of digital platforms. Second, to the best of our knowledge, this work is the first to include empirical observations from innovation projects concerned with the design of future objects of interest in a separate empirical-to-conceptual iteration. This can be seen as a novel way of applying the taxonomy development method of Nickerson et al. (2013), which may inspire other scholars. Third, scholars may build on the proposed taxonomy when developing similar taxonomies.

Contingent on the qualitative and interpretive nature of the empirical-to-conceptual iterations, exhaustiveness cannot be ensured. In spite of the inclusion of novel objects of interest, ESS is continuously evolving and might demand an extension of the taxonomy in the future. With reference to the conceptual-to-empirical approach, the literature review is characterized as non-exhaustive. This paper strives to classify action-related possibilities that ESS afford to its users. Alternate lenses to assess ESS features were analyzed at a lesser level of detail (e.g., privacy rights).

Future research should identify the differences among ESS artifacts and the various customizations of the same ESS across organizations and industries. It might also be beneficial to investigate how certain action possibilities of one ESS could be adapted to others (e.g., is it useful to map the fork feature from GitHub to other ESS?). Another direction of future research that we recommend is to investigate what and why theoretically possible types do not occur empirically. This may lead to interesting combinations of features.

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