

Governance of nonprofit platforms – Onboarding mechanisms for a refugee information platform

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ABSTRACT²

The number of refugees arriving in Europe has increased dramatically in 2015. While governments, initiatives, and volunteers have invested substantial effort into supporting refugees, an information deficit impedes the efficacy of this collaboration. Information platforms are used to tackle this information deficit. However, the onboarding process of information providers is a critical challenge for the platforms' overall success. On the basis of observations, interviews with information providers and user experience tests, we drafted a case study describing the governance strategies applied to establish a sustainable onboarding of information providers on a nonprofit information platform for refugees. Contributing to recent literature on platform governance, our results show that governance mechanisms are implemented differently for nonprofit platform ecosystems than for commercial platform ecosystems. Building on our results, we provide practical implications by deriving a platform governance strategy that supports a sustainable onboarding of information providers.

Keywords: Platform, Platform governance, Nonprofit platform, Refugees, Onboarding, Non-governmental organization, Mobile application, Information technology

INTRODUCTION

In the year 2015, the EU recorded over 1.3 million asylum applications which is twice the level recorded in 2014 and the highest number of applications since the start of the EU-wide data

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collection (European Asylum Support Office, 2015). As refugees are forced to flee from direct threats, there are several basic necessities, such as medical care, food, shelter and adequate clothing, which need to be fulfilled upon arrival by the hosting countries. The medium and long-term integration of refugees goes way beyond those basic needs. Especially socio-cultural issues, the collaboration with their accommodating communities and overcoming language barriers are important aspects of integration (Strang & Ager, 2010).

For all these reasons, it is indispensable to provide refugees with the relevant information (Qayyum, Thompson, Kennan, & Lloyd, 2015), for example how to make demands on medical care, how to proceed in the asylum process, how and where to participate in language courses or how to engage in activities with locals. Unfortunately, the relevant information for refugees is heterogeneously distributed among a large number of different sources. Various government agencies, non-governmental organizations (NGOs), local initiatives and volunteers uncoordinatedly provide parts of the relevant information. As a result, it is difficult for refugees to quickly find the information they need.

IT can help to overcome this information deficit by presenting context-specific information at the right time, the right way (McKinney & Yoos, 2016). Furthermore, studies have shown that IT can help to promote social inclusion by allowing them to participate in an information society, to communicate effectively through language barriers and to better grasp on how the society works (Andrade & Doolin, 2016; Caidi, Allard, & Quirke, 2010). To accelerate the inclusion of refugees, numerous hackathons have been organized in the course of the refugee crisis across Europe and beyond (Techfugees, 2016) yielding a rich variety of digital solutions. However, these solutions to date do not solve the information deficit of refugees sufficiently, as they were mostly prototype-like tools containing exemplary information only.

Given the challenge of diverse information sources that vary from municipality to municipality, a monolithic information system cannot meet the requirements. Instead, an IT-enabled platform design can help to integrate information from various data sources tackling the need for municipality specific information (Gawer, 2014). A platform can be seen as an ecosystem, where information is shared and distributed wherever it is needed. Stakeholders can act as information providers and range from municipality authorities over community-based language schools to companies looking for new employees. Similar to digital platforms like Facebook or the Apple

App-Store, this ecosystem needs to be governed towards a strategic goal. However, existing insights on the governance of commercial digital platforms may not be applicable to a nonprofit platform ecosystem. In commercial platform ecosystems, the platform owner implements governance mechanisms to manage co-creation of value in a way that he captures as much of the generated value as possible (Gawer & Cusumano, 2008). In order to tackle the chicken & egg problem (Caillaud & Jullien, 2003), of getting complementors and end-users on the platform, the concept of marquee users (Rochet & Tirole, 2003) is applied to incentivize the complementor. In nonprofit platform ecosystems, governance is applied to increase the societal impact of the co-created value and the platform as a whole. Therefore, the underlying strategic goal cannot be reached by incentivizing the information providers monetarily but by engaging them morally in a societal context. In this situation, the application of platform governance has, to our best knowledge, not yet been discussed.

To address this gap, we analyze the application of governance mechanisms for an information platform for refugees illustrated by a case study. The data was gathered within a nonprofit project dedicated to the implementation of an information platform for refugees. During the time of the case study, the platform has been used in several German municipalities. In addition to project observations, qualitative interviews on the information provider side, and user experience tests on the refugee side were conducted. This paper describes the development of a sustainable governance strategy with the goal of supporting onboarding of information providers and ensuring their motivation to sustainably contribute to the platform. In order to verify the outcomes of the strategy, we evaluated data on the platform usage. These results provide insights about how to set up a nonprofit platform governance with the goal of supporting sustainable onboarding of information providers.

GOVERNANCE MECHANISMS OF PLATFORMS

One of the main challenges for an information platform solution for refugees is providing the required, location-specific information. Therefore, information providers need to be able to collaborate and easily upload their information, in order to unfold societal impact. The information providers contribute to the overall platform success by co-creating value. In order to maximize the platform's impact, the process of co-creation needs to be governed towards non-monetary, societal goals. Enabling co-creation of value through platform ecosystems has been discussed in

literature along with different governance mechanisms. To get a better understanding of those mechanisms, this section deals with reviewing the literature on value co-creation through platform ecosystems. Finally, platform governance mechanisms are derived from literature and described to strengthen the understanding of what aspects influence the success of a platform.

Value Co-Creation through Platform Ecosystems

IS research has acknowledged the role of IT in enabling co-creation of value in the development and commercialization of technologies (Boudreau, 2010; Nambisan, 2013). In particular, digital platform ecosystems foster innovation, software development, or the provisioning of services. In a broad sense, platforms can be defined as “foundational products, services, or technologies upon which additional complementary products, services or technologies can be developed” (Gawer, 2009). If a platform is open to the outside (“external platform” compared to purely “internal platforms”), the additional complementary products, services or technologies are developed by third parties, as part of a value co-creation process. As a result, an ecosystem of complementors is created around the platform (Ghazawneh & Henfridsson, 2013). We understand platform ecosystems as “a set of actors functioning as a unit and interacting with a shared market for software and services, together with the relationships among them.” (Jansen, Brinkkemper, & Finkelstein, 2009).

The process of co-creation of value has been analyzed for a plethora of digital ecosystems. A large part of the literature discusses application platforms for handheld computing systems such as Google Android and Apple iOS (e.g. Benlian, Hilkert, & Hess, 2015; Eaton, 2015; Liu, Au, & Choi, 2014; Manner, Nienaber, Schermann, & Krcmar, 2012, 2013). Further cases cover gaming platforms such as PlayStation and Xbox (Lin, Li, & Whinston, 2011), e-commerce platforms such as Alibaba (Koh & Fichman, 2012) and digital content platforms such as YouTube or Amazon Kindle (Lusch & Nambisan, 2015). All these examples show how co-creation of value can enhance the success of commercial platforms. Meanwhile, co-creation of value through platform ecosystems has not yet been analyzed for social causes. While the role of IT to support nonprofit projects is receiving more and more attention in IS research (e.g. Andrade & Doolin, 2016; Qureshi, 2015; Selander & Jarvenpaa, 2016), the question on how digital platform ecosystems can advance social causes remains unanswered.

In the case of an information platform for refugees, municipalities, initiatives, and other information providers collaborate in an ecosystem, which enables co-creation of value, i.e. the provision of information on the platform.

Platform Governance

To establish successful platform ecosystems, not only the platform's architecture is decisive, but also the governance of the ecosystem that is surrounding the platform (Tiwana, Konsynski, & Bush, 2010). Platform governance can be defined as the "partitioning of decision-making authority between platform owners and app developers, control mechanisms, and pricing and pie-sharing structures" (Tiwana, 2014). While Tiwana's dimensions of platform governance are tailored to software application platforms, other authors identify additional aspects of platform governance by analyzing diverse types of digital platforms. To structure the aspects of platform governance discussed in the literature, we derive a set of governance mechanisms that include the dimensions suggested by Tiwana as well as additional mechanisms derived in former literature studies (Hein, Schreieck, Wiesche, & Krcmar, 2016; Schreieck, Wiesche, & Krcmar, 2016).

The first mechanism relates to the overall governance structure which can be decentralized or centralized (Nambisan, 2013). This refers to the partitioning of decision rights (Tiwana, 2014) and the ownership status of the platform. The second mechanism refers to accessibility and control of platform ecosystems. A platform ecosystem needs to be open to a certain degree (Eisenmann, Parker, & Van Alstyne, 2009; Ondrus, Gannamaneni, & Lyytinen, 2015) but openness needs to be accompanied by control mechanisms to avoid uncoordinated effort hindering co-creation of value (Ghazawneh & Henfridsson, 2013; Tiwana, 2014). Control mechanisms include formal control as in input and output control and informal control as in self and clan control (Goldbach & Benlian, 2015a). Trust forms the third mechanism, which relates to the measures of a platform ecosystem to enhance trust and reduce perceived risk (Hurni & Huber, 2014; Nambisan, 2013) on the complementor or user side. The fourth mechanism summarizes boundary resources, which represent all kinds of resources a platform provides for complementors (Eaton, 2015; Ghazawneh & Henfridsson, 2013). These may cover for example user guides, documentations on the platform, tools or APIs. In most platform ecosystems, the mechanism of pricing is relevant as an additional mechanism (Caillaud & Jullien, 2003; Tiwana, 2014). As the refugee information platform is a

voluntary project without any financial transactions mapped to the platform, we will not include this mechanism in our study.

The introduced governance mechanisms contribute to a better understanding on which aspects of governance are relevant for a project such as an information platform for refugees. However, it remains unclear how these mechanisms can be implemented in the context of nonprofit platform ecosystems. Existing recommendations as for example by Tiwana (2014) or Gawer and Cusumano (2013) are based on commercial platform ecosystems.

Nonprofit platform ecosystems differ from commercial platforms in several ways. While in commercial platforms, the platform owner can compensate complementors monetarily by governing pricing, this mechanism is not available in nonprofit platform ecosystems. Another aspect is the lacking legitimation of the platform owner to implement and coerce control. As a result, the platform owner may need other measures to maximize value creation within the platform ecosystem. The mechanism of trust might gain importance in nonprofit platform ecosystems as complementors invest effort voluntarily without expectations monetary benefits.

In summary, existing research helps to identify governance mechanisms relevant for nonprofit platform ecosystems but leaves open how those mechanisms can be implemented to support the onboarding of information providers in a successful governance strategy. We address this gap with the help of a case study that focuses on governing information providers within an information platform ecosystem.

RESEARCH DESIGN AND ANALYSIS

For the research design, we follow a single case research strategy (Yin, 1994). Given the research question of how a nonprofit platform governance strategy needs to be set-up to support onboarding of information providers, we propose a single case strategy due to the following reasons (Benbasat, Goldstein, & Mead, 1987):

First, it is important to observe the situation in its actual environment. One aspect of the crisis is its complexity of the heterogeneous distribution of information across several information providers and the need of refugees to get the exact information based on the community they are allocated to. Therefore the complexity cannot be reduced and the observation in its natural environment is needed (Eisenhardt & Graebner, 2007).

Second, the study focuses on contemporary events. While it is true, that the mere appearance of refugees is not a unique contemporary event, the sheer amount of refugees escaping from their home countries to Europe is. Therefore it can be clearly stated, that the extent of the refugees is a recent and unusual phenomenon (Yin, 1994).

The data for the case was gathered by interviews on the information provider side, through user experience experiments³ on the refugee side and observations during the deployment of the platform. The complexity aspects on the side of the information provider were considered by asking open questions addressing the needs of the respondents. On the other hand, project observations considered real environmental conditions like the displayed screen and possible changes in the platforms underlying governance mechanisms. We followed the principles of flexibility, nondirection, specificity and range (Flick, 2009) in order to maximize the value of the received information. Furthermore, we paid attention to neutrality and a nonjudgmental form of listening (Patton, 1990; Walsham, 1995). The user experience tests include feedback from refugees on the INTEGRATE app before and after a major usability rework. As a result, we created a narrative case description of a nonprofit platform for refugees.

INTEGRATE – AN INFORMATION PLATFORM FOR REFUGEES⁴

In this section, we first describe the initial problem that motivated researchers and practitioners to contribute to the project. We then provide an overview of the project and finally describe the case of the project INTEGRATE, which provides refugees with the information they need.

Information Deficit of Refugees as Central Challenge

The information deficit is a direct result of the complex information ecosystem that refugees face. As illustrated in Figure 1, refugees are dependent on information related to various topics that can be exemplarily clustered as information on first steps, points of contact, language, health care, education and work, family and daily life. Vis-à-vis these information needs, a large number of different information sources is available. Those sources can vary from the hosting municipality,

³ 65 test persons performed the evaluation, from which 49 were male and 16 female. All test persons could be grouped into one of the considered focus groups: 31 test persons with an Arabic background (47%), 14 test persons with an African background (23%), 20 test persons with a Western background (30%).

⁴ www.integrate-app.de

which supports refugees in their first steps in the asylum process, to local initiatives providing clothes and Wi-Fi to large NGOs, often collaborating with governmental institutions to offer language courses and health care. On top of the high heterogeneity in the information sources, the information is dynamic and in some cases quickly outdated. Additionally, local points of contact may add new offers, adjust existing information or update the asylum process according to legislative changes. Finally, refugees get relocated at least once after they have arrived in an initial reception facility, making parts of the information invalid.

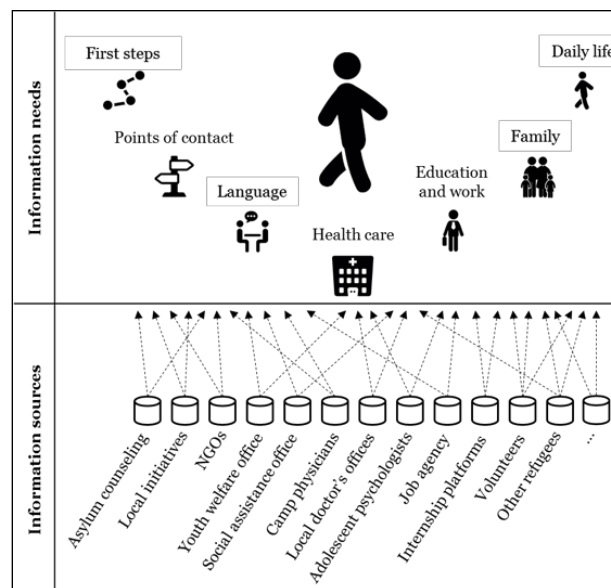


Figure 1: Heterogeneous Information Ecosystem for Refugees.⁵

Given the heterogeneity of information sources and the short half-life of information validity, a loose portfolio of brochures and flyers may not be the best way to aggregate information for refugees. Consequently, in 2015, several digital solutions have been developed to tackle the challenge of providing adequate information for refugees. However, existing approaches are not sufficient to overcome the refugees' information deficit. They provide only general information, which is helpful but limited as the lion's share of relevant information is location-specific. Local solutions are on the other hand more suitable but are only available in few municipalities. In response to this, the project INTEGRAT comprises a solution that addresses both: general and location-specific information in a scalable system that can be used by as many municipalities as

⁵ The categories of information needs and the information providers are shown exemplarily from a pilot project of the INTEGRAT platform in the municipality of Augsburg.

are willing to participate. Therefore, it is crucial to establish a sustainable onboarding process, capable of bringing information provider and refugees to the platform.

Project Description

INTEGREAT is a mobile application that provides relevant information for refugees via a smartphone application (Figure 2). Users choose the municipality according to their location. The application supports different languages, like English, French, German and languages of the refugees' major countries of origin, which are Arabic and Farsi. The mobile application was developed for Android, as the majority of refugees use smartphones with this operating system.

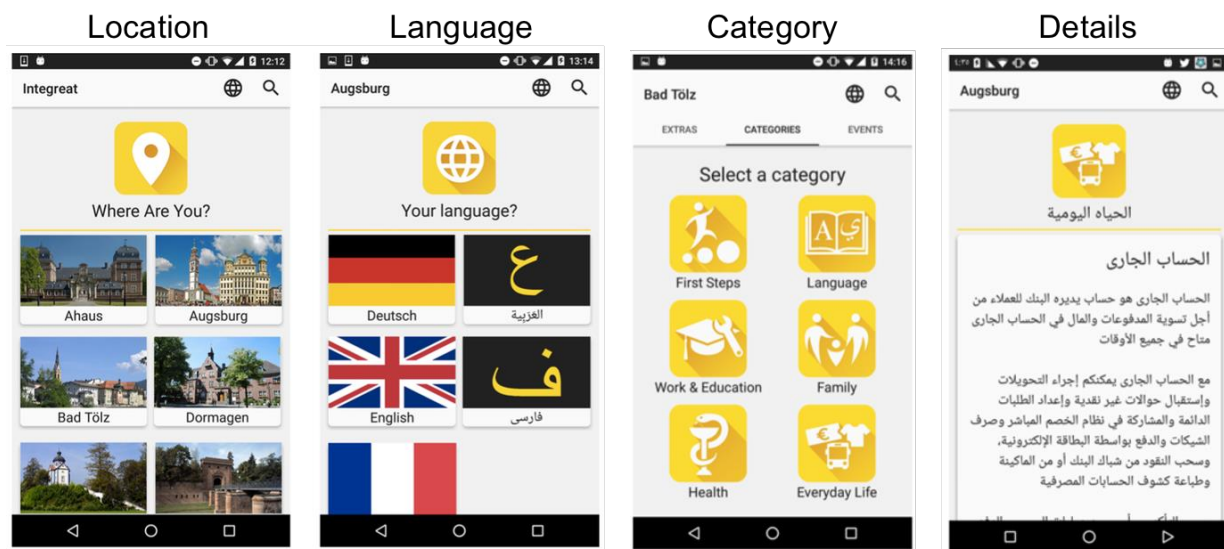


Figure 2: Main screens of the INTEGREAT app: location selection, language selection, category selection and detailed view.

The counterpart of the mobile application is a content management system (CMS) based on WordPress and is used by information providers to input the information that is subsequently displayed in the application. WordPress was chosen as it is the most successful free tool for websites and is therefore very likely to be developed and maintained in the future. Furthermore, WordPress enables the collaborative work on the information content, representing a computer-supported collaborative work (CSCW) system (Schwabe & Krcmar, 1996). As it can be flexibly enhanced with various plugins, ideas of information providers to improve the system can be considered.

A municipality that wants to use the system is granted access to a dedicated instance of the CMS. The instance is prefilled with general information that is common for all municipalities such as information on the asylum process. Users from the municipality can then decide to edit the

provided information and start to add specific information for their municipality. In summary, the project INTEGRATE provides a modular service architecture as a stable core that forms the basis of the information platform (Böhmman & Krcmar, 2006) (Figure 3).

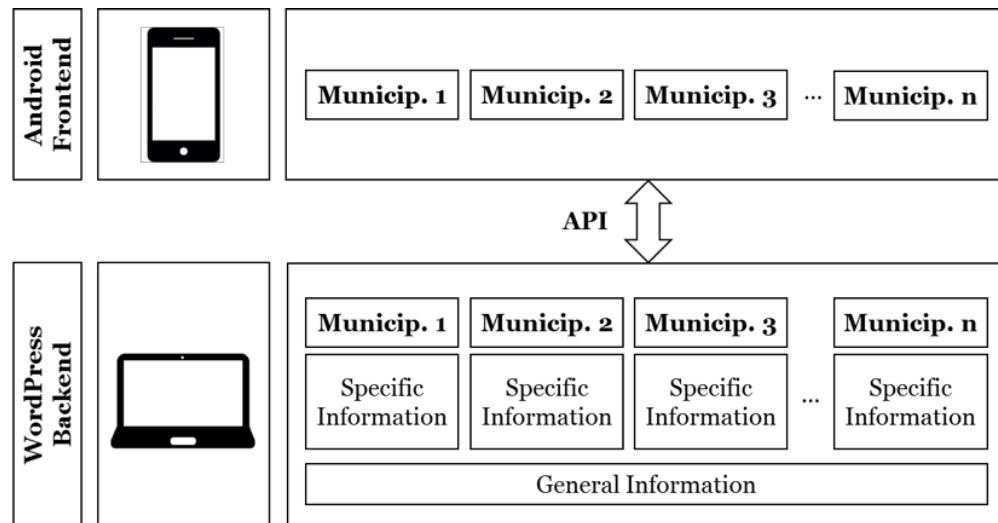


Figure 3: System architecture.

Due to the setup of the project as a platform, different information providers, and stakeholders interact with the project team and the system. These groups need to be considered when developing a governance strategy. Besides the core team and developers, municipalities, NGOs, local initiatives, and volunteers are the main information providers (see Figure 1).

Evolution of Platform Governance

The project started in October 2015, when the basic functionalities of INTEGRATE were implemented for the first municipality. After the start of INTEGRATE, many municipalities, and associated information providers were interested in the platform. INTEGRATE developed actions suited to govern the heterogeneous information providers to build a community of information providers. Across all governance mechanisms, actions were taken to support the integration of new municipalities in the ecosystem. The approach was inspired by existing research on community engineering such as the Community Platform Engineering Process (CoPEP) that has been applied in a platform ecosystem focused on cancer patients (Arnold, Leimeister, & Krcmar, 2003).

The governance structure had to be decentralized in order to incentivize volunteers and to cope with the decentralized information structure. New municipalities were given direct access to the system and the possibility to enter and structure information in their preferred way. Similarly, for

the mechanism accessibility & control, restrictions were minimized. Furthermore, the CMS was made as intuitive as possible, by reducing barriers for new members. To strengthen trust in the project and its sustainability, INTEGRATE partnered with an established initiative engaged in work with refugees and collaborated with a university. INTEGRATE distributed boundary resources via an individual counseling of information providers who wanted to use the platform. The evaluation of new municipalities on the platform showed that the governance strategy was efficient regarding the onboarding of information providers. In the first two months six respectively nine municipalities requested to roll out the system in their area and initiated the collection of information (Figure 4). However, the analysis of activity data on the CMS showed that after the first two months the activity level of information providers declined (Figure 5). Some municipalities lost their interest shortly after onboarding and others gathered most of the relevant information but did not manage to finalize it. Furthermore, a quality check of the information on the platform revealed an overflow of unstructured information in some topics, while others were not covered. As this unstructured information was, for some municipalities, visible in the application, this posed a threat to the project's reputation.

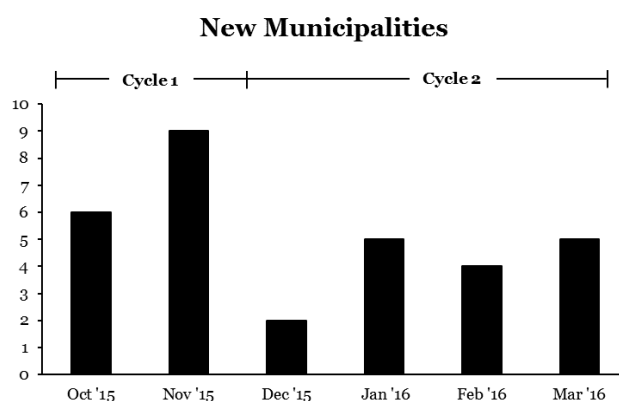


Figure 4: Acquisition of municipalities.

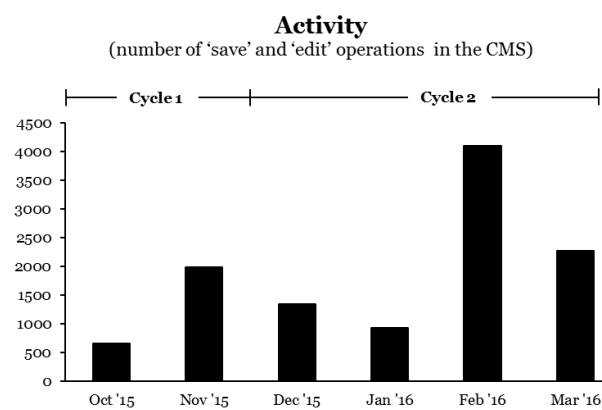


Figure 5: Activity on the platform.

Overall the initial governance strategy is summarized in Table 1 and resulted in onboarding of municipalities that had not been sustainable for all municipalities. Therefore, INTEGRATE adopted a governance strategy with a stronger focus on sustainability. According to INTEGRATE, the plan was to enable continued onboarding, while ensuring that the municipalities would not lose interest soon. Although the pilot municipality successfully introduced the platform, not all of the municipalities that started using the platform finished the introduction process of the INTEGRATE

application. Those, who finished the process, had included a high degree of unstructured information that could lead to an information overflow for the user.

Table 1: Governance strategy for the initial onboarding.

Initial onboarding		
Mechanisms	Description	Measures
Governance structure	Decentralized governance in order to incentivize volunteers and to cope for decentralized information structure.	• Direct access for content providers to the CMS • Decisions on information and information structure made by information providers
Accessibility & control	Open platform with free access for information providers.	• Intuitive CMS • No dedicated quality control of information
Trust	Build trust in sustainability of the project.	• Partnering with established initiative • Official support of the project by universities
Boundary resources	Resources distributed by team members on an individual basis.	• Individual counseling for information providers

For INTEGRATE, it became clear, that the main challenges were to identify governance actions that increase the number of information providers' while improving the quality of the provided content and at the same time increasing the providers' engagement and trust. This could be reached by opening the platform to attract new information providers, establishing more control to increase the content quality and to boost overall trust and engagement levels. The underlying tradeoff between the openness of platform ecosystems and control of complementors is a known issue in research on commercial platform ecosystems (e.g. Benlian et al., 2015; Boudreau, 2010). Therefore, the balancing act between an open platform, resulting in less control and possibly lower quality of information and more control, resulting in a less open platform with more control over the quality needs to be established (Hein et al., 2016; Schreieck et al., 2016). In order to achieve this objective, INTEGRATE adapted their governance mechanisms towards the new governance strategy (Table 2).

Table 2: Governance strategy for sustainable onboarding.

Sustainable onboarding		
Mechanisms	Description	Measures
Governance structure	Elements of a more centralized governance.	• "Corporate identity" but possibility of local stand-alone application • 6+2 structure of content with general content prefilled
Accessibility & control	Introduction of pragmatic input control.	• Structured onboarding process for content providers • Quality check for information
Trust	Strengthen trust in sustainability of the project.	• Foundation of a nonprofit association • Open sourcing of code and content

Improve content quality

For the governance structure, INTEGRATE shifted the mechanism towards centralization, in order to improve the quality of the content. More precisely, a standardized structure for the content was introduced, providing municipalities with the necessary guidance. The so-called 6+2 concept consists of six predefined chapters of information and two that can be defined by the municipalities individually. This structure should not only make the information better searchable, INTEGRATE also aimed to increase the “brand recognition” of the application. Another mechanism to increase the content quality was implementing intangible boundary resources to support municipalities in compiling relevant information on the platform in a structured way. For example, a dedicated community manager that consults the responsible contact person on how to manage the local community of information providers, as well as the exchange of information and best practices among municipalities as a communication tool was introduced by INTEGRATE. Both measures improve the meta-knowledge of the involved information providers, i.e. the knowledge of ‘who knows what’ and ‘who knows whom’ (Leonardi, 2014). As tangible boundary resource, translation support was provided by making automated translation accessible in the CMS and by cooperating with a professional translation firm.

Open the platform

INTEGRATE introduced the possibility to market the application as a stand-alone information application by municipalities to balance the more centralized governance structure and to increase the openness in return. While the application adhered to the “corporate identity” of INTEGRATE, the commitment of the municipality became more visible, rewarding involved people with recognition, increasing their motivation. The governance mechanism accessibility & control was shifted towards a more structured onboarding process and a pragmatic input control. With this, INTEGRATE could, on the one hand, increase the quality by articulating exceptions at the very beginning and on the other hand opening the platform by lowering input controls. In detail, the structured onboarding process helped municipalities to better understand the scope of the project and to estimate the resources they need to invest.

Strengthen trust

To increase user engagement and to foster trust, INTEGRATE assigned input control to one person per municipality. In this way, input control was decentralized yet formalized. While this decentralized control lowers the platform's overall control, it addressed the problem of missing perceived legitimation of the platform owner to implement control. The result was an increased user engagement and strengthened trust due to the gain of legitimation. Another trust-increasing action was the foundation of a nonprofit association with the aim of boosting confidence in the project. Furthermore, an open sourcing of the INTEGRATE project's source code along with the content of the platform contributed to the project's credibility.

After the implementation of the new "sustainable" governance strategy, the activity on the platform increased significantly while at the same time, new municipalities continued to onboard (Figure 4 and Figure 5). The values in December 2015 and January 2016 are affected by the Christmas break but February 2016 and March 2016 show a substantial increase in activity. Furthermore, the information provided on the platform was more detailed and structured for the new municipalities compared to the first governance set-up. Therefore, the "sustainable onboarding" governance strategy was a successful enhancement of the initial "onboarding" governance strategy. Based on discussions with contact persons in the municipalities, the balance of more guidance and a stronger trust in the societal impact of the project were the key to an effective governance strategy.

DISCUSSION

In this case study, the development of a governance strategy for the onboarding of information providers on a nonprofit platform ecosystem has been described. By applying elements of a centralized governance, by introducing pragmatic input control, and by strengthening the trust in the sustainability of the project, onboarding was improved (Table 3).

Table 3: Development of the platform governance onboarding strategy of INTEGRATE.

Governance strategy for onboarding				
Mechanisms		Description	Measures	Illustrating evidence
Governance structure	From	From a decentralized governance with unstructured accumulation of information ...	• Direct access for content providers to the CMS • Decisions on information and information structure made by information providers	Information Provider: <i>"Centralized provided data helped us to get consistency, remove redundancy and structure information".</i> Observations: • Providing direct access reduced entrance barriers. • Predefined structure of the information made it easier to both enter and find information
	To	... to a more centralized governance with a clear structure but less entrance barriers.	• “Corporate identity” but possibility of local stand-alone application • 6+2 structure of content with general content prefilled	
Accessibility & control	From	From an initial open platform with free access for information providers ...	• Intuitive CMS • No dedicated quality control of information	Information Provider: <i>"I like the intuitive and easy way to use the interface".</i> Observations: • The community manager helped to monitor the quality of information.
	To	... to an intuitive CMS with pragmatic input controls.	• Structured onboarding process for content providers • Quality check for information	
Trust	From	From building initial trust in the project ...	• Partnering with established initiative • Official support of the project by universities	Information Provider: <i>"The ongoing partnership with institutions was crucial for the credibility of the project"</i> Observations: • After the foundation of a nonprofit organization, some municipalities and information providers offered financial support to the project
	To	... to strengthening trust, increasing transparency and credibility.	• Foundation of a nonprofit association • Open sourcing of code and content	
Boundary resources	To	Overcome lack of IT skills by ease-of-use interface and individual counseling.	• Individual counseling for information providers • Ease-of-use interfaces	Information Provider: <i>"Despite the fact, that I never worked with a CMS, I found the interface intuitive and easy to use".</i>

In the course of the study, it became clear that the initially decentralized governance structure was not sustainable as it led to an unstructured accumulation of information on the platform harming the project's reputation. Consequently, a more centralized governance strategy became necessary – which in turn may negatively affect the complementors' motivation as they lose decision rights. In commercial platform ecosystems, the platform owner can compensate complementors for centralized governance by sharing revenues. In some cases, centralization can be enforced due to the dominant market position of the platform owner (see Eaton, 2012 for the case of Apple). In nonprofit platform ecosystems, revenue sharing is not available. Instead, centralizing governance builds on establishing a relationship, fosters co-creation and openness (Loudon & Rivett, 2014). In the INTEGRATE project, municipalities that participate were supported in hosting a press event and had the opportunity to be an associated partner of the project. Therefore, both a centralized

governance strategy and the establishment of trust can accelerate a sustainable onboarding for nonprofit platforms.

There is also evidence that input control is necessary to ensure the quality of information. Furthermore, contributors to nonprofit projects often have a specific idea of how they want to contribute and do not want to adhere to control processes. Consequently, control has to be implemented in an enabling style and not in a coercive style (see also Adler & Borys, 1996; Heumann, Wiener, Remus, & Mähring, 2014). In particular, informal control mechanisms such as self and clan control may be more effective than formal control mechanisms. Clan control can be strengthened by establishing a community with shared norms and values (Goldbach & Benlian, 2015b). In the project INTEGRATE, control processes were assigned to experienced information providers within the local communities of information providers. Due to their expertise, they were perceived legitimated to apply control by the other information providers.

The mechanism trust gains importance in nonprofit platform ecosystems compared to commercial platform ecosystems. In the latter, the interplay of trust and power affects the relationship of platform owner, complementors, and end-users (Hurni & Huber, 2014; Lang, Wiesche, & Krcmar, 2016). The complementor has to trust in the reliability of the platform and in the platform owner's intention to continue the platform (Goldbach & Benlian, 2015a). In nonprofit platform ecosystems, this trust in the platform is enhanced by trust in the community of complementors (Cheng, Nolan, & Macaulay, 2013) and their shared norms and values (Tiwana, 2014). Therefore, establishing trust between platform owner and complementors as well as among complementors is vital to ensure a sustainable onboarding for nonprofit platform ecosystems.

Finally, boundary resources had to be implemented in a different way as in commercial platform ecosystems. In commercial platform ecosystems, standardized boundary resources such as documentation, tutorials, and APIs facilitate the onboarding of a large number of complementors. While documentation and easy-to-use interfaces are also helpful in nonprofit platform ecosystems, the implementation of boundary resources also needs to support the community building. Labeled as “indoctrination” by De Laat (2007) measures such as nominating local community managers or holding conferences to connect information providers are boundary resources that enhance the community. In summary, boundary resources need to be better adapted to the individual complementor and the surrounding community.

Table 3 shows the summarized “sustainable” governance strategy. As a result of their implementation, the activity on the platform rose while at the same time, new municipalities joined the platform (see Figure 4 and Figure 5). Another sign of quality is the increased quality of the information provided, as it was more detailed and structured for the new municipalities compared to the initial strategy. Overall we can demonstrate that the above-mentioned characteristics of governance mechanisms can contribute towards a sustainable onboarding strategy for nonprofit platforms. Scant literature exists on platform governance to manage co-creation of value in nonprofit contexts. In our study, we contribute to the field of nonprofit platform ecosystems, by showing that governance mechanisms are based on the same underlying aspects as for commercial platforms (Table 4). One important distinctive feature is the implementation of those mechanisms. The goal of the platform owner is not to capture as much value as possible but to maximize societal impact via co-creation of value. As an information provider mentioned, *“platforms for refugees can never work based on market power, or commercialization, as content quality decreases due to entrance barriers caused by costs”*.

Table 4: Platform governance in commercial and nonprofit platform ecosystems

Mechanisms	Commercial platform ecosystems	Nonprofit platform ecosystems
Governance structure	• Balance centralization against shared revenues	• Balance centralization against chartering and representation
Accessibility & control	• Centralized, formal control • Legitimation by ownership and market power	• Decentralized, informal control (i.e. clan control) • Legitimation by expertise
Trust	• Trust in platform technology and owner • Focus on reliability and continuance	• Trust in platform technology and owner • Trust in complementor community • Focus on shared norms and values
Boundary resources	• Standardized boundary resources • Focus on documentation and tools	• Individual boundary resources • Focus on community management

The INTEGRATE platform provides a small, yet helpful step in easing integration. Scalability and high-quality standards are necessary to efficiently cope with the booming number of refugees rushing into the European countries. Understanding governance mechanisms for nonprofit platforms is a necessary first step to support collaboration between countries, municipalities, volunteers, and refugees. Finally, our study contributes to the literature stream on how information and communication technologies can support nonprofit projects (e.g. Selander & Jarvenpaa, 2016) and in particular the integration of refugees (Andrade & Doolin, 2016).

There are also contributions to practice and society. INTEGRATE helped to reduce the information deficit on the refugees' side, by establishing sustainable platform onboarding and therefore increasing the number of addressed refugees. By developing a suitable governance strategy, not only the ecosystem of information providers grew, also the number of apps installed increased. Thereby, the information gathered on the platform reached the target group and helped to provide needed information to refugees arriving in Europe. Overall it can be shown that important orientation information needs for refugees (Caidi et al., 2010) can be satisfied with the nonprofit platform solution. Especially the boundaries of cross-cultural communication, which are a major factor of limitation for information sharing (Bajwa, Lewis, Pervan, & Lai, 2014; Caidi et al., 2010), can be addressed by offering multi-language support, customized to the individual needs of refugees in different municipalities. However, the information platform will not be able to replace face-to-face asylum counseling. Furthermore, asylum counseling can be made more efficient as basic information is already provided on the platform. For example, the possibility to update the information directly in the system reduces the effort to inform refugees about relevant changes.

CONCLUSION

In this study, we derive a governance strategy for a nonprofit platform ecosystem that supports the sustainable onboarding of information providers. A case study within the project INTEGRATE illustrated how an information platform for refugees, combined governance mechanisms to a suitable governance strategy to achieve this target. Thereby it can be illustrated that the application of governance mechanisms in the context of a nonprofit platform ecosystem differs from that in the context of their commercial pendant. It can be shown that the developed onboarding strategy within the nonprofit platform is a targeted solution to tackle the need for a sustainable platform onboarding. The study thereby contributes to co-creation of value theory in the context of nonprofit platform ecosystems.

Our study entails several limitations. First, the scope of the case study is limited, as it concentrates only on an onboarding governance strategy. Even though the project includes a productive information community that is used by several communities it is a relatively small platform ecosystem compared to commercial platform ecosystems. The limited scope of the case study may

affect the generalizability of our findings. Second, the effect of sustainable onboarding needs to be observed in a longer time frame, in order to truly verify the effects of the governance strategy.

To address these limitations, future research could conduct a multiple case study on nonprofit platform ecosystems. If the time passes by and larger platform ecosystems emerge, they could be included in the study, increasing the generalizability of results. Researcher already showed that collaboration systems also work for developing countries like Tanzania and South Africa (de Vreede, Mgya, & Qureshi, 2003), so the next step could be testing social platforms in those regions as well. Another interesting aspect could be the implementation of collaboration aspects such as voting features, in order to increase the effectiveness and efficiency of the overall platform (Cheng & Yu, 2015). Finally, to better understand the impact of IT for refugees, it could be interesting to analyze the benefit of information platforms. For example, a series of qualitative interviews with refugees and asylum counselors in municipalities that offer an information platform and in others that do not offer one might generate insights on how the information platform contributes to the integration of refugees.

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