Supporting Communities of Practice in Public Administrations: Factors influencing Adoption and Readiness

Full Paper

Oliver Blunk
Human-Centered Information Systems
Clausthal University of Technology
Germany
oliver.blunk@tu-clausthal.de

Michael Prilla
Human-Centered Information Systems
Clausthal University of Technology
Germany
michael.prilla@tu-clausthal.de

ABSTRACT

Exchange of experiences is a common means of informal learning in work places. Multiple organizations have discovered the benefits of actively supporting a community of practice to support this. We implemented a community of practice platform in two public administration organizations concerned with employment and experienced differences between the cases as well as difficulties during the implementation. After conducting a systematic analysis, we identified several influencing factors affecting the emergence of a community of practice. We propose a set of readiness indicators derived from this analysis, offering researchers and practitioners a tool to estimate the readiness of a public administration organization towards adopting communities of practice.

CCS CONCEPTS

• **Applied computing → Enterprise information systems**
• Social and professional topics → Implementation management

KEYWORDS

Community of practice; public employment service; public administration; organizational culture

1 INTRODUCTION

Communities of practice are a common means at work places for practitioners to exchange knowledge, experiences and to learn from each other in often informal ways [37]. We base our understanding of communities of practice on the work of Etienne Wenger [37, 38]. In this paper, we use communities of practice mainly as a tool for experience exchange and informal learning. Communities of practice offer its members a place in which they can discuss their practice, learn from their experiences and help each other.

One cannot simply assemble a group of people and tell them to be a community and start a community like that, but rather one has to shape the environment to allow a community to emerge [34, 37]. Furthermore, a community does not just start to exist, but it is rather something which grows over time [38], but it rather emerges over a longer period, which has to be facilitated by moderation activities and the organization. However, controlling influences by organizations have been negative for the community [34].

This paper presents our results of the analysis of an implementation of two communities of practice platforms in public administrations concerned with employment. During the implementation, we noted several cultural differences and characteristics between the two case studies and had multiple difficulties during the implementation. Thus, we decided to do a systematic analysis of both cases to check whether we are able to identify influencing factors. In the analysis, we found several gaps between the current culture and communication structure in the organizations and the open discussion and exchange culture in a community of practice. The main contribution of our paper is a set of readiness indicators, which we derive from similarities and differences of the cases we have analyzed. These indicators are mainly qualitative measures describing the willingness and capability of a public administration organization to support bottom-up discussion communities. The aim is to help researchers and practitioners working with public administrations to estimate the organizational readiness for supporting the emergence of a community of practice.

2 RELATED WORK

In this section, we discuss communities of practice itself, their purposes, required support and lifecycles of communities, as well as the relation of communities of practice in public administrations.

2.1 Dynamics and the Lifecycle of Communities of Practice

A community of practice has different purposes including but not limited to getting emotional support [16], and getting help for issues and learning from each other [17, 37, 38]. In this paper, we focus mainly on the aspect of communities of practice as a means of informal learning [10]. As learning takes place not only in formal trainings, but also to a larger extend in informal learning opportunities, it is important for organizations to use various means for professional development of their employees [3]. These informal learning opportunities are important for ongoing learning of individuals and this kind of learning is more social learning while interacting with others, rather than learning individually [10, 26]. This way a community of practice offers their members opportunities for informal learning at the workplace.

Members of a community often do not become very active from the beginning on, as most members start with reading other people's contributions to get familiar with the community, which Lave and Wenger called *legitimate peripheral participation* [21]. This is described in the *reader-to-leader* framework in which users are moving from being a reader in a community to become a leader in the community taking on responsibilities of motivating others and steering the community [30]. The term "legitimate peripheral participation" already indicates that this form of participation is also accepted and encouraged as it has multiple benefits for the members of the community: getting to know what the community is about, learning from other people's contributions, and learning how to behave in the community. In communities of practice, members have varying levels of expertise, making communities a good location for both newer employees as well as experienced colleagues as both can learn from each other [17]. The difficulty when setting up new communities of practice lies in the activation of new users to move from being readers to active contributors of a community to being leaders in the community [12, 30]. One study with nine communities found that it takes approximately 11 months for sponsored communities until members are fully integrated [8].

Members of a community of practice have different reasons to participate in the discussions. Reasons for active engagement in communities of practice are: being able to learn from each other [12], obtaining social capital [15] by writing quality content and helping others, document client support cases [28], feeling a sense of professional obligation [12, 22], and enhancing one`s reputation in the organization [36]. It also helps reducing the learning curve of new employees, making it a good place for new employees [22].

There are several factors, which prevent members from engaging in a community of practice. The degree of courage or degree of empathy is hindering personal contributions to a community platform [35], respectively having a low self-efficacy [4], or preferring face to face communication instead of online communication in a community of practice platform [1]. This might be also one of the reasons for low exchange in platforms when members are also sharing an office floor. Another reason for non-participation is the reluctance to give up knowledge which is often perceived as power [28]. Other known reasons for community members being reluctant to post something are resignation that the organization cannot be changed at all, and protecting one`s own knowledge, or lack of incentives for contributing [11, 12].

How people use technology is guided by their current behavior, and the existing structures and processes of their work [28]. Thus, it can be expected that introducing a community of practice in a public administration will at first lead to users trying to keep and transfer their existing communication and work structure onto the community. Often public administrations have bureaucratic organization structures [33] and are organized top-down. Discussions in a community of practice are mostly on the same hierarchical level, and can also include aspects like employee participation and bottom-up interactions when members start discussing and trying to shape their own practice. This most likely requires a change in culture and mind-set in both organizational and individual level for both staff and managers. In terms of Orlikowski, establishing a community in a public administration means moving from the reinforcement state (reenactment of existing structures) to the transformation state ("enact changed structures")[28].

Communities often have a need for ICT support, e.g. when members of the community are spatially distributed throughout multiple cities or a country [1, 38]. In those cases virtual communities are often found, which span over locations, often span over multiple time zones, and often existing on the internet, where people do not have the possibility to meet in person easily [17]. In contrast, regular communities are often tied to a place and have a clear membership [17]. As the workforce is spread across multiple offices in the country, it is not easy for members to have regular face-to-face meetings and members do not know everybody working in the same job role in the organization. The membership is clearly defined, as in our cases only staff of the organization are allowed to take part in the community.

2.2 Communities in Practice in Public Administration

Communities of practice have been analyzed in various private organizations [1, 2, 28, 38], or education settings [11, 24, 25]. To our knowledge there are only a few studies concerning the public sector or public administrations working with clients (e.g. [9]). This gap in the literature has also been mentioned in [35]. Public and private organizations differ in various aspects: Staff in public sector is described as having less interest in prestigious work or high income, but rather being interested in contributions to society [23], and has a larger diversity of stakeholders while also having a more bureaucratic organizational layout [33]. Work in public administrations is also likely not as competitive as work in private organizations e.g. with the 'up-or-out' mentality of consulting companies in which staff tries to guard their own knowledge [28].

To establish healthy relationships within a public organization, trusting each other is an important aspect [27]. This is also true in communities of practice in general, in which new

ideas are being discussed and members are opening up to each other [22, 38].

Lindgren and Jansson [23] also describe a "lack of exit" for public administrations, stating that some services are only provided by public services (e.g. social benefits, arrest, taxation, etc.). This applies to a certain extend to e.g. public administrations concerned with employment. On the one hand, there are numerous private sector organizations offering job matching for job seekers and organizations. Thus, clients have an alternative to the public administration in this aspect. On the other hand, getting social benefits is still a monopoly for public administrations. This results in an asymmetrical relationship between job seekers and staff, as public administrations are the only option for the person seeking the social benefits to obtain them. This puts additional pressure on the accountability and responsibility of the employees working in public administrations [23]. It also shows a difference to private organizations, where there is no obligation to do business with everybody, whereas in public administrations employees do not have this choice of rejecting clients [23] (and vice versa).

As there are differences in the work between public and private organizations, this paper contributes to the body of knowledge of communities of practice in public administrations.

3 TWO CASE STUDIES

This section describes two cases studies, in which we worked with two public administrations from two countries to establish communities of practice. In both cases, the organizations were concerned with employment, and therefore the main objective of the organization was to enable counsellors (staff) to help job seekers to find employment and/or build their job searching skills. For the sake of anonymity, we will call the cases Case A and Case B in this paper. Before we describe and compare the cases, we briefly outline our methodological approach in establishing communities in both cases.

3.1 Methodology

We took a participatory design approach in both cases to make sure we would be able to design the community of practice platform according to the needs of its users, who are mainly job counsellors, to help the emergence of a community of practice. In this approach, we tightly integrated users in the elicitation of requirements by observing and interviewing them, and by holding workshops with them and other stakeholders such as managers. We then presented prototypes to potential users and let them test the prototypes. During the runtime of the platform the community could interact on, we gathered user feedback and integrated it into the development of the platform. We chose this approach to lower barriers for the adoption of the platform, as we were told by the intermediaries, our contacts in the respective public administration (see 5.5), that their staff was often burdened with new tools that did not fit their needs or were poorly introduced to them.

Before we started to establish the community of practice platform, we needed to get familiar with the work context of employees in the two cases. For this, we conducted multiple half-day workshops to talk to participants about their expectations, ideas, and to gather requirements. We included the management in the workshops and talked to managers separately to gather requirements from their side, and ensure management approval. To get a better understanding of the work in public administration concerned with employment we conducted site observations in the first case we worked with. During the site observations, we visited the offices, took pictures of various work environments, and took part in encounters with job seekers. We conducted a short unstructured interview after each observation, asking whether unusual occurrences happened during our stay or whether something usual was missing. This combination of workshops and observations provided us with deep insights into the daily work in the cases, into the communication behavior of counsellors, and into the challenges, they are facing.

We found that in both cases counsellors had to deal with similar challenges. As conditions on the labor market, legislation and politics were changing, so did the priorities communicated to them. It was their tasks to adjust from one priority (e.g. youth employment) to another (e.g. long-term unemployment). Moreover, counsellors faced a lot of (emotional) stress when dealing with difficult cases such as a job seeker having been on a sick leave for a long time or single mothers looking for jobs. It was also up to them to fit new jobs into old taxonomies, which is necessary to recommend job vacancies to job seekers. In addition, there are job seekers recommended to companies, who never fill a vacant job. When discussing these issues in workshops we quickly realized that there was a desire among counsellors to discuss these issues in groups and to try to learn how to better deal with them. The trouble was, however, that potential members of these groups were located in different offices of the organization and either did not know each other or could not meet up regularly.

Analyzing these insights, we suggested to implement a community approach to enable practitioners to exchange these issues and their practices in order to learn from each other. This was approved by the management of both organizations.

There are only very few sources to draw from when establishing communities in a public administration organization. From what we had found so far, however, we were aware of the fact that such organizations were likely to need a special approach, as they have special characteristics such as a strict hierarchy, bureaucratic structures and a very low priority on bottom-up processes. In order to investigate how we would be able to establish communities in such contexts, we started in Case A by creating a small group of ten users from different local areas and occupations, who tested our community platform. They were introduced to the platform in a workshop and used the platform. In another workshop later on, we collected feedback from participants to optimize various features on the platform. As this helped us to shape the approach and corresponding features, we skipped this phase in Case B.

To launch the platform, we held an introduction workshop in both cases. This workshop consisted of a short introduction of our project and the concepts of communities of practice highlighting the main benefits for the users. Following the workshop we had a hands-on session, in which participants could register on the platform and start discussing. We also asked participants to voice important topics they wanted to discuss on the platform in order to prepare interesting content for them. The users were encouraged to start using the platform immediately after the launch workshop.

After that, in both cases we established regular calls with the moderators of the respective community to discuss about further activities on the platform to help the organization grow the community into a size and maturity to be self-sustained, which has been also done by others [5, 8]. We acted as consultants of the moderators, providing ideas but not forcing any intervention.

During the runtime of the platform, we collected feedback from users. This was provided directly in a discussion board in the platform or reported by the moderators of the platform, who had been in contact with users. In Case A, we were also able to conduct short interviews with users, asking them about their impressions of the platform. Neutral translators accompanied us to signal interview partners that we were independent from the organization.

3.2 Case A

Case A was the first case we engaged in. The organization deals with employment of a small European country, and has around 900 employees. There is a workload of about 450 clients per counsellor on average, and up to 800 clients per counsellor in larger cities. Most clients are in contact with the counsellors personally and only a small fraction is using online-services.

When we started our work in Case A, both management and employees articulated support needs: Needs initially communicated by the management included the improvement of the organizational climate, strengthen internal communication, better transfer of innovation, and establishing a learning culture, as well as reduce unemployment. Employees perceived a poor flow of information, transfer of innovation and practices. They also stated that the speed of communication from bottom up was too slow, including communication between different offices, which was desired by counsellors as described above.

When asked about knowledge sharing practices, counsellors from Case A told us that they resort to calling colleagues they personally know in order to solve issues. Despite this practice, we were also told that this needs additional effort and that alternative ways to contact others such as group chats would be much appreciated. In smaller offices, counsellors sometimes did not find a partner knowledgeable or experienced enough to talk to about certain cases. Regular organization-wide face-to-face meetings were not possible regarding the workload of each counsellor. Thus, we were told that there were hardly any opportunities to meet each other personally and talk about experiences other than the often limited personal network. This is especially difficult for new employees, who are not able to resort back to a personal network of colleagues.

3.3 Case B

The organization in Case B is also concerned with employment in a European country and has around 120 offices throughout the country with around 1600 employees in total. We started our work with them about half a year after Case A. Similar to Case A, in Case B counsellors reported that they desired more horizontal communication to exchange experiences and practices. They expected that communication support in this area would facilitate the work of the employees. Management stated similar needs, mentioning concrete topics such as outreach to schools, in which this communication support would be needed to help counsellors establish good ways of creating this outreach together.

We found that maintaining and exchanging knowledge was important for the employees in Case B: Employees already had an internal online knowledge base at their disposal. However, we were also told that it was not well maintained and that many entries were already obsolete due to frequent legal changes and changes in the labor market. We were told that they liked the idea of this internal knowledge base, but needed ways to ensure up to date information. In addition, they also wished for bottom-up participation in processes of the organization, such as e.g. participation in the development of local labor market programs, which were at that time developed centrally and top-down.

3.4 Challenges in the Cases

From the descriptions of both cases, it becomes clear that the initial situation and the needs articulated resemble each other: There is a desire to improve horizontal communication and to help counsellors to learn from their experiences. This is hard to accomplish, as in both organizations those that could learn from each other often work in different locations.

This situation is common in public administration organizations, in which employees often show a degree of specialization to provide good service to the public. In the example of employment services as in our two cases, there are people in the organization who specialize in areas such as working with young people or long-term unemployed. While in larger places and offices there may be multiple people sharing this special knowledge, smaller offices have only one or a few people per specialty located in the same building. This creates a difficult environment for specialists to exchange experiences with each other. Allowing staff from different locations to engage in face-to-face experience exchanges and discussions is time-consuming and costly, as staff would need to travel for this. This turned out as not feasible in both organization, as management feared that too much time would pass not working with clients. Therefore, in both cases we found that the best chance for people to discuss issues and experiences at work were their immediate colleagues in the same unit or floor. If colleagues in the same unit or floor were not available for discussions or help, people resorted to contacting others in their personal network via phone or email. The personal network often consisted of people they had met in earlier training activities. An opportunity or infrastructure for open discussions was either missing or did not fit the needs (in Case A an instant messaging tools was available, but was not

perceived as valuable and was not introduced to everybody properly).

Both organizations reported that they often deal with legal changes and changes in the labor market itself, forcing the organization and their employees to constantly learn and adapt to new situations. Furthermore, we learned in workshops that the role of counsellors is also shifting from informing clients about job offers to enabling clients to search and apply for job vacancies themselves.

The situation we found in cases A and B is well in line with situations in public administration described in the literature (as described above) and our previous work with public administration units [31]. Therefore, we may assume that even if our cases are based on public employment services they may be generalized to other areas of public administration as well.

3.5 The Community of Practice Platform

We build a modular community of practice platform, which allows the organizations to enable or disable features based on their need.

Different job roles or interest groups in the organization can create their own discussion boards on the platform, to allow for specialized discussions. Those discussion boards can have different visibility and access settings: public (visible, everybody can join), private (visible, request membership or invite), hidden (not visible, membership on invite). This way users have a fine-grained control over whom they want to discuss with and certain job roles (e.g. trainers) can have a private discussion board to plan new training activities, which should not be public yet.

There is also a possibility for users to write anonymous posts, so that their identity is not disclosed to their peers. The information is still saved in case of inappropriate content, but this information is only accessible by IT administrators in rare special cases and not a control instrument for managers.

4   STATE OF THE COMMUNITIES

The community in Case A exists for a longer period, and thus it attracted more users so far (see Table 1). With 28 out of 63 topics written by moderators, the community is very moderator centric, and users seem to wait for moderators to supply content to engage with. The number of offices represented is in relation to the number of overall offices very high, which indicates a widespread interest.

The community in Case B has started more recently and has as such less members and fewer offices represented. The number of posts per week is higher than in Case A, which could be also due to the community being fresher. This community is less moderator centric (4 out of 19 topics are started by moderator), as moderators try to motivate users to post ideas, issues and experiences.

In both cases we have a smaller group of people who are active in writing contributions, which also fits other findings in literature [9, 21, 30]. In terms of thread length (see Table 1), we can see that in Case A authors receive on average a bit more

feedback, though the numbers are higher than the number we found in other studies (~3.8 replies per thread) [18, 20].

Table 1: Descriptive Statistics of community usage

	Case A	Case B
User development	18 (02/2016) - 150 (12/ 2016)	32 (10/2016) - 97 (12/2016)
#Offices represented out of #total offices	52 / 70	48 / 120
#Posts per week	3.6	9.5
#Unique users per week	9.8	14
Thread length if answer received	5.1	4.5
#Discussion boards	11 (2 hidden, 2 private)	7 (3 hidden, 1 private)

Currently there are 11 different discussion boards in Case A with two hidden discussion boards and two private discussion boards (see Table 1). Discussion boards have between 1 and 44 members and varying activity. The more active discussion boards have focuses like long-term or youth unemployment.

Currently there are seven discussion boards in Case B (see Table 1), with three hidden and one private discussion boards. The private discussion board is discussing topics concerning career guidance. Another active discussion board contains discussions about time management. The three hidden discussion boards are less active and have around 4-14 members. As hidden discussion boards are only joinable upon invite, it is presumably harder to start a successful discussion board, as the person who started the board needs to invite and inform everybody required.

5   ANALYSIS

In this section, we report and compare our findings while establishing communities of practice in the two cases. We focus on commonalities between the cases that we can attribute to the context of public administration as well as on differences between the cases that may help to understand how to establish communities in this context. We then relate our findings to the current state of literature and comment on them.

5.1   Organizational culture: Communication, Hierarchies, and Individualistic Work

In Case A, we reported about a heterogeneous team communication structure, as some had access to regular meetings and others did not. To exchange experiences and to talk about issues, those counsellors told us that they met in the coffee kitchen or in the hallway, or talked to their personal network over the phone or email. In their current communication habit, counsellors prefer to use their personal network (counsellors they know from e.g. training sessions) to obtain quick answers to questions they have. For staff it is difficult to engage in open peer exchange beyond the borders of their current unit or their office.

We found in Case A that the units working with clients and the units working with employers had no real structure facilitating the communication between both job roles. However, both counsellors of both job roles expressed the need for

communication as the units working with employers were often looking for fitting job seekers but could not really talk in a structured manner with the other group. We observed that the units working with job seekers purposefully 'misused' a field in their job seeker database which was also visible to the other group. This way, both groups found a way to communicate to each other circumventing other means of communication like telephone. It has also been observed, that users change the way the technology is intended to be used on purpose in order to fit their interest or requirements [28].

Case B has a similar setup with a central office and other regional offices throughout the country. In this case, the organization has established a training center with an online platform, offering various training opportunities for counsellors to take part in. This training platform already contains a discussion forum, which (according to the counsellors) is used in some of the training opportunities. Counsellors did not perceive a conflict or redundant overlap between both platforms.

When establishing a community of practice within an organization, one has to take into account the existing communication structures, behaviors of employees and existing informal networks of employees [38]. Establishing an online community of practice platform in an organization, which has offices throughout the country, allows counsellors to interact with each other in a different way (and in our two cases in a way, which has not existed before). Overall, the cases are similar in terms of communication culture.

In both cases, the communication culture has a flow of information from top to bottom as managers inform staff about goals and new guidelines. The opposite direction is less pronounced, as staff told us that there is no clear path for them to engage in bottom-up participation or discussions. Management in both cases did not actively support that kind of communication, but now support the community approach. We also did not observe a culture in which counsellors got feedback from their managers. Instead, counsellors referred to their colleagues to obtain help.

Currently the work is highly individualistic for job counsellors, as staff is working mostly with clients and less collaboratively. Due to the nature of the client appointments, staff is mostly exchanging experiences and talking about issues after the respective case and not during the case. As a starting point to change this culture, we connected counsellors from different offices to enable an easy opportunity for peer-exchange.

5.2 Dealing with anonymous content

It is a common area of discussion whether to allow anonymous content creation on community platforms and similar tools. It should be noted and was communicated in both cases explicitly, that there is a feature providing anonymity for a user in the platform but still allows the organization to identify originators of inappropriate content (in cases of violating rules).

In Case A, anonymous content creation was not desired, as management was concerned about critical voices from employees, and as they feared staff could use the platform to disrespectfully talk about people or the organization. Management decided to not

allow anonymous contributions. We often received requests for these features in user feedback, as user knew it from other platforms on the internet. As a result, we compromised between open bottom-up discussions, and having a strict set of rules for communication encouraged behavior, which has been also done by others [2].

In Case B users also requested anonymous content creation and management agreed, following our explanations about its positive aspects. Until today, less than 5% of the contributions were written anonymously, and there were no inappropriate contributions.

In both cases, there was a demand among potential users for anonymous content creation. This is often perceived by organizations as a conflict to their interest, which is to maintain a certain degree of control. From literature we know that there are arguments for and against anonymous content: Studies found that disabling anonymous contributions can lead to a decrease of negative posts, but also to a decrease of the overall number of posts [19]. Other studies revealed that participants felt safer when voicing new ideas anonymously [14], that anonymity increased the perceived safety and comfort while posting [13]. Recent studies found that anonymous answers in online forums reduce the received feedback [29], and that anonymous comments might be less credible due to said anonymity [32]. While none of these studies were conducted in public administrations, they show that anonymity is not likely to create harm, and that it increases perceived safety and comfort. The latter are especially important in the context of public administration, in which it is not common to raise critical voices or question existing procedures.

Concluding from these insights, we recommended to allow anonymous contributions in both cases, arguing that they may create participation in contexts such as public administration while adding only low risk. However, in Case A management decided against it, while in Case B anonymous content was allowed.

5.3 Management Involvement

Launching and establishing a community of practice platform in an organization needs approval by the management, allowing participants to devote resources (time) to it. In our cases, we found differences in the involvement of and support by management.

In Case A, the management was reluctant towards the idea of using a community of practice approach to improve communication and support learning. They allowed their staff to use the community of practice platform when they have time to engage with it, but management did neither engage personally in planning or using the platform nor did they take extra steps to help staff make time for it. Additionally, managers wanted a high degree of control over what users would be discussing on the platform, which led to the creation of a lengthy rules section specifying e.g. which tone would be appropriate in the platform. This resulted in a tradeoff between an open emergence of a community of practice and retaining control over what happens. The need for control in top-down organizations can be a barrier for knowledge sharing [1]. It is, however, not surprising as also other researchers have noted that public administration

organizations can be reluctant to adopt new technologies [11]. We learned in Case A that users had experienced a lot of tools which were hardly usable or poorly introduced, which created an atmosphere of reluctance towards new ICT systems.

The management in Case B was more open towards a community approach and a corresponding community of practice platform. One of the reasons for these differences might also be the fact, that we could refer to our experiences in the Case A as the software has already been developed and tested, and we already have lessons learned from the first case through the preliminary evaluation results. Our intermediaries had more room for decisions as management did not involve themselves strongly. Management in Case B came prepared to the workshops and openly discussed their ideas with us. They embraced the idea of open discussions between various units of the organization and suggested different groups to us, eager to get our feedback. They also convinced us to start the community with a different group than we one we had envisioned.

As informal learning from communities of practice is not immediately helping to get more job seekers into work, and at first glance, it is preventing employees from helping clients, as they need to invest time into it [10], which is hard to put into relation to the results of the learning activities [6].

5.4 Individual willingness to share and participate

Supporting a community of practice in an organization is not only dependent on the readiness and willingness of the organization to commit to this, but also depends on the individual readiness and willingness to contribute to a community.

In Case A, we found that participants are overly relying on moderators to provide content, which they in turn answer or comment on. However, users were at first very reluctant to create new discussions of their own. During our interviews, we got the feedback that some of our interview partners took a lot of time to write a comment or did not comment, as they feared that others would judge them. As mentioned before one cannot assemble a group of people and name them a community to create a community [34]. Users need to take ownership of both the platform and the community and their contributions itself [38].

The observed need in Case A to write thorough posts might be attributed to participants not trusting each other fully. This is linked to the fear of being judged expressed by some counsellors. We do not expect that the knowledge-is-power aspect is very pronounced in our cases, as counsellors are not in direct competition to each other. While offices are compared to each other, this is (according to workshop participants) not relevant for salary or annual bonuses.

In Case B, we see that more posts are written by users (see section 4), which might indicate that the members of the community are more open to actively engage in the community.

5.5 Role of an Intermediary

Both organizations were represented in the project through intermediaries. Those intermediaries worked to let the organization benefit from the results of the research project and to give the project access to the organization to conduct the research. In this study, the intermediaries helped us to obtain management approval and helped to set up the community platform initially, and then assisted with initial workshops and inviting staff, and with long-term support of the community.

In Case A, our two intermediaries were part of the central administration unit, thus not counsellors. As their unit has a somewhat negative reputation amongst the other offices, both intermediaries made a point of not participating in the initial workshops, to signal participants that they can talk freely without having the feeling that their administration is monitoring their statements. One of the intermediaries took the time to read community of practice literature to get to know the topic.

Since management in Case A was skeptical about an open community of practice platform, our intermediaries insisted upon rules for communication for the launch of the platform. As a result, there is a rules text on the platform that users have to engage in a respectful tone with each other etc. This is a compromise between letting a community openly emerge and a need for regulation.

In Case B, our two intermediaries were part of the project management units in a central office. In both cases, we had weekly calls with the moderators in order to discuss potential interventions to help the organization grow the community into a size and maturity to be self-sustained (see also by others [5, 8]).

The role of the intermediary is the one of a gatekeeper between the ones who want to found a community of practice and need resources (money, time) for this and the management in the organization who are deciding upon spending the resources. The intermediary needs to work towards finding a neutral lead user who is accepted by the members of the community.

5.6 Role of a Moderator

In Case A, the intermediaries moved on to become moderators in the community, helping to provide initial content for users to interact with. As can be seen in section 4 the community seems to be focused on these moderators and their content, with moderators providing nearly all initial discussion topics and users seemingly waiting to react to them. This may be attributed to the fact that both intermediaries are working at the central administration offices and counsellors might have had the impression that the content on the platform is controlled or at least guided by them.

Additionally, in Case A, we engaged in long discussions on the expectations of Case A representatives of roles in the community, i.e. whether to differentiate between a moderator in control of all actions, a moderator to facilitate and push discussions and lead users to facilitate discussions. As communities thrive on voluntary contributions [12], we arrived at a situation in which one person took charge of the whole platform, while leaving control and moderation in each discussion board to members.

In Case B, when launching the community platform, we were able to recruit one of the participants of the initial workshop to become a moderator of the community. This person then helped to recruit user and stimulate discussions. Feedback provided by the moderator suggests that this strategy was successful, as the moderator directly approached colleagues and launched topics, which both resulted in user activity. As can be seen from section 4, this seems to have been beneficial for the participation, as the relation between the number of topics initiated by moderators compared to the number of topics initiated by users is much more on the user side in Case B than in Case A.

Moderators in a community of practice can help evolve the community, help to guide users both in orientation or with technical issues, and also help stimulating conversations by generating input or asking questions [12]. Studies have shown that it is beneficial to select a known person as an moderator or leader [9], to signal users what the community stands for. Leaders of the community can also help communicate issues with management or settle issues within the community [30].

From the differences in the moderator role, we can conclude that recruiting a moderator from the group of potential community members helped to better initialize and sustain the community in Case B. Especially in the circumstances of public administration bodies this may be a way to overcome the individual reluctance of people to engage actively in communities.

5.7 Time patterns of usage

We found also difference in the usage patterns in both cases. In both cases, the platform is available from the Intranet.

In Case A, counsellors have scheduled appointments with clients during the week, except on Thursdays. That day is reserved for internal meetings or other activities like trainings. We found that on Thursdays there is almost twice as much activity on the platform as on Monday, Tuesdays and Fridays. On Wednesday, the activity is 50% higher than on the other three days. Due to the strict appointments for counselling sessions, it seems that Wednesdays is a bit more relaxed, and that on Thursdays counsellors are able to find time for activity on the community platform. This heavy focus on Thursday can be attributed on the one hand to management not actively supporting the platform, as currently counsellors are allowed to use the platform, but the organization did not specifically create opportunities to use it during the week, as this would mean cancelling counselling time slots. On the other hand, it can be attributed to the culture that users only can do non-counselling activities on Thursdays, which might hinder users to participate in the community of practice.

In Case B we see a different picture, as there is no specific day on which there are no clients. From Tuesday to Thursday we have equal activity, with Friday approximately 20% more activity, and on Monday approximately 20% less activity. One interpretation is, that towards the weekend counsellors take a bit more time to be active on the community platform, but on Monday, they tend to focus more on their work.

6 DISCUSSION

In our analysis, we identified several different aspects for organizational and individual readiness, which can be used by others to assess whether an organization is ready to support and facilitate the emergence of bottom-up communities of practice.

6.1 Factors affecting support of communities in public administration

Before and during the implementation of the communities in cases A and B, we found many aspects in both cases, which are typical for public administrations and which affected the implementation process. Given that these factors were present in similar ways in both organizations, they may be used to characterize the design space of establishing communities in public administration.

When implementing bottom-up, self-regulated communication as in communities in public administrations, one has to be aware of the fact that these organizations are strictly hierarchical with strict division of responsibilities, that they do not often have a bottom-up culture, and that there is not much cooperative work between employees. Therefore, even if there is a desire for new means of communication, steps need to be taken to overcome this gap. Combining otherwise free interaction in communities with a set of rules for appropriate behavior may be one of these steps, and composing groups that can easily start cooperating and therefore see the value of adapting to the new way of communication can be another. While these are two of the steps we took successfully, there may be other steps in other cases. Being prepared for this gap, however, is crucial.

Another important factor to consider in establishing a community lies in the support of the intermediary. These persons need to be either knowledgeable about the topic community of practice or listen to consultancy on it, which is difficult to find in a setting in which there is no culture for cooperation like in communities. Such intermediaries (as present in cases A and B) will help to support the community by providing contextual knowledge about the organization and convincing others (often management) to support the community. We therefore suggest to identify and recruit these intermediaries early on.

Another aspect to consider is the individual willingness to participate, which can be low in public administrations due to the factors mentioned above. Facing an organizational climate in which users are not likely to share problems and issues openly suggests that open discussions in communities will take time to occur. Features to allow anonymous contributions or moderation (section 5.6) may help mediate this (see 5.2).

While this list of factors regarding the communities in public administration is not exhaustive, it provides important factors to be taken into account when starting processes similar to the ones described in this paper, and we believe that taking them on board will ease these processes.

6.2 (When) Is a public administration organization ready for communities? Towards readiness indicators

Despite similar aspects that may guide the implementation of communities in public administrations, we also found differences between our cases. Some of those can be used to explain the different developments of community activity in our cases and may therefore point to characteristics of an organization that provide information about the readiness for communities. While these factors do not predict success or failure of communities, they can help to assess situations as described in the paper before and during the process of implementing communities, and to take respective measures as early as possible. Below we derive what we believe can be *readiness indicators* for the establishment of communities in public administration organizations.

One common factor that is also mentioned by many other scholars is the degree of management involvement. It is well-known that organizations need to be willing to allow bottom-up discussions and support their staff engaging in it [7]. While we found differences in this aspect, we also found differences in the involvement of management: In Case A we experienced reluctance and little commitment towards the success of a community approach as well as a desire to control activity on the platform. In contrast, in Case B management took a strong interest in the approach and was willing to actively discuss and shape the community (rather than controlling it). Where management in Case A was just informed and took decisions, management in Case B chose a path of active involvement. We see the degree of willingness to actively deal with the topic of communities and a desire to help to shape the community indicators for management support and the readiness of the organization for a community approach. This can also be connected to willingness of change, as allowing staff to openly engage in discussion groups leads is related to providing members of the community with control over information flows and discussions [1]. *We therefore hypothesize that the more active and informed management involvement in the implementation of a community is in public administration organizations, the better activity will develop.*

The time patterns we found also indicate the readiness for communities: It is easy to see that a community will need more time for adoption if users mainly have time to engage in it on one single day as in Case A compared to a situation in which users engage in interaction throughout the week, thus exchanging thoughts continuously. In terms of a readiness indicator it is an important aspect that staff is allowed and encouraged to spend time on the community of practice platform in order to learn from each other [22]. *We therefore hypothesize that if staff is not allowed or feels that they cannot or should not spend their time learning from others in a community, it will result in a slow development of a community.*

Potential measurements for this factor may include the amount of time management is present in meetings and trainings on the community, or the amount of suggestions management poses for the community (as in Case B, suggesting an initial target group).

The time patterns we found also indicate the readiness for communities: A community will likely need more time for larger adoption if users are basically limited to using it on one single day

as in Case A compared to a situation in which users seem to have the full week to engage in interaction, thus exchanging thoughts continuously. In terms of a readiness indicator it is an important aspect that staff is allowed and encouraged to spend time on the community of practice platform in order to learn from each other [22]. *We therefore hypothesize that if staff is not allowed or feels that they cannot or should not spend their time learning from others in a community will result in a slow development of a community.* Potential measurements of this factor include the distribution of time users spend using a community support tool over the week.

Another influential factor that differed between the cases was the origin and motivation of the community moderator(s). In Case A moderation was taken over by persons from the central administration, which created some distance among users, and in Case B the moderator was recruited from the initial members of the community. Feedback from this moderator and the differences in the development of the communities in the cases suggest that the internal role of the moderator was decisive, while moderators who are working in central units can signal that the community of practice is more of a management tool trying to control workers rather than an opportunity to staff for experience exchange. We therefore take the ability to recruit a moderator from the group of community members as another indicator for readiness, *hypothesizing that this will boost activity in the community.* Potential measures of this factor may include the ratio between moderators from the larger user group to moderators from central units, or the number of moderators from the former group.

Some seemingly minor decisions taken in the course of implementing a community may be taken as another indicator: In our cases, the organizations took different decisions regarding anonymous content, with Case A taking a more conservative route in not allowing anonymity and Case B being more open towards its advantages and our arguments. This decision stands proxy for other decisions taken in the process and is mirrored in the management involvement discussed above. Therefore, we suggest to use the openness, understanding and awareness of management towards anonymous contributions and reasons to allow it as a signal for openness towards community approaches and the willingness to enable employees to engage in community learning despite the risk of allowing criticism and different opinions. *We hypothesize that the more open management is towards this decision, the better the chances are for the community to emerge.* As potential measurements, we may list features such as anonymous posting and other typical features for community platforms, and count the number of features excluded or included during the phase of preparing support for the community.

We are aware of the fact that these factors may also be present in other organizations and may be indicative for the course of the community implementation in these cases. However, the indicators mentioned above can be closely connected to typical characteristics of public administrations and therefore provide an initial set of indicators for this domain.

We also do not mean to provide an exhaustive list of all possible influences. We rather present the indicators as a set of influences, which we identified to be very important in our two

case studies and similar cases. Additionally, it is not guaranteed if all aspects of our readiness indicator indicate positive values that the community of practice is then emerging and succeeding. Rather than that, our indicators may help to assess the agility of change towards bottom-up communication in communities and similar approaches within a public administration. Further studies need to be conducted to analyze whether these readiness indicators are also applicable in other cases.

7 CONCLUSIONS

This paper presents the analysis of two case studies of community of practice implementation in a public administration. We analyzed both case studies with a lens of organizational and individual readiness for open bottom up discussion. The contributions of this paper are twofold: We present an analysis of different cultural and organizational aspects influencing the emergence of a community of practice in public administration organizations, and we present initial factors acting as readiness indicators for this process. Both may help organizations, researchers and others launching a community of practice in that they gauge the issues that might arise during the implementation. Researchers and organizations might may also use them better anticipate which areas require a more intense preparation before a community of practice can emerge. We understand the insights presented here and our results as an initial step towards supporting community interaction in public administration and as ground others may grow on.

8 ACKNOWLEDGMENTS

REFERENCES

[1]   Ardichvili, A., Maurer, M., Li, W., Wentling, T. and Stuedemann, R. 2006. Cultural influences on knowledge sharing through online communities of practice. *Journal of Knowledge Management.* 10, 1 (Jan. 2006), 94–107.

[2]   Ardichvili, A., Page, V. and Wentling, T. 2003. Motivation and barriers to participation in virtual knowledge-sharing communities of practice. *Journal of Knowledge Management.* 7, 1 (Mar. 2003), 64–77.

[3]   Argyris, C. and Schön, D.A. 1996. *Organizational learning II : theory, method, and practice.* Addison-Wesley.

[4]   Bandura, A. 1993. Perceived Self-Efficacy in Cognitive Development and Functioning. *Educational Psychologist.* 28, 2 (1993), 117–148.

[5]   Barab, S.A., Barnett, M. and Squire, K. 2002. Developing an Empirical Account of a Community of Practice: Characterizing the Essential Tensions. *Journal of the Learning Sciences.* 11, 4 (Oct. 2002), 489–542.

[6]   Bassi, L.J., Ludwig, J. and Mcmurrer, D.P. *Profiting from Learning: Firm-Level Effects of Training Investments and Market Implications.*

[7]   Billett, S. 2001. Learning through work: workplace affordances and individual engagement. *Journal of Workplace Learning.* 13, 5 (Sep. 2001), 209–214.

[8]   Borzillo, S., Aznar, S. and Schmitt, A. 2011. A journey through communities of practice: How and why members move from the periphery to the core. *European Management Journal.* 29, 1 (Feb. 2011), 25–42.

[9]   Callahan, S. 2004. Cultivating a Public Sector Knowledge Management Community of Practice. *http://services.igi-global.com/resolvedoi/ resolve.aspx?doi=10.4018/978-1-59140-200-8.ch022.* (2004), 267–281.

[10] Eraut, M. 2004. Informal learning in the workplace. *Studies in Continuing Education.* 26, 2 (2004), 247–273.

[11] Gambarotto, F. and Cammozzo, A. 2010. Dreams of silence: Employee voice and innovation in a public sector community of practice. *Innovation.* 12, 2 (Aug. 2010), 166–179.

[12] Gray, B. 2004. Informal Learning in an Online Community of Practice. *Journal of Distance Education.* 19, 1 (2004), 20–35.

[13] Hoadley, C.M. 2004. Methodological Alignment in Design-Based Research. *Educational Psychologist.* 39, 4 (Dec. 2004), 203–212.

[14] Hsi, S. and Hoadley, C.M. 1997. Productive Discussion in Science: Gender Equity Through Electronic Discourse. *Journal of Science Education and Technology.* 6, 1 (Mar. 1997), 23–36.

[15] Huysman, M. and Wulf, V. 2006. IT to support knowledge sharing in communities, towards a social capital analysis. *Journal of information technology.* 21, 1 (2006), 40–51.

[16] Introne, J., Semaan, B. and Goggins, S. 2016. A Sociotechnical Mechanism for Online Support Provision. *Proceedings of the 2016 CHI Conference on Human Factors in Computing Systems* (New York, NY, USA, 2016), 3559–3571.

[17] Johnson, C.M. 2001. A survey of current research on online communities of practice. *The Internet and Higher Education.* 4, 1 (st 2001), 45–60.

[18] Jones, M.C. and Churchill, E.F. 2009. Conversations in Developer Communities: A Preliminary Analysis of the Yahoo! Pipes Community. *Proceedings of the Fourth International Conference on Communities and Technologies* (New York, NY, USA, 2009), 195–204.

[19] Kilner, P.G. and Hoadley, C.M. 2005. Anonymity Options and Professional Participation in an Online Community of Practice. *Proceedings of th 2005 Conference on Computer Support for Collaborative Learning: Learning 2005: The Next 10 Years!* (Taipei, Taiwan, 2005), 272–280.

[20] Kimmerle, J., Bientzle, M. and Cress, U. 2014. Personal Experiences and Emotionality in Health-Related Knowledge Exchange in Internet Forums: A Randomized Controlled Field Experiment Comparing Responses to Facts Vs Personal Experiences. *Journal of Medical Internet Research.* 16, 12 (Dec. 2014), e277.

[21] Lave, J. and Wenger, E. 1991. *Situated learning: Legitimate periphereal participation.* Cambridge University Press.

[22] Lesser, E.L. and Storck, J. 2001. Communities of practice and organizational performance. *IBM Systems Journal.* 40, 4 (2001), 831–841.

[23] Lindgren, I. and Jansson, G. 2013. Electronic services in the public sector: A conceptual framework. *Government Information Quarterly.* 30, 2 (Apr. 2013), 163–172.

[24] Lisewski, B. 2004. Implementing a Learning Technology Strategy: Top-Down Strategy Meets Bottom-Up Culture. *ALT-J: Research in Learning Technology.* 12, 2 (Jun. 2004), 175–188.

[25] MacDonald, R.J. 2008. Professional Development for Information Communication Technology Integration. *Journal of Research on Technology in Education.* 40, 4 (Jun. 2008), 429–445.

[26] Nonaka, I. and Takeuchi, H. 1991. The Knowledge Creating Company. *Harvard Business Review.* 69, 6 (1991), 96–104.

[27] Nyhan, R.C. 2000. Changing the Paradigm: Trust and its Role in Public Sector Organizations. *The American Review of Public Administration.* 30, 1 (Mar. 2000), 87–109.

[28] Orlikowski, W.J. 2008. Using Technology and Constituting Structures: A Practice Lens for Studying Technology in Organizations. *Resources, Co-Evolution and Artifacts.* Springer London. 255–305.

[29] Paskuda, M. and Lewkowicz, M. 2015. Anonymous Quorans Are Still Quorans, Just Anonymous. *Proceedings of the 7th International Conference on Communities and Technologies* (New York, NY, USA, 2015), 9–18.

[30] Preece, J. and Shneiderman, B. 2009. The Reader-to-Leader Framework: Motivating Technology-Mediated Social Participation. *AIS Transactions on Human-Computer Interaction.* 1, 1 (Mar. 2009), 13–32.

[31] Prilla, M. 2015. Supporting Collaborative Reflection at Work: A socio-technical Analysis. *AIS Transactions of Human-Computer Interaction.* .

[32] Rains, S.A. 2007. The Impact of Anonymity on Perceptions of Source Credibility and Influence in Computer-Mediated Group Communication: A Test of Two Competing Hypotheses. *Communication Research.* 34, 1 (Feb. 2007), 100–125.

[33] Sminia, H. and Nistelrooij, A.V. 2006. Strategic management and organization development: Planned change in a public sector organization. *Journal of Change Management.* 6, 1 (Mar. 2006), 99–113.

[34] Thompson, M. 2005. Structural and Epistemic Parameters in Communities of Practice. *Organization Science.* 16, 2 (2005), 151–164.

[35] Titi Amayah, A. 2013. Determinants of knowledge sharing in a public sector organization. *Journal of Knowledge Management.* 17, 3 (May 2013), 454–471.

[36] Wasko, M.M. and Faraj, S. 2005. Why Should I Share? Examining Social Capital and Knowledge Contribution in Electronic Networks of Practice. *MIS Quarterly.* 29, 1 (2005), 35–57.

[37] Wenger, E. 1998. *Communities of Practice: Learning, Meaning, and Identity.* Cambridge University Press.

[38] Wenger, E., McDermott, R.A. and Snyder, W. 2002. *Cultivating Communities of Practice: A Guide to Managing Knowledge.* Harvard Business School Press.