

The Not-So-Open Wikis: Structures of Collaboration at Work

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The current chapter discusses issues related to the use of the wiki technology at the workplace for social knowledge collaboration and sharing. This kind of technology is principally flexible and free in the sense of allowing people to create, edit, and shape content collaboratively. However, this chapter argues that the application and use of a wiki within an organizational setting might be influenced by social and structural properties that govern collaboration and sharing. It is based on empirical data obtained through eleven semi-structured interviews with employees working for a large multinational organization. The theory of structuration was used as a theoretical framework to guide the empirical inquiry. Eventually, the chapter concludes with discussing a number of structures associated with evolving norms, interpretations, and resources that govern and shape the use of a wiki as a tool for social and open collaboration.

Background

The evolution of the web has enabled novel forms of collaboration, interaction, and knowledge sharing. Social media represent this evolution that is associated with fundamental changes in the way people work and interact with each other on the web [11]. They refer to Internet-based applications that build on the ideological and technological foundations of web 2.0 [10]. Web 2.0 is the platform for the evolution of social media. It represents an assortment of social and open technologies such as wikis, blogs, and social networks, tools as well as new norms of self-governance and freedom of information ownership [25]. These kinds of technologies allow for dynamic and flexible social interactivity through the co-creation of content, engagement and participation in online communities, and openness and free expression on the web [10, 18, 6]. For instance, a wiki is described as a tool for open and social knowledge collaboration that allows anyone to create and edit content collaboratively. It consists of a set of dynamic web pages that are continuously updated by communities of people [27, 7]. Ward Cunningham, the inventor of wiki, provided a number of principles that characterize the nature of a wiki such as open, simple, incremental, organic, etc. [2]. Openness is one of the most intriguing aspects of wikis. In principle, a wiki is open and allows its users to jointly create, edit, change, and delete content [22]. It also allows for knowledge shaping which is a purposeful activity to transform existing knowledge on the wiki into

more useful knowledge through reorganizing, rewriting, and integrating content [27].

In this respect, given their potential, organizations continue to apply and use wikis at the workplace [27, 16, 25, 7]. As such, wikis are often used by professional communities for knowledge collaboration and sharing [5, 27]. For instance, wikis can be used as conversational knowledge management tools where by which individuals and groups create and share knowledge through collaborative dialogues and conversations [6]. Kosonen & Kianto [12] maintained that due to their easiness and flexibility, wikis enable fluid patterns of collaboration that support the free exchange of knowledge. Accordingly, many scholars argued (e.g. [9, 12, 8]) that the use of wikis is driving more flatter, democratic and horizontal structures in organizations as users become more free and engaged. For instance, Faraj et al. [5] argued that knowledge collaboration, that involves creating, sharing, transferring, and accumulating knowledge, in online communities can occur without the traditional structures often associated with this kind of collaboration such as stable membership, interdependence among group members, etc. They further claimed that the lack of such structures might partly free the collaboration from social conventions, ownership, and hierarchy. We take a dubious stance on such arguments and claims aiming at addressing issues related to the potential development of social structures (cf. [17]) in the course of using social and open technologies for knowledge collaboration and sharing.

In addition, research addressing the use of wikis in organizational settings is increasing (e.g. [16, 27, 3, 26, 9, 8]). However, this research lacks the focus on understanding socio-structural dynamics of using wikis at work and how these dynamics shape social collaboration and sharing. To this end, the current chapter, drawing upon the theory of structuration, focuses on examining social structures that might evolve when using a wiki for open knowledge collaboration and sharing at the workplace. Hence, it seeks to answer the questions of: what kind of structures might evolve in the course of using a wiki for open knowledge collaboration sharing? and how these structures shape the process of social collaboration and sharing?. The rest of the chapter is divided as follows: the next section presents the theoretical framework. Then the third section describes our empirical inquiry. The fourth section shows the findings of the research. The fifth section provides a general discussion of the findings and finally the sixth section includes the conclusions of this chapter.

Theoretical Framework

Structuration Theory

Structuration theory was developed by the English sociologist Antony Giddens. Giddens described his theory as an “ontology of social life” which can be used as

a sensitising device in any social study [26]. In this respect, Jones & Karsten [13] maintained that the theory of structuration deals with social phenomena at a high level of abstraction rather than their particular instantiation in a specific context. Further, Jones et al. [15] explained that Giddens aimed at developing a theory that serves as a middle way between two competing traditions in sociology: naturalistic sociology and the interpretive tradition of phenomenology. Giddens sought to transcend the limitations of these two traditions by rejecting traditional dualistic views that see social phenomena as determined either by objective social structures or by autonomous human agents [13]. Eventually, Giddens proposed the theory of structuration which emphasizes that structure and human agency should be understood as a mutually constitutive duality [13, 15].

Structuration theory is heavily used in many academic disciplines [26, 15]. Wanda Orlikowski has published several works on structuration theory in which she developed new extensions and understandings of the theory (e.g. [19, 20]). One example is her structuration model of technology (see [20]). In this model, Orlikowski draws upon the structuration theory in the sense of maintaining that human actions are enabled and constrained by structures and that these structures are still the result of previous actions. As such, she argued that technology is created and modified by human actions while at the same time technology is used by humans to accomplish specific goals. She referred to this understanding as the duality of technology. In the next section we describe the main components of structuration theory that have been used to frame our theoretical and empirical efforts in this chapter.

Modalities of Structuration Theory

Three central modalities or components of structuration theory have been used to help in framing our empirical inquiry. These components include interpretive schemes, norms, and resources [13, 19, 21, 20, 23]. But before we discuss these components it is important to clarify some concepts. Structuration is defined as a social process that involves the reciprocal interaction of human actors and structural features of organizations [15, 20]. Structure, as defined by Giddens, refers to rules and resources organized as properties of systems and exists as structural or institutionalized properties [15, 19, 20, 23]. Given this definition, Giddens's understanding of structure emphasizes the dynamic process of social interaction rather than static properties or patterns [13]. All three modalities provide the linkage between human action (agency) and institutionalized properties (structure) [14, 21]. Each modality can be understood differently from either an agency or structural perspective.

From an agency perspective, human interaction involves the communication of meaning which is achieved via interpretive schemes. Interpretive schemes from a structural perspective represent structures of signification which are organizational rules that inform and define interaction (e.g. a person wearing a white

coat suggests he is a doctor) [20, 21]. Resources from an agency perspective are related to power relations. Power plays an important role in human interaction as it provides organizational capabilities for human to accomplish certain outcomes. The impact of power from this perspective is understood as transformative capacity that is the power of humans to transform the social and material world [20, 21]. This transformative power is mediated in organizations through two kinds of resources: authoritative that is extending power over people and allocative that is extending power over objects or material phenomenon. From a structural perspective, these resources reflect structures of domination [20]. In respect to norms, from an agency perspective, they refer to organizational conventions and rules governing legitimate or appropriate conduct. From a structural perspective, norms constitute organizational structures of legitimation which are used to maintain organizational order through rituals and tradition.

In addition, Orlikowski & Robey [21] explained that these three modalities determine how the institutional properties of social systems mediate deliberate human action and how human action constitutes social structure. For instance, people in their everyday lives draw upon their knowledge of their prior action or situation in hand, the facilities available to them (e.g. technology), and the norms that inform their ongoing practices. As such, the application and use of these elements in social interaction lead to structuring their current actions [19]. In this view, human agency, that is humans in their ongoing interactions, and structure, that is institutionalized properties of social systems, are treated as mutually interacting duality [14]. Eventually, structure is always seen as enabling as well as constraining.

The Case and the Method

The case in this study was conducted at IBM which is a large multinational technology corporation. IBM is specialized in developing computer software and hardware and also offering consulting, hosting, and infrastructure services in areas ranging from mainframe computers to nanotechnology. IBM was founded in 1911 and is considered the largest technology company in the world and often ranked among the largest 30 companies worldwide. The company has more than 425,000 employees in more than 200 countries.

One major part of IBM technology services is IBM Social Business and IBM Collaboration Solutions where the current case took place. This section of IBM was initially called IBM Lotus Notes that mainly focuses on providing enterprise collaboration solutions. Nowadays, this section is called IBM Social Business & Collaboration Solutions that is specialized in providing various social collaboration services for businesses with emphasis on integrating social software capabilities. One main social collaboration technology that is developed by IBM Collaboration Solutions is IBM Connections. This software combines multiple so-

cial collaboration tools including file sharing, status updates, blogs, micro blogs, tagging, wikis, communities, and many other social collaboration tools.

The IBM Connections software was the tool studied in this case with a particular focus on the wiki technology. The aim was to understand the structures surrounding the use of the wiki by employees at the IBM Collaboration Solutions. As such, participants in this study were mostly working at the IBM Collaboration Solutions and using wikis for different collaboration purposes such as documentation, activity management, scheduling, content and file sharing, a point of reference, etc. It is important to mention that people using IBM Connections are free to use any tools available in the system the way they like. So the participants in this research have either been users of wikis created by others or creators of wikis related to their work. The system also allows them to set up a wiki to be either open for anyone or accessible only to specific members.

The semi-structured interview method was the vehicle for collecting data in this study. The choice of the interview method was motivated by the need to understand people's experiences and interpretations of using the Wiki technology. The total number of the interviews was eleven of which three were conducted via Skype online video conferencing, three conducted over the phone, and five were face-to-face (f2f) interviews at different IBM locations in Copenhagen, Denmark. Table 3.1 describes the characteristics of these participants.

Role	Wiki experience	Gender	Nationality	Interview
Learning Intelligence Leader	3 – 4 years	Male	UK	Skype
Engagement Manager	1 year	Female	Denmark	f2f
Software Developer	5 – 6 years	Male	Denmark	f2f
Client Technical Professional	3 – 4 years	Female	Denmark	f2f
Marketing Production Manager	5 – 6 years	Male	USA	Phone
Information Developer	3 years	Female	USA	Phone
Technical Sales Professional	3 years	Male	Denmark	f2f
Social Business Evangelist	3 – 4 years	Male	USA	f2f
Information Architecture Lead	4 years	Male	USA	Phone
Social Computing Evangelist	9 years	Male	Spain	Skype
Project Manager	3 – 4 years	Male	UK	Skype

Table 3.1: Characteristics of research participants.

The contact details of these interested people were then shared with the authors by the main contact at the department and an official interview invitation had been sent to all of them by the first author. The email contained information about the focus of the interview and practical issues such as time and date and the communication method. The interviews were planned, conducted, and completed during the months of September and October 2011. The average interviewing was not less than 45 and no more than 60 minutes. An interview protocol was developed to guide the conversation with the participants. This protocol included several questions developed based on the theory of structuration and drawing upon three central modalities of human agency: interpretive schemes, norms, and resources. The discussion of these modalities is presented in the theoretical framework above.

These modalities were used as “sensitising devices to generate some searching questions on the nature, purpose and value of computer-based representations within and between communities of practice in organizations.” ([26], p. 12). While the interview protocol contained a structured list of questions, the conversation was rather fluid and flexible to allow for active engagement with the participants. At the beginning of the interview, each interviewee was informed about the research and the purpose of the interview as well as confidentiality and privacy issues. In this respect, a number of the interviewees requested their names to be hidden. Others preferred that only their first names are to be used or a nick name to replace their real names when quoted. Also, some of them asked to be informed about any quotes before using them in the chapter. As such, these participants were contacted at the time of writing the chapter in order to get their consent for including and publishing their quotes. In the same vein, the validation of empirical data was achieved mainly through member checks. The transcript of each interview was sent to individual participants for verifying their answers.

In addition, the analysis of qualitative data obtained from the interviews was based on a hermeneutical approach [1, 2]. Each interview was fully transcribed into text. It is important to mention that the analysis of the data was started during the transcription phase. This has been done through associating themes to important parts of the text and making highlights for later deeper analysis. The actual analysis of the text was purely hermeneutical in the sense of emphasising the participants’ interpretations and beliefs about their use of the wiki technology. The application of hermeneutics during the analysis was characterized by the iterative processes of reading and rereading the text to see how different parts of the text make sense in respect to the overall textual or qualitative data. Open and axial coding techniques were used to support the development and the association of themes to specific textual data segments [24]. More clearly, open coding was used to create themes and categories that represent central meanings in specific data segments and axial coding was used to connect and associate these themes based on their relevancy and significance to the main purpose of the research. It is important to mention that these themes were developed in light of the research purpose, that is identifying and understanding the evolution of social structures that might govern knowledge collaboration and sharing with wikis, and the theoretical components used to frame our empirical data collection.

The hermeneutical analysis of the data aimed at understanding the essence of the text in order to identify specific structural categories and then connect them with each other. For example, the statement “...*the second factor is potentially people might not be willing to submit questions in a more public arena ... I think certainly which myself has experience you know not wanting to put my name out there because I look stupid...*” was interpreted to imply an open or network structure. Also, influenced by structuration theory, we’ve able to account for the “belief” or the perception associated in this statement that is the idea that open sharing might possibly cause embarrassment for the contributor in front of a large audience. This process of hermeneutical interpretation and analysis was applied into each data segment iteratively allowing us to identify a number of dominant categories and link them with each other, which are described in the next section.

Findings

The findings from our interviews are presented in this section. During our empirical data collection we have been able to identify and examine a number of structures that evolve in the context of using a wiki for open knowledge collaboration and sharing at the workplace. These kinds of structures are either emergent or reflection of existing structures in the organization. Existing structures refer to established rules and resources at the organization. So during the interviews we asked the participants about, for instance, their roles at the workplace, the tools they use to accomplish certain tasks, etc. in order to understand the influence on the use of the wiki. In contrast, emergent structures, drawing on structuration theory, refer to rules, resources, and interpretive schemes that evolve in the course of knowledge collaboration and sharing using a wiki. Accordingly, the analysis of the empirical data resulted in a number of evolving and emergent structures that describe, for instance, new rules that govern the way people use the wiki at work. This section aims to present and discuss the empirical evidence for these structures that span technological, organizational, social, behavioral and cultural properties. These structures are presented below together with empirical evidence addressing the structural variations in the wiki environment.

Open or Network Structure

The open or network structure is primarily determined by the open nature of wikis. The fact that wikis are editable, open and visible to a large audience creates several implications for the users of wikis. For instance, a learning intelligent leader explained the influence of openness on his perception of using a wiki:

“people might not be willing to submit questions in a more public arena ... Because I don’t know maybe they are worried about looking stupid, I think certainly which myself has experience you know not wanting to put my name out there because I look stupid.”

In the same vein, a software developer described how sharing information in the open space affects the way he engages with others to collaborate for the improvement of content:

“putting the information out in the open i feel responsible for it and if someone makes me aware that it could be improved and changed then i would engage that person and find out what they mean about it. And of course if openness and accessibility mean someone could go and change it and maybe make it less correct or remove important parts of it i would feel bad about it because then i would have to go in and redo it”

This implies that sharing with others openly entails some responsibility to maintain what has been contributed and shared with a public audience. As such, some people might however perceive this kind of open exposure on the wiki to be a demanding behavior. A client technical professional said:

“One of the comments I hear when I talk to colleagues about this is that they say well I don’t want to be a subject matter expert, I don’t want everyone to point to me, I don’t want all this fame and glory because typically it adds to my workload...The other comment is also well is it not included in my job description”

In the same vein, a technical sales professional explained his view about contributing and sharing knowledge in open wikis:

“if you put it on something that is open for editing then you actually invited me to see if i can improve on it...and when i do something it is only to improve the quality, it is not to be seen or anything on a personal level.”

In a similar sense, the fact that any contributions made on the wiki are open and publicly accessible by others makes contributors more careful about what they contribute. An information architecture lead explained this:

“...this is gonna be in the public record that says Keith added this information and deleted this information on the wiki page and I know that's going to be within IBM for as long as I am here. So i spent extra time to make sure that these are really good changes.”

Further, a social computing evangelist explained the network effect of openness and how it helps people to trust each other as they share what they know openly:

“by being open about what you know, who do you know, and what do you contribute ... you’re giving people an opportunity to figure out for themselves whether they can trust you or not.”

Accordingly, this suggests that exposing and sharing what people know in the open space would create a comfortable atmosphere at the workplace which may lead to fostering trust amongst them. An example was given by a technical sales professional and how the openness of the wiki helped him to connect with people:

“I look at who contribute. Who has got a sale that makes sense that i am interested in ... I mean I go in here to get educated”

Relationships Structure

Members of groups or project teams tend to determine their contributions into the wiki based on their relationships to each other or affiliation to a group. A learning intelligence leader, explained how his relationship with the team would make him eager to contribute to the wiki:

“Within the environment of my own team I know that I am informed, I know that I have certain subject matter expertise. I think of it more as a matter of talking to a colleague over the phone.”

This statement shows the importance of the relationship with the team which gives people the ability to realize and use their expertise, thus make them more capable to contribute and share with others. Another interesting dimension of the relationships structure is the creation of new relationships among people. A technical sales professional reflected upon this experience:

“if one goes in and changes something, I invite them to my network. Because they are most likely made a valuable contribution so I would like to be closer to them. So as you can see (showing his profile on the wiki) I currently have 90 friends and we have commonalities in topics of interests.”

The wiki in this case serves as a networking tool that helps people connect and get introduced to each other. In addition, something that we also we found relevant to these networking opportunities is related to the credibility of content on the wiki. More clearly, the ability to know the background of the contributors not only helps in creating new relationships with them but also in ensuring that their content is credible. A social business evangelist maintained that:

“it is important for us to remember in any of our information discourses even wikis to be able to know the person doing the editing gives you a perspective on credibility.”

Hierarchical or Experience Structure

One of the most important structures that evolve in the wiki environment is related to the hierarchical and experience variations. Hierarchy in this sense refers to divisions among employees and their levels of expertise. We found that hierarchical divisions among employees are well manifested in the wiki environment and shape the perception and behavior of wiki users. For instance, a learning intelligence leader and a software developer said respectively:

“I am a quite senior resource within our team I would be very surprised first of all to see other team members editing my manager’s post or even editing my post”

“the knowledge can be difficult for less experienced person to go in and edit something that i would say a subject matter expert has rendered.”

Sometimes, however, people do not give much weight for the hierarchical levels of contributors. Instead, they emphasize the importance of the contributor’s knowledgeability in the subject. A client technical professional explained this:

“I don’t check whether or not the guy who has written the wiki is higher in the hierarchy than I am. I would rather check I mean if he has the right level of knowledge. Because we can see what contributions you have done, what information you already have provided....its more the value, or the picture of their knowledge that is more important than the role they have.”

Further, we asked our participants about the influence of hierarchical and experience levels on editing others’ contributions on the wiki. A marketing production manager said:

“I am 48 years old and I’ve been at the company for 20 something years. You know I am confident in what i know and i am confident in what my colleagues know so people wouldn’t get insulted if someone posted something and I had a better answer or more accurate information to contribute. They wouldn’t get offended just like i would be... i think that’s a maturity thing.”

In the same vein, a technical sales professional said:

“If I, let me formulate, am absolutely sure I know better, then I correct it directly. If i am unsure, will I understand it correctly or will they know more than I do then I would not edit directly. I will comment on it. I will say could you please explain this further.”

This implies that people tend to be cautious about the expert levels of contributors and that would have a determining impact on the way they actually collaborate with others. In other words, the variations of contributors’ expertise limits the free editability of the wiki. An additional dimension of hierarchy that exists in the wiki environment is related to the perceptions of people of whether a wiki is a tool they should use or not. An example provided by the marketing production manager explaining how the use of the wiki by their executive has legitimized the wiki as a tool for collaboration and knowledge sharing:

“we have our vice president do that in wiki so that people will take it seriously because when our audience simply see our leaders and executives using these new forms of communication, that legitimizes it for them all, this is a real thing.”

Social or Behavioral Structure

This kind of structure is related to the social dynamics or social conduct among groups of individuals. These social norms can either be agreed upon by the group or emergent because members are accustomed to do or perceive certain things in certain ways. For instance, one of the software developers explained the routine or norm within his team when it comes to editing something on the wiki:

“Typically in a group ... when there is a subject matter expert, other members would look for this person and expect the changes coming from him.”

He further commented on editing his contributions on the wiki by others as follows:

“I would find that this person is breaking a social habit. Without contacting me first and putting a comment or anything that would be a bit weird.”

As such, the social norms that exist within the group get reflected into the wiki, thus shape the editing behavior of group members. In a similar sense, an information developer described how she perceives editing content made by others:

“I hesitate to just go in and edit people's content without asking them first. I just don't, maybe I feel like it is being a little rude.”

In respect to social norms which are agreed upon by a group using a wiki, an information architecture lead explained an example describing a master-writer collaboration model in which they agree that one person writes content and anyone else can only be a commentator:

“the whole wiki is open to everybody but we just have an agreement okay here is the master writer for this one document and Sally is the master for this one and Bob is the master for this one and everybody else just comment.”

Further, a social business evangelist explained the social or behavioral norms when it comes to editing content on the wiki that is not yet agreed upon by the group:

“It is almost a socially accepted practice that if I asked you your opinion and you give it to me I should respect you. And if your opinion is valid, great. If not, let me tell you why.”

As such, editing or changing content on the wiki is subject to prior discussions about the reasons for making an edit as well as agreeing upon the any potential changes. The social computing evangelist argued that this behavior is a barrier for harnessing the essence of wiki openness:

“Someone would typically bump into a wiki, which will be open to everyone not only read but also edit access and he will go and see a paragraph in a wiki page that is not entirely correct and that needs fixing and they know the fix. So instead of them going ahead and privately click on edit and make the update, they are actually calling the person who created that wiki to make the update for them.”

Technology Structure

The technology structure refers to the way the wiki is setup either as a private or public platform. For instance, there are wikis set up for public accessibility, thus people are allowed to add, edit, and change content. In contrast, there are other wikis which are setup for private communities to serve specific people for specific purposes. An engagement manager described this:

“I think the way they are working is a lot of pushing knowledge out. And projects use them for their own business. Like I use them for my RFP, then other people use it for their webinars. So it is more like their knowledge sharing more than it is actually people sharing knowledge.”

A marketing production manager explained to us how the setup of the wiki determines his content-editing behavior:

“if i see that a wiki is setup in a way that anyone can edit, that tells me that the culture and the way that this application is setup, they allow that, they expect it and then I can help them, no one will be offended, no one is going to mind if i did it. But the only thing if I went to a wiki that didn't allow that and required me to submit a comment or ask, that tells there is some sort of a cultural component in this particular wiki that they expect me to work in another way.”

Further, the technical sales professional discussed the nature of the tools they use at the workplace. He emphasized that the flexibility of the technology enables sharing as follows:

“...because many of our internal tools are built like that. So many of the tools we use encourage us to do this kind of exchanges ...I mean from that aspect we take our product suit and create them to be open and encourage people to share.”

In addition, the technology structure is also related to technical skills needed to use the wiki. The marketing production manager explained that sometimes the lack of such skills would be a barrier for people to use the wiki:

“Interestingly that for some of our users it has become a barrier because wikis are so flexible and because they are so easy to edit... There is a certain part of

people who know a little bit of HTML; people who know a little bit about HTML, they know how to edit it and make it look exactly the way they want. But the majority of people get scared of that.”

Task Structure

Task structure describes wikis that are designed for certain purposes (e.g., creating and editing articles in specific subjects) and there are people assigned to achieve these purposes. As such, contributing to the wiki whether through creating and editing articles or structuring and rearranging content becomes the responsibility of particular people. Also, task structure is related to the way wiki users perceive their roles as well as the roles of others in the wiki environment. A client technical professional provided an example of how she experiences this:

“when I look at this wiki (a product documentation wiki) I can see that it is very few people working on it, and it is the developers more or less who are trying to put marketing terms into things and try to explain for ordinary users. And if you see almost only the same authors then I have this feeling why should I jump in and write, it is not my job really, kind of let them do it. So I could come with a comment and say this is an area where it is lacking information please go and do.”

Another example that describes the task structure is when someone is assigned to work with the wiki. In other words, some person has the job to create and edit content on the wiki. The marketing production manager has such responsibility as he described it:

“you know i would meet with the executive, we discuss what it is (subject to be shared on the wiki), and then I would write for her the article and would go out under her name even though it was written by me.”

In addition, the information architecture lead has further provided an example that describes another form of assigning people to work with the wiki:

“Sometimes ... we sort of have a person whose a writer, our main writer, so she tends to be the master writer for everything and everybody comments on it ... This is our documentation focus project so the documentation is the most important we deliver so we have somebody whose job is to do that.”

General Discussion

The structural variations that exist in the wiki environment suggest that collaboration and sharing with open and social technologies is not a straightforward process. Our quest to understand the development of social structures in the context of using a wiki for open collaboration and knowledge sharing is based on the

premise that social structure is continuously created and recreated through the flow of everyday social practice [13].

As such, based on the three modalities of structuration theory (see [13, 19]) we looked at the perceptions of using a wiki among coworkers, dominant protocols and social conduct, facilities and resources available to them, and power relations among individuals and groups. In this respect, the use of social and open technologies, like a wiki at the workplace, represents a dynamic social production of new structures and reproduction or reflection of existing structures. For instance, the perception that a person is in a subject matter expert position within the team was reflected into the wiki in the sense that people tend to avoid editing his or her contributions on the wiki, thus creating a sense of hierarchy that constrains collaboration and sharing. Also, even when people decide to make comments or changes on the content made by a person higher in rank they tend to consult with him or her in order to avoid any implications caused by hierarchical divisions. As such, the hierarchical structure in this case was transformed into the wiki creating barriers for people to collaborate and share with each other freely.

In other cases, structures are emergent resulting from the dynamic social interactions on the wiki. An interesting example was observed when discussing openness and editing content made by others publicly. A number of participants explained that sharing content on a wiki suggests that this content is subject to changes since their understanding of the concept of a wiki implies that content is open and thus anyone can make edits and changes (cf. [2, 27, 22]). This kind of what we call open or network structure is driven by the open interactions that take place when people share content with each other on the wiki. These interactions are visible and anyone can see what others have contributed especially in public wikis that are accessible by a large audience.

In this respect, Jones & Karsten [13] argued that human agents draw on social structures in their actions, and at the same time these actions serve to produce and reproduce social structures. The interpretation of people that content shared on the wiki is open and subject to changes represents a manifestation of this argument. On the one hand, people collaborate and share knowledge with each other at the workplace because either it is part of their job or because they are eager to share their experience and knowledge with others. For both reasons, the drivers are determined by social structures such as a jobs requirement or eagerness to share. In this view, the action to collaborate and share is driven by existing structures which can be seen as an outcome of a social structure reproduction process. On the other, social collaboration and sharing on the wiki involves a production of new social structures. The example about open or network structure shows how people's interpretation of sharing content on the wiki has created new rules or resources that govern their collaborative and sharing behavior in the open space. Accordingly, the production or emergence of new social structures either enable or constrain action [13, 20]. An example from the empirical data that shows how new structures might enable collaboration and sharing is related to hierarchical or experience structure. The fact that people can see their executives using the wiki has motivated and even legitimized its use at the workplace. This can be understood as

one form of structures of legitimation [21] that can help in maintaining collaboration on the wiki.

In addition, contrary to arguments for the flat, horizontal, and democratic structures suggested by the literature (e.g. [5, 12, 8]), our findings suggest that knowledge collaboration and sharing using open and social technologies such as a wiki is not free of structures. The use of a wiki in an organizational setting is governed by both emergent and reflected social structures. The interplay between existing and emergent structures is central in understanding of the dynamics of social and open collaboration in organizations. These kinds of structures shape the social dynamics of collaboration using a wiki through diverse interpretations, norms, and resources associated with each structure. For instance realizing the importance of affiliation to particular teams and groups makes people more motivated to share openly (relationships structure). Also, the influence of hierarchy in social collaboration (hierarchical or experience structure) becomes a resource of power that influences the way people perceive and use the wiki. Further, the development of a sense of responsibility to maintain contributions on the wiki that is open and public tends to become a norm or a routine task among the contributors (open or network structure). In this respect, while wikis allow for social interactions to be freer and more flexible, these interactions are implicated by the norms, resources, and interpretations associated with social and open collaboration using a wiki. In this view, the interplay between norms, resources, and beliefs available at the workplace and the open space of a wiki drives the development of new rules, norms, and resources that people draw upon in their interactions, thus shape and govern the wiki. In other words, wikis are not so open.

Conclusions

The chapter aimed at examining the development of social structures that might evolve in the course of using a wiki for social collaboration and sharing at the workplace. It concludes with providing a number of social structural including open or network, social or behavioral, relationships, technological, task, and hierarchical or experience structures. The chapter showed that these kinds of structures manifest evolving interpretations, norms, and resources that govern collaboration and sharing using a wiki. Noteworthy, these structures should not only be treated as either enablers or inhibitors of collaboration and sharing using a wiki but also as mediums for the production and reproduction of social structures. Such kinds of structural properties might be volatile in the sense that the open and dynamic nature of wiki collaboration among people may continually drive their evolution. In other words new structural properties may arise or evolving properties might get institutionalized. Hence a promising direction for further research is to examine and understand both the evolution and the institutionalization of these structures and their influence on the design and use of social and open collaborative technologies. Longitudinal studies would be effective tools to achieve such an understanding.

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