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ENTREPRENEURIAL ACTIONS AND THE LEGITIMATION OF FREE/OPEN SOURCE SOFTWARE SERVICES

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Abstract: Free/open source software (FOSS) users were previously responsible for managing the challenges associated with their software themselves. Recently, a new generation of entrepreneurs seized this emerging market opportunity by positioning themselves as service providers for FOSS users. Conceptualizing such providers as "institutional entrepreneurs", we find that due to the nature of the FOSS context, they exhibit a different set of legitimation actions compared to similar efforts in other contexts. Based on our empirical analysis of FOSS service providers and drawing on prior theory, we identify two entrepreneurial actions aimed at gaining legitimacy specific to the FOSS context: namely product-based theorization actions and evangelization actions. We so demonstrate that institutional entrepreneurship is shaped by the nature of FOSS products and the openness values at the core of the FOSS movement. Our work hence underscores the importance of context of institutional entrepreneurship.

Keywords: openness, free/open source software, services, context, legitimation, legitimacy, legitimation actions, institutional entrepreneurship

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INTRODUCTION

Historically, users of Free/Open Source Software (FOSS) products had to manage the challenges associated with the implementation, customization, and maintenance of their FOSS-based information systems (IS) themselves. In the last decade however, entrepreneurs seized this emerging market opportunity by positioning themselves as FOSS service providers (Deodhar et al. 2012). These entrepreneurs have not only benefited from the increased commercialization of FOSS products (Fitzgerald 2006) but also from the design and delivery of FOSS services given the unique, open characteristics of FOSS products (Ågerfalk and Fitzgerald 2008; Orlikowski and Scott 2015). Specifically, openness, which broadly refers to the “accessibility of knowledge, technology and other resources; the transparency of action; the permeability of organizational structures; and the inclusiveness of participation” (Schlagwein et al. 2017, p. 297), has facilitated the decoupling of the FOSS product from the FOSS services associated with its implementation, integration, or customization.

The decoupling of the FOSS product from the FOSS service carries significant implications for theory and practice. One of the most enduring issues with regards to FOSS products and FOSS services is that they continue to confront skepticism from information technology (IT) professionals with respect to their lasting nature (Marsan et al. 2012) or concerns related to their apparent lack of maturity when compared to proprietary software products and services (Marsan and Paré 2013). In this paper, we adopt an institutional entrepreneurship research lens to study the actions through which FOSS service providers legitimate FOSS services in the marketplace. Our motivation for this work is rooted in research suggesting that legitimation is key to successful market creation (Humphreys 2010), as well as market access and participation (Mair et al. 2012).

Institutional entrepreneurship refers to the activities of individuals, groups or organizations that have an interest in, and commit resources to, the creation of new products or services, or the transformation of existing ones (DiMaggio 1988; Maguire et al. 2004). An institutional entrepreneur is an actor who puts effort in overcoming skepticism and persuading others about the benefits of a new product or service (David et al. 2013). Traditional entrepreneurs “are typically defined simply as those who found new organizations, whether novel or not” (David et al. 2013, p. 358). As David et al. (2013) explain, “some, but not all, institutional entrepreneurs are also traditional entrepreneurs, and some, but not all, traditional entrepreneurs are also institutional entrepreneurs” (p. 358). For example, a journalist or industry analyst could write an article or report praising the benefits of using FOSS services, thus acting as an institutional entrepreneur, without being a FOSS service provider (i.e., a traditional entrepreneur). Conversely, a FOSS service provider could decide not to be an institutional entrepreneur for FOSS services i.e., put no effort in legitimating FOSS services and rely on others such as competitors, journalists and industry analysts to do the legitimation effort.

The literature on institutional entrepreneurship reveals that it may be difficult for a new product or service to displace an established solution or to take root in virgin territory, and that a great deal of effort may be needed to succeed in such endeavors (Henfridsson and Yoo 2013). To reach this objective, institutional entrepreneurs need to legitimate the new product or service in the marketplace, that is to say, they must show that it 'fits' with the norms, values and beliefs of potential adopters, especially at the outset of the innovation's lifecycle (Wang and Swanson 2007). Thus, they design and enact entrepreneurial actions to legitimate the new product or service in the marketplace.

The majority of studies that have investigated entrepreneurial actions aimed at securing legitimacy, have focused on products (Henfridsson and Yoo 2013; Kaganer et al. 2010; Wang and Swanson 2008) or innovations (Etzion and Ferraro 2010; Guilloux et al. 2013; Hyvönen et al. 2012). With regards to the study of entrepreneurial actions for the legitimation of services, David et al. (2013) found that the actions aimed at legitimating management consulting services, in particular, fall into three categories. First, theorization actions establish the key value proposition of a service innovation. Second, affiliation actions reflect efforts to 'borrow' legitimacy by associating with incumbent, established actors. Lastly, collective actions refer to efforts made to coalesce and gain critical mass in order to overcome (inevitable) roadblocks to the service innovation. Despite these results, David et al. (2013) encouraged further research arguing that while "theorization, affiliation, and collective action—are likely to be important in all contexts, we expect these activities to take different forms [...] because of the different challenges that different contexts pose" (p. 360).

Conceptualizing FOSS service providers as institutional entrepreneurs, we argue that they face some similar challenges to those faced by management consulting firms. However, differences in FOSS context, due to the openness of the FOSS products and the openness values salient in that context, suggest that FOSS service providers will exhibit differences in their entrepreneurial actions when compared to those of management consulting firms. Indeed, researchers have suggested that openness alters power structures and accentuates the possibility to generate value outside of traditional organizations (Faraj et al. 2011; Feller et al. 2008). There is, thus, an academic and practical need for studying the entrepreneurial actions aimed at legitimating FOSS services. Therefore, in this paper, we answer the following research question: *How do FOSS service providers use entrepreneurial actions to legitimate their service offering?*

The theory developed by David et al. (2013) about entrepreneurial actions in the context of management consulting services provides the terminology and framing to answer our research question. We specify and extend their model to the specific 'openness context' of the FOSS service provision. We do so by presenting a positivist multi-case study based on data collected from seven FOSS service providers. Our findings show the existence of entrepreneurial actions specific to the openness context of FOSS services. We show that these additional actions are shaped by the openness of FOSS products or the openness values at the core of the FOSS movement. In addition, we find evidence that some entrepreneurial actions employed by FOSS service providers are similar to the entrepreneurial actions that could be undertaken by providers of services more generally.

The paper proceeds with a review of literature on FOSS services and institutional entrepreneurship. Next, the research method is presented. After a discussion of the key findings, the paper highlights the contributions of our work and possible avenues for extending that work.

LITERATURE REVIEW

The adoption of FOSS services has proved challenging; this is partly because FOSS services have traditionally been provided in informal settings, such as discussion groups and online forums (Marsan and Paré 2013; Marsan et al. 2012). It is in this context that FOSS service providers bring value to an established IT services market through a novel organizational practice: the selling of FOSS services (Fitzgerald 2006). The success of FOSS service providers depends on their capacity to build a strong presence, reputation, and acceptance (Dahlander 2005) and thus be perceived as legitimate participants in the marketplace. A number of theories have been used in extant literature as potential theoretical bases for examining legitimation and the dynamics associated with establishing legitimation in relation to organizations, products, and services.

Institutional theory (DiMaggio and Powell 1983; Powell and DiMaggio 1991; Scott 2013), in particular, has been used to explain the means through which economic actors craft a market for their product or service offering. Institutional theory explains how institutions, defined as (observable) patterns of collective action and justified by a corresponding norm (Czarniawska 1997), become established. The theoretical perspective offered by institutional theory suggests that in order to survive and prosper, organizations must achieve legitimacy and that they do so by: operating in compliance with rules and laws; securing appropriate certification; or mimicking structures and procedures prevailing in the environment (DiMaggio and Powell 1983; Scott 2013; Suchman 1995). Legitimacy thus is achieved through narrative and political discourse that links the new product or service offering to market stakeholders' values (David et al. 2013; Maguire et al. 2004). Through this social exchange, a product or service's legitimacy is co-constituted as a "generalized perception or assumption that the (product or service is) desirable, proper or appropriate within some socially constructed system of norms, values, beliefs and definitions." (Suchman 1995, p. 574) For an object to be perceived as 'desirable, proper or appropriate' by a set of social actors and thus show legitimacy, the literature suggests three paths to earning it: the pragmatic, the cognitive, or the normative way (Suchman 1995).

First, the pragmatic way is rooted in an argument related to the value-added of a particular object to an entity. Legitimacy in this case is based "largely on self-regarding utility calculations, and organizations often can purchase pragmatic legitimacy by directing tangible rewards to specific constituencies" (Suchman 1995, p. 585). In their study of how IT executives evaluate an IT solution, Ramiller and Swanson (2003) exemplify such pragmatic approach to establishing legitimacy when showing the centrality of assessing the value-added of an innovation when deciding to adopt or reject a given technology.

A second way through which legitimacy may be established is through cognition, rather than interest or evaluation. It reflects the spread of knowledge about a new product or service across a set of social actors to the point where it becomes congruent with the dominant norms, values, beliefs and definitions of a socially constructed system (Suchman 1995). As the level of public knowledge about a new venture increases, the product or service become common place and widely known to the point they are taken for granted by the actors (Aldrich and Fiol 1994). This idea echoes Hannan and Carroll (1992) who argued that the increasing number of organizations providing a new product or service is the main driver for legitimation at an industry level. In referring to the coherence of an IT innovation, as the shared interpretation of what an innovation is fundamentally about, Wang and Swanson (2007) show that cognitive legitimacy is crucial in the early stage of innovation diffusion leading to launch success.

Lastly, beyond cognition, interest or evaluation, legitimacy for a new product or service may be garnered through adherence to a group of actors' socially constructed moral norms and values. Normative legitimacy "is 'sociotropic'—it rests not on judgments about whether a given activity benefits the evaluator, but rather on judgments about whether the activity is 'the right thing to do'" (Suchman 1995, p. 579). With the emphasis put on promoting pro-social logics, such normative pressure on organizations to act in a legitimate way has been shown to drive the adoption of eco-equitable practices made possible through information systems use, such as telecommuting, going paperless, and automated manufacturing systems, at the organizational level (Chen et al. 2008).

Institutional theory, under which actors "accept and follow social norms" (Tolbert and Zucker 1996, p. 176) according to pragmatic, cognitive, or normative considerations of legitimation, has proven generative for research and insightful for practice. Nonetheless, certain shortcomings have also emerged. In particular, research has argued that studies of institutional entrepreneurship do not detail the struggle and negotiation over what is legitimated (Suddaby and Greenwood 2005), the actions of individual actors (Lawrence et al. 2011), how legitimacy emerges over time through social interaction (Hallett 2010), and, particularly, what objects help to instantiate legitimacy (Czarniawska 2009). In light of this, the work on "economies of worth" by Boltanski and Thévenot (2006), also referred to as "orders of worth" or "justification theory" (Schlagwein 2018), has been suggested as a possible complement allowing for a deeper understanding of institutionalization processes.

The core of Boltanski and Thévenot's (2006) theory is the existence of six "worlds", each one governed by different sets of values. Worthiness (comparable to 'legitimacy', in institutional terminology) is earned in each world based on the alignment between an actor's values and those of the world within which it operates. In turn, worthiness provides the means to overcome disagreements between actors and thus engage in collective action. With the idea that the actors' beliefs are changing and evolving within and across worlds, and thus represent different degrees of worthiness over time, the "orders of worth" theory emphasizes the maintenance of institutions and value systems rather than the creation of institutions.

Another view suggested by Haveman and David (2008) to complement institutional theory is the ecological view of legitimation. With its roots in natural science, the ecological view of legitimation (Hannan and Freeman 1977) considers legitimacy as a basic condition for survival and focuses on the natural selection of organizations. According to Hannan et al. (1995), legitimation is driven by “density”, as “the number of organizations in a bounded organizational population” (p. 510) with the legitimacy of organizations in the population growing as the size of the population increases. The ecological view also considers the age and size of an organization as a factor influencing organizational legitimacy with older and larger organizations being more legitimate (Baum 1999). It is in this vein that leveraging the ecological view, Chengalur-Smith et al. (2010)’s study of FOSS development project sustainability shows that the size and age of the project as well as the size of the project’s community (i.e., its population) are positively related to the project’s legitimacy.

Comparing and contrasting the different theoretical bases for legitimation, we find institutional theory and particular the concept of institutional entrepreneurship to be best suited to inform our study on how FOSS service providers legitimate their FOSS services. Firstly, in relation to orders of worth theory, we are interested in the creation of market opportunities for FOSS services (Fitzgerald 2006), rather than the maintenance of an existing markets and orders. Our focus is on the entrepreneurial actions of FOSS service providers that comprise a budding industry, our level of analysis is at the industry level rather than societal, as is the case for “orders of worth” theory. Secondly, in relation to the ecological view, it generally speaks to factors on which organizations have no or limited control in order to gain legitimacy (i.e., population size), rather than to the strategies and actions that organizations may purposefully design and enact to pursue legitimation. In a marketplace dominated by proprietary software services, FOSS service providers have been shown to create their niche not through conflict and negotiation but rather by building a reputation of delivering software services that are just as reliable as proprietary software services (Dahlander 2005).

Work on institutional entrepreneurs has shown that firms legitimate service innovation through three types of entrepreneurial actions: theorization, affiliation, and collective actions.

Theorization actions refer to “the theorization of change as consistent with existing field and organizational logics, practices, and routines, [... and] compatible with the master logics of society at large” (David et al. 2013, p. 359). Not unlike technology products (Wang and Swanson 2007; Wang and Swanson 2008), service providers need to establish a business case for their services and to develop a discourse supporting their services. They “elaborated the theory that, in the wake of vast structural changes, large organizations were managed inefficiently [... and they] advocated their new services as effective solutions” (David et al. 2013, p. 366) to this lack of efficiency.

Affiliation actions refer to the “forg[ing] of affiliations to legitimate actors so that they can ‘borrow’ legitimacy from their exchange partners” (David et al. 2013, p. 360). Affiliation actions allow firms to tap into a halo effect, whereby the norms, values, and

beliefs of the legitimate actors extend to them by mere association. Management consulting firms aware of the perceived positive outcomes related to legitimation as predicated by homophily arguments (McPherson et al. 2001) “made extensive use of affiliations [...] to universities, professional societies, and professional journals” (David et al. 2013, p. 368).

Lastly, *collective actions* refer to service firms “[b]anding together [to] counter the inevitable resistance from those who value the status quo [...] and] establish the distinctiveness and exteriority of new kinds of organizations” (David et al. 2013, p. 360). A key characteristic of collective action is that its outcome (a public good) may benefit a collective where individual members lack the motivation or resources to accomplish it individually (Olson 2009). In the context of management consulting, firms “worked hard to create distinctiveness and exteriority through [...] the] found[ing of] the Association of Consulting Management Engineers” (David et al. 2013, p. 370). This formed the core element of an emerging collective that served to “promote common structures and practices for member firms” (David et al. 2013, p. 369).

With regards to the generalizability of the theorization, affiliation, and collective entrepreneurial actions, David et al. (2013) stress the importance for researchers to consider explicitly the specific context of the institutional entrepreneurs they study. FOSS services exist in a unique context characterized by openness. Recent IS research has defined openness as the “accessibility of knowledge, technology and other resources; the transparency of action; the permeability of organizational structures; and the inclusiveness of participation” (Schlagwein et al. 2017, p. 297). Across industries, openness has proved to be a transformative force enabling a variety of actors to leverage networks of internal and external talent to create and capture business value (Feller et al. 2008; Morgan et al. 2013; Morgan and Finnegan 2014). The notion that previously firm-bound core competencies can be distributed across the network and that resources have become global, is embodied in the conceptualization of FOSS solutions (Feller et al. 2008).

The unique characteristics of FOSS products as well as the inherent values associated with the participatory value of openness-based practices, may suggest that different entrepreneurial actions are likely to be enacted in the openness contexts when compared to institutional entrepreneurship in other contexts.

Despite some initial reluctance, many organizations have now understood the business value of FOSS products as they have been increasingly engaging with FOSS communities (Germonprez et al. 2016). As a result, FOSS products now play an important role in most firms’ operations (August et al. 2017). The Android, Linux, and Apache projects are testaments of the widespread success and acceptance of FOSS products as they have been widely adopted by companies and are supported by very active communities with a proven capacity to produce high quality software (Carillo et al. 2017).

FOSS products are generally characterized by their transparency, accessibility, and modularity. The transparency of the source code and documentation inherent in a FOSS product makes it such that the “structure and options of a codebase are observable” (Baldwin and Clark 2006, p. 1117). In addition, a transparent license enables and constrains the evolution of the FOSS product by detailing the rights and responsibilities of developers and users of the code (Lerner and Tirole 2002). It is the visibility of the source code, documentation, and licensing that makes the FOSS product accessible, meaning that it is a product that is both malleable and amenable to being changed and customized (Shaikh 2016). Not only is much of the discussion regarding development carried out over public project forums, but the versioning of the source code is accessible to interested parties on platforms such as GitHub or Sourceforge (Howison and Crowston 2014) thereby helping provide ideas, motivation, and knowledge for further development of source code (Mergel 2015). Finally, the modularity of the source code is a key aspect of FOSS artifacts (Daniel and Stewart 2016). Research has shown that the modular nature of FOSS products allows increasing the number of contributors, to reduce defect density, and to provide new functionality through capability recombination (Baldwin and Clark 2006; Mockus et al. 2002).

Openness has sometimes been referred to as a philosophy, reflected in the ‘open nature’ of FOSS development, whether it is collaborative or competitive (Schlagwein et al. 2017). Indeed, the “community is perhaps the most important feature of [the FOSS product]” (Safadi et al. 2015, p. 25), as it allows individual contributors to tap into new sources of relevant knowledge and to integrate the new knowledge into the FOSS product (Dahlander and Frederiksen 2012). A norm and key practice in these communities is to reduce project forking (the copying of source code to begin parallel projects) stemming from disagreements about a current project’s roadmap, among other reasons. In an effort to reduce project forking, decentralized and open communication structures emerge to increase cooperation among project contributors (Lerner and Tirole 2002). Moreover, the contributors’ names are often reflected in a project, thereby providing a transparent, open, and accessible timeline of the evolution of the FOSS product. Through an adaptive longitudinal process, a community will create a set of governance rules based on a shared understanding of macro-culture and collective sanctions (Feller et al. 2008) to manage the dynamics of contributing to the collective effort and to regulate the group’s membership (O’Mahony and Ferraro 2007). The concepts of software and information freedom resonate with the belief that a FOSS product does not belong to any one party but is in essence a public good (Lakhani and Von Hippel 2003). As evidenced in Fitzgerald and Kenny’s (2004) account of a FOSS product implementation, the ability and willingness of the community to support their products in the hope that other parties reciprocate and share their contributions is a key aspect of the open and communal orientation of open source. Moreover, wherein FOSS communities are composed of individuals who share a common interest in software development and technology in general, both technical knowledge as well as the abilities to learn quickly and adapt to changing circumstances are held in high regard (Stewart and Gosain 2006). As a result, reputation-building mechanisms are often essential in FOSS development whereby reputation gained within a community acts as a signal of competence (Lakhani and Von Hippel 2003). In sum, the

values embedded in FOSS participation processes are primarily those related to sharing, helping, and cooperating (Von Krogh et al. 2012).

The overall FOSS movement is composed of both the Free Software and the Open Source movements. The Free Software movement emerged in the mid-1980s and is carried by the Free Software Foundation and its founder Richard Stallman. It stands on ideological grounds as it defends the freedom to use, modify and distribute software with the ultimate purpose of advancing a set of values promoting individual freedom and societal progress over the commercial interests of proprietary software vendors (Schlagwein et al. 2017). The Open Source movement, embodied in the Open Source Initiative (Fitzgerald 2006), emerged in 1998 as a more tempered interpretation of the Free Software movement. It does not consider proprietary software as inadmissible and is based on Raymond's (1999) idea that benefits arise from the participatory development of software based on source code that is publicly available. Thus, both Free Software and Open Source movements "share the open development model (accessible code, participatory development)" (Schlagwein et al. 2017, p. 301). Consequently, they both share the values of sharing, helping, and cooperating (Von Krogh et al. 2012), but the Open Source movement is considered to be more 'business friendly' than the Free Software movement (Schlagwein et al. 2017). Without the existence of these movements along with the software that has been cumulatively developed, the FOSS services field would simply not exist. In other words, the FOSS services field is rooted in the FOSS movement (Fitzgerald 2006). We can thus say that sharing, helping, and cooperating are also the foundational values of the FOSS services field.

Given the unique characteristics of FOSS products, the philosophy and the movements that underpin their production, we expect that FOSS service providers will differ from management consulting firms, the context examined by David et al. (2013), with respect to their entrepreneurial actions used for legitimation purposes. As shown in **Table 1**, management service providers seek to establish their services as a new field of activity (i.e., the management consulting business) within a new organizational form (i.e., the management consultancy firm) (David et al. 2013). In contrast, FOSS service providers operate in an established field (e.g., the IT services business), requiring the legitimation of a new organizational practice (e.g., the provision of FOSS services). On the one hand, the products offered by management consulting firms are often proprietary (Dunford 2000), such as McKinsey&Company's Periscope suite of solutions or Gartner's Hype Cycle and MarketScope approaches. On the other hand, FOSS service providers base their service offering on FOSS products that are open. Finally, the foundational values of the field of FOSS service provision are fundamentally different from those underpinning the field of management service provision. As mentioned above, FOSS service provision has arisen from the FOSS movement (Fitzgerald 2006). Although this movement began as an ideological criticism of the restrictive commercial interests of proprietary software vendors, today the FOSS movement focuses on the benefits of participatory software development based on publicly available source code (Schlagwein et al. 2017). While sharing, helping, and cooperating are the core values of the FOSS movement (Von Krogh et al. 2012) upon which the FOSS service provision field was founded, the "progressive values of efficiency and rational organization" (David et al. 2013, p. 364) underpin the

management service provision field. Sharing, helping, and cooperating are “rare in the proprietary marketplace, but [they are] symptomatic of the strong community value orientation of [the FOSS movement]” (Fitzgerald 2006, p. 596).

| Table 1. Institutional entrepreneurship in different contexts | | |
|--|---|--|
| | Management consulting service providers (David et al. 2013) | FOSS service providers (current paper) |
| Field maturity | New/emerging | Established |
| Locus of change | Organizational form | Organizational practice |
| Underlying product type | Proprietary | Open |
| Foundational values | Progressive values of efficiency and rational organization | Openness values of sharing, helping, and cooperating |

It is thus the differences in field maturity and locus of change, but most notably in the underlying product type and foundational values between management service providers and FOSS service providers, that suggest the existence of substantive differences in the entrepreneurial actions used for legitimation.

RESEARCH METHOD

The research design we used to answer our research question is that of a positivist multi-case study (Yin 2009) of FOSS service providers. The research context and cases were selected based on theoretical sampling (Patton 2002) wherein our intention was to target organizations selling FOSS services within a market that was largely dominated by proprietary software and services and where there was a clear preference among consumers for such solutions. As entrepreneurial actions are undertaken to legitimate an innovation, it was necessary to choose a context where FOSS service providers would encounter challenges to the diffusion of their services, in order to be in a position to observe their actual entrepreneurial actions. To protect the confidentiality of the FOSS service providers that have participated in our study, we cannot name the specific geographical location of our research context but is it not dissimilar from situations in regional markets across the globe. Nonetheless, the ongoing debates and discussions regarding the adequacy of FOSS solutions found in newspapers and magazines in this geographical location were reflective of the need for FOSS service providers to combat government indifference in the public sector and the lack of information about their solutions in the private sector where proprietary software dominates. Despite some successes reported in the press, it remained difficult for FOSS service providers to penetrate the market. Thus, we considered that there was a high likelihood to observe entrepreneurial actions from FOSS service providers to increase legitimacy.

We selected our cases with the help of an industry group lobbying on behalf of the FOSS service providers. Among the eight providers that were members of the lobbying group at the time of the recruitment, seven accepted to participate in the study. The eighth declined our offer as it was in the process of being acquired by a competitor.

As shown in **Table 2**, six of our seven cases concerned FOSS service providers that had grown organically over the years in terms of employee number. The one exception was Gamma, a long-running solo consultancy that was well-known with a solid reputation in FOSS circles. All seven FOSS service providers were founded between 1999 and 2011. While all the providers offered integration and support services, some of the providers also proposed additional services such as FOSS customization and strategic IT consulting.

| Case | Legal form | FOSS services offered | Target market | Founded | Growth in employee number |
|---------|-------------------------|---|--|---------|--|
| Alpha | Non-profit legal person | Hosting; Customization; Integration; Support | Community groups and non-profit and non-governmental organizations interested in using FOSS products | 2005 | From 5 employees in 2005 to 25 at time of data collection |
| Beta | Corporation | Customization; Integration; Training; Support | All types of organizations using or interested in using FOSS products | 2003 | From 4 employees in 2003 to 12 at time of data collection |
| Gamma | Sole proprietorship | IT consulting; Integration; Training; Support | All types of organizations/individuals using or interested in using FOSS products | 2002 | Solo consultant since 2002 |
| Delta | Corporation | IT consulting; Customization; Integration; Training; Support | All types of organizations, not necessarily using or interested in using FOSS products | 1999 | From 2 employees in 1999 to 78 at time of data collection |
| Epsilon | Corporation | Strategic IT consulting; Hosting; Customization; Integration; Support | Corporations and governments typically not using nor absolutely wanting to use FOSS products | 1999 | From 2 employees in 1999 to 150 at time of data collection |
| Lambda | Corporation | Hosting; Customization; Integration; Training; Support | Corporations and governments typically not using nor absolutely wanting to use FOSS products | 2006 | From 1 employee in 2006 to 5 at time of data collection |
| Omega | Corporation | Strategic IT consulting; Integration; Training; Support | Mainly governments typically not using nor absolutely wanting to use FOSS products | 2011 | From 3 employees in 2011 to 10 at time of data collection |

For the data collection, interviewees were selected based on their ability to contribute executive-level insight into the organization's efforts to legitimate their FOSS services. This requirement led us to focus our attention to high-level, strategic respondents, including owners and CEOs. Given that FOSS service providers are usually small to medium-sized companies, in six of the seven cases, a single individual was able to contribute the necessary insights. The exception was Alpha where we interviewed a second individual identified by the CEO as being highly knowledgeable of the entity's legitimation efforts. All interviews were conducted face-to-face and lasted approximately 60 minutes. The interviews were recorded in their entirety (representing a total of 478 minutes of recording) and transcribed verbatim for analysis.

Complementary to the interviews, to allow for data triangulation (Dubé and Paré 2003; Yin 2009) and to gain a better understanding of the entrepreneurial actions undertaken by the FOSS service providers in their particular business context, other sources of primary data were used. First, site visits of varying durations were conducted at each FOSS service provider's office, with the exception of Gamma and Lambda who had teleworking employees. Second, we traced the active participation (i.e. vendor booths or presentations) of the FOSS service providers' in our study to FOSS and IT industry events where the first author was present. Third, we did findings validation interviews at the end of our data analysis to present and validate the entrepreneurial action types and to validate the list of specific actions undertaken by the FOSS service providers.

Secondary data allowed us to corroborate the insights yielded by the primary data collected. Two sources of secondary data were used. First, we sampled the FOSS service providers' corporate websites (including the companies' blogs). The web content was scraped via the Internet Archive's Wayback Machine allowing us to collect historical data from their corporate websites. This dataset represented 340 pages or 475,000 characters of data, averaging of 48 pages/68,000 characters per case. Second, when available, existing documentation used by the FOSS service providers to attract potential clients was collected and consulted. **Table 3** provides an overview of the primary and secondary data collection methods.

| Table 3. Data collection and findings validation | | | | | | |
|--|---|-------------|--------------------------|--------------------------------|-------------------------------|--|
| | Primary data | | | | Secondary data | |
| | Interviews | Site visits | Participant observations | Findings validation interviews | Providers' websites and blogs | Documentation |
| Alpha | Co-Founding President (45 min) Sales Specialist (25 min) | 1 hour | 1 event | 1 hour | 44 pages / 72,000 characters | Company booklet |
| Beta | Director of Sales (72 min) | 0.5 hour | 1 event | 0.75 hour | 53 pages / 91,000 characters | - |
| Gamma | Founding President (86 min) | - | 1 event | 1.5 hour | 76 pages / 79,000 characters | Company products' description, company DVD |
| Delta | Executive Vice President (61 min) | 0.5 hour | 1 event | 1 hour | 25 pages / 28,000 characters | - |
| Epsilon | Co-Founding President (50 min) | 0.5 hour | 1 event | 0.75 hour | 96 pages / 148,000 characters | - |
| Lambda | Founding President (55 min) | - | 1 event | 0.75 hour | 19 pages / 24,000 characters | - |
| Omega | Co-Founding Business Development Specialist (84 min) | 0.5 hour | - | - | 23 pages / 31,000 characters | - |

For data analysis, in line with positivist case study methodology (Dubé and Paré 2003), we began with an upfront theoretical framing. Our initial coding categories were derived from the literature on FOSS and David et al.'s (2013) three action types, namely *theorization action*, *affiliation action* and *collective action* served as our initial codes. Our careful reading of the interview transcripts, observational notes, and website content allowed us to identify excerpts describing actions falling under these three theory-derived codes. In addition, our initial coding scheme included codes to track and describe the business context of each FOSS service provider: *legal form*, *staffing levels*, *adherence to openness values*, *FOSS services offered*, and *target market*.

We used grounded theory coding techniques (Corbin and Strauss 2008) to analyze the interview transcripts, observational notes, and website content not yet coded under any of the initial codes. We analyzed the coded data to see whether they could be considered entrepreneurial actions of a new type, specific to the openness context of FOSS services. This led to the identification of a novel action, coded as *evangelization*, as well as a new theorization action subtype, coded as *product-based theorization*. In order to distinguish this new *product-based theorization* action from the initial *theorization action* code, we renamed the latter to *service-based theorization*. In sum, we started with an initial coding scheme of 8 codes and we ended up with a final coding scheme of 10 codes.

The interview transcripts, observational notes, as well as the company websites (including blogs), were coded using NVivo10. The validity of the coding process was enforced through consensus between two researchers (i.e. first and second authors) involved in the data coding process (Rivard and Lapointe 2012). When consensus proved difficult to attain, we contacted the relevant interviewee to clarify the interpretation of the content in order to ensure the appropriate coding of the excerpts in question.

Beyond contacting interviewees to clarify our interpretation during the data analysis phase, the results were validated at the end of the analysis. The first author conducted subsequent follow-up interviews with all the interviewees, with the exception of the Omega case, as the provider was no longer in business. The first author met with each provider to present and discuss the entrepreneurial action types that were identified or that had emerged during data analysis and to validate the list of specific actions undertaken by the provider in each of these categories. This allowed us to confirm that the lists were accurate and exhaustive, and that each action was correctly categorized and coded. The validation of our findings was done either face-to-face (two providers) or by phone (four providers). In total, nearly six hours of validation were conducted, for a mean time of 55 minutes per case. These member-checks (Lincoln and Guba 1985) conducted to validate further our analyses proved particularly useful for interpreting certain actions for which evidence was found on websites. In some specific instances, we had coded certain actions as affiliation; however, FOSS service providers considered these to be collective actions.

FINDINGS AND ANALYSIS

We found that FOSS service providers employ a number of entrepreneurial actions, some of them such as *evangelization* and *product-based theorization* specific to the openness (FOSS services) context, in the legitimation of their service offering. Our findings also show that differences in the use and the frequency of use of certain entrepreneurial actions indicate a functional and philosophical difference between the FOSS service providers. We detail next the types of entrepreneurial actions and the types of institutional entrepreneurs found in the context of FOSS services.

Types of Entrepreneurial Actions for FOSS Services Legitimation

Specific to the FOSS services context, FOSS service providers employ an entirely new type of entrepreneurial action, which we label *evangelization*. In addition, these institutional entrepreneurs also use previously identified entrepreneurial actions such as affiliation, collective, and theorization actions. Nonetheless, our analysis revealed the use of an alternative form of theorization action based on the FOSS products around which FOSS services are built (rather than on the FOSS services themselves). In order to distinguish clearly the two action forms, we named the two theorization subtypes: *service-based* and *product-based theorization* actions. This distinction allowed us to make explicit the difference in terms of the object (product or service) upon which the theorization subtypes are based. The remainder of the sub-section follows the structure of **Table 4** which presents the conceptual definitions of all action types/subtypes along with

the various instances of entrepreneurial actions that were mentioned by multiple FOSS service providers.

| Table 4. Definitions and instances of FOSS services entrepreneurial actions | | |
|--|--|---|
| Action type and conceptual definition | Instances of actions | |
| <p>Affiliation: The forging of associations to borrow legitimacy from incumbent, better established actors (David et al. 2013)</p> | <ul style="list-style-type: none"> ▪ <i>Affiliation to popular professional IT-related events</i> ▪ <i>Affiliation to universities and research centers (by participating in case studies of the provider's company or by inviting professors to present at events organized by the provider)</i> ▪ <i>Affiliation with FOSS product: provider project participation; provider's certification of partnership delivered by FOSS project</i> ▪ <i>Affiliation with FOSS figures like Richard Stallman</i> ▪ <i>Affiliation with judges/lawyers having defended the FOSS movement</i> | |
| <p>Collective: The participation in coalescence and critical mass gain efforts of FOSS service providers or FOSS projects in order to overcome inevitable roadblocks to FOSS services (contextualized from David et al. (2013))</p> | <ul style="list-style-type: none"> ▪ <i>Active involvement association promoting FOSS products and services</i> ▪ <i>Collaboration with other FOSS service providers when delivering services</i> ▪ <i>Partnership agreements with FOSS projects</i> ▪ <i>Launch of political/legal actions with other FOSS service providers to counter the monopoly of proprietary software vendors</i> | |
| <p>Theorization</p> | <p>Service-based: The theorization, by the FOSS service provider of the FOSS services as consistent with existing field and organizational logics, practices, and routines, and/or compatible with the master logics of society at large (contextualized and adapted from David et al. (2013))</p> | <ul style="list-style-type: none"> ▪ <i>Emphasizing quality of service as demonstrated by awards won by the provider</i> ▪ <i>Emphasizing that services offered by the provider are the best in the IT service market</i> ▪ <i>Emphasizing that services offered by the provider are certified (by third-party or FOSS project)</i> ▪ <i>Demonstrating the superiority of FOSS services over proprietary services: greater sense of collaboration; focus on expertise rather than image; increased independence for the client from provider</i> ▪ <i>Emphasizing code contributions by the provider as an assurance of service expertise</i> ▪ <i>Emphasizing one's own use of FOSS by the provider as an assurance of service quality</i> |
| | <p>Product-based: The theorization of the FOSS products as consistent with existing field and organizational logics, practices, and routines, and/or compatible with the master logics of society at large in the hope that it will legitimate the FOSS services that are offered for those products (adapted from the definition of service-based theorization above for a new action subtype that has emerged from our study)</p> | <ul style="list-style-type: none"> ▪ <i>Demonstrating the superiority of FOSS over proprietary software: better overall quality; lower cost; higher flexibility; higher security; higher communality</i> ▪ <i>Emphasizing the overall quality of the specific FOSS products upon which the FOSS services are built</i> ▪ <i>Emphasizing the presence of a large and active community of contributors ensuring the FOSS product evolution and sustainability</i> |

| | |
|---|---|
| <p>Evangelization: The dissemination of the openness values of the FOSS movement in other organizations such as clients, local entrepreneurs, and the wider public, in the hope that it will help the legitimization of FOSS services (suggested definition for a whole new action type that has emerged from our study)</p> | <ul style="list-style-type: none"> ▪ <i>Communicating/promoting to clients or the wider public the openness values by demonstrating that they lead to a 'better' society</i> ▪ <i>Encouraging/helping to create new FOSS service providers based on the openness values</i> ▪ <i>Participating in public events (including conferences) advocating openness values</i> |
| <p>Legend: The actions in <i>italics</i> were found in both website content and interview transcripts.</p> | |

In the subsections that follow, each finding and entrepreneurial action is illustrated with the most substantive or revealing quote(s) among all the supporting evidence identified during the analysis of the data (Gillham 2000).

Affiliation actions

Our analysis showed that FOSS service providers undertook actions that aimed at forging associations with better established actors with the purpose of “borrowing” their legitimacy. Some of these actions were “standard”, which means that they could be enacted by service providers in contexts other than the openness context as well. The most recurrent entity mentioned when relying on the use of standard affiliation actions were professional IT-related events that did not focus on FOSS products or services specifically: “*We participate in trade shows, conferences and other big events like that. We are present at THE main annual event of the players in the industry that we target*” (Lambda). Affiliations with universities or research centers were another recurrent instance of standard affiliation action: “*Joining with [a university] gives [Delta] visibility and presence*” (Delta).

The most frequent instances of affiliation actions reflecting the openness of the context of FOSS service provision was affiliation with given FOSS products. Such action came in two forms. The first was affiliation with a given FOSS product through participation in the associated FOSS project (i.e., contributing to source code or user guides): “*Our contributions to code in [FOSS project] communities help a lot because it gives us some reputation in the communities*” (Alpha). The second form of affiliation with a given FOSS product was through certifications delivered by FOSS projects: “*It really is a challenge in itself to bring credibility to the FOSS service offering. We must have certifications as a supplier [...]. This positioning is important*” (Omega).

Two other instances of affiliation action reflecting openness were affiliation with judges/lawyers having defended the open source philosophy and with international FOSS figures: “*It gives [Delta] visibility and presence to join [this lawyer] because [he] made a mark on the minds of people who follow what happens in the IT world*” (Delta). In a similar vein, one notable international FOSS figure that was mentioned was Richard Stallman: “*Often, I'll invoke Stallman. And often, that's what ends all discussions [about the legitimacy of FOSS services]*” (Gamma).

Collective actions

Our investigation also revealed the reliance on standard collective actions by FOSS service providers. FOSS service providers were found to collaborate frequently with other FOSS service providers when delivering services: *“We collaborated several times with other FOSS service providers [...] because we had not yet constituted our expertise. We kept in touch with them and tried again to work together”* (Delta). Another such instance was the establishment of formal commercial partnership agreements with FOSS projects: *“We are a privileged partner for [a specific FOSS product]. It is a win-win deal [...], a real partnership [in which we] invest and [they] invest as well. They need us as much as we need them”* (Omega). A last instance of standard collective actions consisted in being actively involved in the association that promotes FOSS products and services: *“[Beta] is involved in [the Association] since a long time. [...] It's a job that is super important [...] for the image of the FOSS services industry”* (Beta).

The launching of collective political/legal actions with other FOSS service providers to counter the monopoly of proprietary solutions in the market can be seen as instances of openness-specific collective actions. For example, when a discussion forum was initiated by the government to give FOSS service providers the opportunity to convince policymakers of the ability of this nascent industry to meet the public sector's needs in large-scale projects, some providers would regroup to formulate their arguments: *“When we had to submit convincing arguments to the government [...] I always worked with [another FOSS service provider] to write the texts”* (Beta).

Service-based theorization actions

Service-based theorization actions were also undertaken by FOSS service providers. The demonstration of the value proposition of FOSS services, emphasizing that services offered by the provider were the best in the IT service market, was a recurrent instance of standard entrepreneurial action. *“I would say without flattery [that our service offering] does not exist anywhere else in the world. [...] This is an extraordinary advantage. [...] It's] a way to leverage our expertise with customers”* (Delta). Another standard form of service-based theorization action was the emphasizing of service quality, as demonstrated by awards won by the provider: *“[W]hen we arrive and make presentations [to potential customers], it influences a little bit [when we say we won these awards]. We stand out from the crowd [of FOSS service providers]”* (Epsilon). Finally, a last standard service-based theorization action was the underscoring of the certifications (delivered by third-parties or by the FOSS projects themselves) of the offered services: *“[We are] certified as an authorized training center by [the Ministry of Labor] and by [FOSS project X] professional certification”* (Delta).

Our analysis revealed the existence of three instances of service-based theorization actions in the data that were specific to the openness context of FOSS services. The first was to demonstrate the superiority of FOSS services over services offered by proprietary IT firms. To do so, FOSS service providers emphasized the collaborative nature of FOSS services:

“[The] collaborative values we convey through our services meet the FOSS values. The approach changes completely. We are talking of [...] interdependence with the client where you want to transfer your knowledge. That is really a way to work that clients are not normally accustomed to. [...] In the proprietary software market, [...] the approach is completely different.” (Omega)

FOSS service providers also emphasized their superior technical expertise on the specific FOSS products they were offering:

“Organizations will look at how many commits we have done in the FOSS project and they will say – Wow! We will go and see them; they are good. Not just to be fooled by beautiful PowerPoint or sellers who speak well of their proprietary products.” (Alpha)

Lastly, the FOSS service providers highlighted the independence from the service provider that their offering could afford the clients. In contrast to proprietary software services, whose code can only be acquired from software vendors and selected service providers, anyone can freely access the source code of FOSS products and become a FOSS service provider (West 2003). As one of the interviewees stated:

“From the beginning and what has made us successful, we present as an advantage: ‘You are not dependent on us. Tomorrow morning, you want to go to a competitor, and he can continue exactly where we left.’ [...] This is a big selling point for many customers because there are many clients who were locked in. They had bought [proprietary software] and suddenly they were no longer supported [i.e. services were no longer available from the vendors].” (Epsilon)

Two other recurrent instances of service-based theorization actions reflecting openness were evident. The first type regards the explicit argumentation around the idea that the code contributions to FOSS products, regularly made by the provider, are a clear assurance of service expertise: *“In services, our strength is people. [...] Our people contribute [to FOSS products], they [create] code” (Delta)*. The other type consisted in highlighting to the customers that the FOSS service provider is itself an experienced user of the implemented FOSS products, an argument for being able to deliver high service quality: *“The software we use internally are also those for whom we offer support. [...] That's what makes our support the best” (Alpha)*.

Product-based theorization actions

In addition to service-based theorization actions that were employed to legitimate FOSS services, our analysis revealed that FOSS service providers could also focus their line of argument on the FOSS products around which the services are built. When theorizing about FOSS products, FOSS service providers elaborated on the advantages of FOSS products over proprietary software.

FOSS service providers argued that FOSS products were of a better overall quality when compared to proprietary software. When elaborating on the superiority of FOSS solutions, respondents also highlighted the lower cost of acquisition for FOSS products and their higher flexibility: *“Proprietary software can cost thousands of dollars or more per year [...]. Many organizations do not have the budgets to afford that [...]. No licensing cost is one of the advantages of FOSS”* (Lambda) and *“We often sell our services [because] we really try to optimize the user experience. And without FOSS products, you simply cannot do that”* (Epsilon). Another prominent advantage of FOSS products that was mentioned by the FOSS service providers was that FOSS products offered better security than proprietary software since there are many more people scrutinizing the code: *“When I am asked: ‘Is [FOSS] safe [like proprietary software]?’ [...] I answer, ‘Well yes, there are 4 million users [of a FOSS-based governmental portal]’. Then [potential clients] are flabbergasted”* (Delta). Finally, higher communality was also mentioned as an advantage of FOSS over proprietary software: *“I speak of the advantage of being part of a community [... T]his is what makes FOSS products great [relative to proprietary software] for [organizations with] the goal to share information. I mention that [...] when I meet them”* (Lambda). Respondents also emphasized the presence of a large and active community of contributors that ensured FOSS product evolution and sustainability: *“The [FOSS product X’s] community has hundreds of thousands of developers. [Our clients] can benefit from an evolutionary platform.”* (Beta) or *“[Y] is an evolutionary product supported by the collaboration of [...] organizations”* (Alpha).

Interestingly, in three cases (Epsilon, Lambda and Omega), the provider intentionally chose not to use product-based theorization actions in certain circumstances. Specifically, when speaking with certain potential clients, these providers would purposefully refrain from mentioning (and in some cases hide the fact) that the offered services were built around FOSS products: *“Sometimes talking about FOSS products [to potential clients] can confuse the issue and there are still some people who are prejudiced against it”* (Lambda).

Evangelization actions

As mentioned above, a new legitimation action type emerged from our analysis. Some providers referred to the use of an entrepreneurial action based on the rationale that the diffusion of the openness values of the FOSS movement among organizations (such as clients and local entrepreneurs) as well as to the general public, would contribute to the legitimation of FOSS services.

Providers discussed participating in public events (including conferences) that were advocating openness values. For example, one of the providers made a website announcement regarding their upcoming presentation at an *“advocacy event [on] Free/Libre Open Source Software”* (Gamma). In a similar vein, additional FOSS service providers specifically relied on the communication and promotion to clients and to the wider public of the openness values underlying the field of FOSS services provision by demonstrating that FOSS would lead to a “better” society (compared to bureaucracy):

“Every time we were honest it was a winner. [People] are not used to [the open way of doing business]. With us, everything is open [...]. We said, 'Here are our strengths, here are our weaknesses [and] understand that if we are successful, it is because there is some truth, some good, in what we do [...]'. What we do, it is the real thing. [...] We have [a] structure [...] at our image and it is normal to be that way. We are in the human domain. It is not bureaucratic. [Bureaucracy] precludes the human visions to unfold. If tomorrow [Delta] disappears, what we would leave to Society, Society with a capital “S”, is it not another way than bureaucracy to do business?” (Delta)

Providers also encouraged other entrepreneurs to embrace the openness values of the FOSS movements:

“Our business is organized on the FOSS model. All the FOSS principles are encoded in the functioning of our organization [...]. All our founding principles, the general regulations, these documents are public so people can take them and implement them [...]. We explain how we are organized. Entrepreneurs say ‘Oh, it's really interesting! We will follow that model.’ [...] Our goal is evangelization of the FOSS model.” (Alpha)

In two cases (Epsilon and Omega), providers purposefully and intentionally choose not to use evangelization actions at all. That is, some FOSS service providers engaged in openness evangelism, while other deliberately refrained from this specific openness legitimization action.

Types of Institutional Entrepreneurs in FOSS Services

Based on the above legitimization actions taken or not taken, the analysis identifies two institutional entrepreneur archetypes, the *commercialist* and the *communalist*, characterized by their use of different sets of entrepreneurial actions.

The “commercialist” type OSS service provider entrepreneur focuses on actions commonly undertaken by other service firms and thus more aligned with David et al. (2013)’s findings. In the extreme, the commercialist may sometimes hide the openness that is inherent to the FOSS products around which the FOSS services are built and the foundational values of the service provision field. A commercialist adheres to the FOSS commercial-friendly movement, as exemplified in a statement made by Epsilon:

“Here we have really an entrepreneurial mentality; we are not in the gift-giving mentality. We are not in the FOSS religion. We are not in idealism. We are really pragmatic. We are more in the Open Source Initiative approach than the Free Software Foundation approach. Stallman is really not the guru here.” (Epsilon)

The commercialist can sometimes act similarly to a proprietary software service provider. In terms of FOSS services-specific entrepreneurial actions uncovered in this study, the commercialist will engage primarily in product-based theorization to focus on the value-added proposition of the FOSS product rather than on its open nature.

In contrast, the “communalist” type OSS service provider entrepreneur is aligned with the traditional FOSS movement that preceded the more commercial-friendly one. In fact, Alpha, Beta and Gamma all mentioned Richard Stallman, the Free Software Foundation, or its value proposition. For example:

“The freedom culture for me is common sense. If as a society we do not choose that path, then we are doomed. It is violent. I adhere strongly to Richard Stallman’s discourse when he says that everything that is not free is an attack to our freedoms. We are under attack.” (Gamma)

With regards to FOSS services-specific entrepreneurial actions, the communalist will make use of all types of actions. Notably, they will not shy away from evangelizing the openness values that are the pillars of the field of FOSS service provision.

DISCUSSION

This help us to understand the entrepreneurial actions used by FOSS service providers to legitimate FOSS services in the marketplace. A number of contributions and implications for research and practice arise.

Guided by the research question of *how FOSS service providers use entrepreneurial actions to legitimate their service offering*, our findings show the existence of new types of entrepreneurial actions compared to those identified in earlier literature. More specifically, we uncovered one additional legitimatization action type, that we call *evangelization*, and the existence of a theorization action subtype, namely *product-based theorization*. We argue that the emergence of the new action type and subtype is the result of differences between FOSS services and the management services context studied by David et al. (2013). These two different contexts vary across several dimensions including: the maturity of the field (e.g., IT services is an established field), the locus of change (e.g., FOSS service provision as a new organizational practice), the underlying product type (e.g. free/open source software) and, most importantly, the strong foundational values at the basis of the field (i.e., openness values). For instance, we have found that FOSS service providers sought to legitimate their FOSS services by undertaking *product-based theorization*. In engaging with potential clients, this action is rooted in underlining key, unique characteristics of FOSS products afforded to them by their open nature. In particular, FOSS service providers theorize the FOSS product’s co-developed nature, based on sharing, helping, and cooperating, as opposed to proprietary software closed development process. Similarly, other product-based theorization actions emphasize the presence of a large and active community of contributors which ensures, to some extent, the FOSS product’s evolution and sustainability, as opposed to proprietary

software which may tie a client to specific vendors. In addition, the existence of values encapsulated within FOSS products and their development, engenders novel legitimization strategies through *evangelization* actions that aim at diffusing the openness values of the FOSS movement in the marketplace through potential clients.

These FOSS-specific entrepreneurial actions notwithstanding, our results show that other entrepreneurial actions used by FOSS service providers, namely affiliation, collective, and service-based theorization are similar to those previously reported in literature (David et al. 2013). Thus, we bring empirical evidence to support previous findings, in a different research setting, namely that of FOSS services. For example, *affiliation* with universities or research centers are instances of affiliation actions to legitimate FOSS services. This finding is similar to the case of management consulting firms that “made extensive use of affiliations [...] to universities” (David et al. 2013, p. 368). One possible explanation is that FOSS service providers, similarly to management consulting firms, acknowledge that “forging ties to universities [...] increased clients’ confidence and trust” (David et al. 2013, p. 373). With regards to collective actions, the FOSS service providers coalesced into an association whose primary activity was outward-oriented, namely, to promote FOSS products and services in the marketplace. Such action is similar for management consulting firms, with the subtle difference that the management consulting association they created had an inward orientation to “promote common structures and practices for member firms” (David et al. 2013, p. 369). In regard to *service-based theorization* actions, FOSS service providers argued that FOSS services represent a good solution, one that is better than the solutions already prevailing in organizations, namely proprietary IT services.

By observing how different sets of entrepreneurial actions are used by different FOSS service providers, we find evidence of two distinct FOSS service entrepreneur profiles, the *commercialist* and the *communalist*. On the one hand, the FOSS service providers reflected in the commercialist archetype belong to the commercial-friendly, Open Source movement and undertake entrepreneurial actions that are more similar to those found by David et al. (2013) when studying management consulting firms. On the other hand, the FOSS service providers associated with the communalist archetype adhere to the ideological stream of the FOSS movement and tend to undertake the novel entrepreneurial action types we identified in our study, and that are particular to the FOSS context, namely product-based theorization and evangelization. These results suggest that the use of particular entrepreneurial actions by FOSS service providers is shaped by their degree of adherence to the openness values embedded in the product that lies at the heart of their services. Such findings echo the two subsequent forms that characterize the gradual evolution of the free/open source phenomenon over time developed by Fitzgerald (2006). The initial form, entitled ‘FOSS’ by the author, is closer to the Free Software movement with an emphasis on the openness values surrounding free software. ‘OSS 2.0’ has a much more pragmatic stance as “those involved are neither driven primarily by ideology nor seeking to make vast fortunes. They simply wish to earn a reasonable livelihood from their efforts” (p. 596). While commercialists would rather relate to the latter model, communalists would be more aligned with the principles of the initial FOSS form. In a similar vein, the results share similarities with the two distinct

strategies employed by companies to derive business value from FOSS proposed by Morgan and Finnegan (2014). While “operational open source” tends to see FOSS as a low cost alternative to proprietary software (an argumentation which commercialists would employ to legitimate their services), “strategic open source” pertains to the leveraging of the openness-based characteristics of FOSS development, that are common to peer production and open innovation processes. The latter view is more in line with the value proposition developed by communalists when using product-based theorization actions.

Our study contributes to the literature on FOSS services (e.g., Ågerfalk and Fitzgerald 2008; Deodhar et al. 2012; Orlikowski and Scott 2015) by showing how FOSS service providers carved out a market opportunity by using a set of entrepreneurial actions in order to legitimate their offering. We confirm the transformative nature of openness (Feller et al. 2008; Morgan et al. 2013; Morgan and Finnegan 2014) which gives rise to new business opportunities for organizations such as FOSS service providers (e.g., Faraj et al. 2011; Feller et al. 2008). In this context, our results have shown the impact of openness on institutional entrepreneurship through the emergence of new entrepreneurial action types and instances. First, the open nature of FOSS products expressed in terms of transparency, accessibility, modularity, and engagement with FOSS communities (Baldwin and Clark 2006; Germonprez et al. 2016; Shaikh 2016) has engendered the subdivision of theorization actions into two subtypes: service-based and product-based theorization. Second, the reflection of openness principles in FOSS products (Schlagwein et al. 2017), as a result of their development process, mainly through values related to sharing, helping, and cooperating (Von Krogh et al. 2012), gives birth to a novel entrepreneurial action, evangelization, which aims at diffusing such values into organizations. Our study identifies two distinct legitimation strategies to be followed by FOSS service providers depending on the extent to which they adhere to the FOSS values. We show that some providers favored actions that reflect openness, while others favored standard actions that could be enacted by any provider offering services associated with a proprietary product. Specifically, in choosing their entrepreneurial actions some FOSS service providers more fully embraced the openness context in which they evolved than others did. In fact, in circumstances where they felt that the legitimacy of their services could be at stake, some FOSS service providers even hid the fact that their service offering were based on products that embodied openness. Moreover, some providers refrained entirely from the use of evangelization actions that are aimed at promoting and diffusing the openness values at the basis of the FOSS movement. Such results carry important implications for better understanding FOSS service legitimation. Indeed, we suggest that there is not a single success path towards developing a FOSS service provider's capacity to build a strong presence and reputation (Dahlander 2005). The optimal legitimation strategy shall be chosen according to whether FOSS values are perceived either from a pragmatic or ideological stance by FOSS service providers. Our study suggests that a misalignment between a FOSS service provider's degree of adherence to the FOSS values (commercialist versus communalist) and its choice of entrepreneurial actions would lead to incoherence perceptions from customers and thus endanger the provider's success, sustainability, and growth. At a higher level, this would jeopardize the legitimation of FOSS services into the marketplace. In other words, FOSS

service legitimation shall not be necessarily enacted by service providers through the emphasis of the FOSS movement ideology and values (Fitzgerald 2006; Schlagwein et al. 2017).

Our findings support the existence of a balance of openness (Enkel et al. 2009) rather than a strict dichotomy of open versus closed. Research on open innovation states that businesses are rarely purely open or purely closed in their innovation process, and that each has to find the appropriate balance of openness that will maximize the long-term success of the innovation being developed (Enkel et al. 2009). The fact that all FOSS service providers, when legitimating their services, chose theorization, affiliation, collective actions and, to varying extents FOSS context-specific actions, further demonstrates that the balance between openness and closeness is a reality for FOSS services institutional entrepreneurship. None of the FOSS service providers was fully open or fully closed, as a FOSS service institutional entrepreneur.

Our study provides empirical evidence for the context-dependency argument related to the use of entrepreneurial actions to gain legitimation in the marketplace. The FOSS services context of our study differed from the context of management consulting firms studied by David et al. (2013) across key dimensions of context: economic, technological, and social (Avgerou Forthcoming). From an economic perspective, the *maturity of the field* and *locus of change* are key differentiating contextual elements as IT services is a well-established field, whereby FOSS service provision needs to be legitimated and accepted by potential clients as a new organizational practice. From a technological stance, FOSS services are based on an *underlying product type*, namely free/open source software, with its own unique characteristics that pertain to its community-based development and maintenance. Last but not least, from a social standpoint, the FOSS service provision field is based on distinctive *foundational values* of openness stemming from the FOSS movement.

We found evidence that a number of entrepreneurial actions were particular to the context of FOSS service provision and shaped by openness. Thus, the main contribution to research of our study is to demonstrate the role of context in shaping the emergence of different sets of entrepreneurial actions and to also show the context-dependency of organizational efforts to legitimate new products and services (in our scenario, the openness context). Our findings come at a time when Davison and Martinsons (2016) note, in reference to IS research, that there is

“a growing tendency to study specific phenomena and particular cases. Each phenomenon or case is based on a distinctive context even as it has certain general properties. However, it is rare to see explicit consideration of the context and its key characteristics. The growing tendency to conduct studies in a specific context without considering the implications raises an important issue: the extent of validity of our research findings and conclusions.” (p. 242; emphasis added)

Taking this argument and our findings seriously, future research using institutional theory to study the entrepreneurial actions used to legitimate new IT-based services in the marketplace should explicitly conceptualize and state their key contextual dimensions before theorizing the existence of similar entrepreneurial actions.

Indeed, our study provides additional support for the need for contextual considerations when developing theories in the information systems (Chiasson and Davidson 2005), as well as in the social sciences more broadly (Johns 2006). Attention to context is crucial when developing new theories as it may thwart threats to internal and external validity. We particularly concur with and elaborate on Chiasson and Davidson (2005)'s argumentation that claim that "industry provides an important contextual space to build new IS theory and to evaluate the boundaries of existing IS theory" (p. 591). While we showed that legitimation mechanisms (more specifically entrepreneurial actions), are altered when changing contexts from management consulting to FOSS services, we also identified key contextual characteristics, namely maturity of the field, locus of change, product type (when a product is underlying the services), and presence of (and adherence of the service provider to) foundational values, that shall be taken into considerations when theorizing. This raises significant implications for the IS field as it provides preliminary considerations that can help conceptualize context when building or generalizing theories.

In terms of practical contributions, our study can help new or established FOSS providers to reflect and to assess on their relative positioning vis-à-vis foundational openness values underpinning the FOSS services provision field. When it comes to established FOSS service providers, our study can help them understand better their position before deciding whether to change their choices of entrepreneurial actions or to maintain their current strategy for gaining legitimation in the marketplace. For newcomers in the industry, it can further help to develop their institutional entrepreneurship strategy by suggesting which entrepreneurial actions to engage in. Given that legitimation is key to successful market creation (Humphreys 2010), as well as to ensuring market access and participation (Mair et al. 2012), the contributions of our study can be crucial to practice.

Despite its contributions, our study has a number of limitations that, in themselves, could represent avenues for future research. For instance, this work could benefit from subsequent research focusing on similar types of organizations and adopting a more grounded approach, such as ethnography, that could complement and deepen our understanding of FOSS service legitimation. By spending time, in the field, with the FOSS service providers, while they interact with prospective clients, would allow the researcher to take note of the stories, gestures, habits, and objects used in the legitimation of the service provision. Such perspective may complement the current study's reliance on primarily self-reported data with natural data and direct observation.

Our study identifies a number of entrepreneurial actions specific to the FOSS context in a static, taxonomic fashion. Yet, surely the use of entrepreneurial actions by the FOSS service providers is more dynamic, evolving over time with changing market conditions, maturity levels of clients and service providers alike, and the readiness of clients to adopt

the FOSS products at the basis of the service offering. A process model that would show the use over time of certain sets of entrepreneurial actions aimed at gaining legitimacy by commercialist and communalist FOSS service providers could contribute to a better understanding of context-specific aspects of institutional theory.

An additional avenue for future research would be to explore how the open nature of the IT artefact leads to the dissociation between FOSS products and their associated services. We have shown that FOSS service providers can neglect to reveal the inherent openness of FOSS products in order to circumvent resistance from the status quo. This would not have been possible in the context of proprietary solutions where the software product and services are necessarily offered together.

Since we have shown and argued for the importance of context in shaping the entrepreneurial actions used for legitimation purposes, further research would also be needed to assess the extent to which our findings are transferable to service types and other value-laden contexts than the openness context.

CONCLUSION

In answering the research question, we uncovered the existence of entrepreneurial actions used for legitimation purposes that are unique to the FOSS services context, namely product-based theorization and evangelization. The relative use of these new entrepreneurial actions versus more traditional ones discussed in the literature, such as service-based theorization, collective, and affiliation actions is shaped by FOSS service providers' embracing (to varying extents) the openness values embedded in the FOSS products upon which their services are based. We chose to study FOSS service providers in a setting where the providers are obliged to make an effort in legitimating their offering in order to create and exploit a market opportunity. Our work directs attention to crucial contextual elements that institutional entrepreneurs and researchers in institutional entrepreneurship for services should be mindful of: the maturity of the service field, the locus of change entailed by the new service provision, the nature of the product around which the services are built as well as the foundational values permeating the product and service provision field – such as the openness values in our case. This also re-emphasizes the need for stronger contextual considerations when developing IS theory in general.

REFERENCES

- Ågerfalk, P. J., and Fitzgerald, B. 2008. "Outsourcing to an Unknown Workforce: Exploring Opensourcing as a Global Sourcing Strategy," *MIS Quarterly* (32:2), pp. 385-409.
- Aldrich, H. E., and Fiol, C. M. 1994. "Fools Rush In? The Institutional Context of Industry Creation," *Academy of Management Review* (19:4), pp. 645-670.
- August, T., Shin, H., and Tunca, T. I. 2017. "Generating Value through Open Source: Software Service Market Regulation and Licensing Policy," *Information Systems Research* (29:1), pp. 186-205.
- Avgerou, C. Forthcoming. "Contextual Explanation: Alternative Approaches and Persistent Challenges," *MIS Quarterly*.
- Baldwin, C. Y., and Clark, K. B. 2006. "The Architecture of Participation: Does Code Architecture Mitigate Free Riding in the Open Source Development Model?," *Management Science* (52:7), pp. 1116-1127.
- Baum, J. A. C. 1999. "Organizational Ecology," in *Studying Organization: Theory and Method*, S.R. Clegg and C. Hardy (eds.). London, UK: Sage Publications Inc., pp. 71-108.
- Boltanski, L., and Thévenot, L. 2006. *On Justification: Economies of Worth*. Princeton University Press.
- Carillo, K., Huff, S., and Chawner, B. 2017. "What Makes a Good Contributor? Understanding Contributor Behavior within Large Free/Open Source Software Projects—a Socialization Perspective," *Journal of Strategic Information Systems* (26:4), pp. 322-359.
- Chen, A. J., Boudreau, M.-C., and Watson, R. T. 2008. "Information Systems and Ecological Sustainability," *Journal of Systems and Information Technology* (10:3), pp. 186-201.
- Chengalur-Smith, I., Sidorova, A., and Daniel, S. 2010. "Sustainability of Free/Libre Open Source Projects: A Longitudinal Study," *Journal of the Association for Information Systems* (11:11/12), pp. 657-683.
- Chiasson, M. W., and Davidson, E. 2005. "Taking Industry Seriously in Information Systems Research," *MIS Quarterly* (29:4), pp. 591-605.
- Corbin, J., and Strauss, A. 2008. *Basics of Qualitative Research: Techniques and Procedures for Developing Grounded Theory*. Thousand Oaks, CA: Sage Publications Inc.
- Czarniawska, B. 1997. *Narrating the Organization: Dramas of Institutional Identity*. University of Chicago Press.
- Czarniawska, B. 2009. "Emerging Institutions: Pyramids or Anthills?," *Organization Studies* (30:4), pp. 423-441.
- Dahlander, L. 2005. "Appropriation and Appropriability in Open Source Software," *International Journal of Innovation Management* (9:3), pp. 259-285.
- Dahlander, L., and Frederiksen, L. 2012. "The Core and Cosmopolitans: A Relational View of Innovation in User Communities," *Organization Science* (23:4), pp. 988-1007.
- Daniel, S., and Stewart, K. 2016. "Open Source Project Success: Resource Access, Flow, and Integration," *Journal of Strategic Information Systems* (25:3), pp. 159-176.

- David, R. J., Sine, W. D., and Haveman, H. A. 2013. "Seizing Opportunity in Emerging Fields: How Institutional Entrepreneurs Legitimated the Professional Form of Management Consulting," *Organization Science* (24:2), pp. 356-377.
- Davison, R. M., and Martinsons, M. G. 2016. "Context Is King! Considering Particularism in Research Design and Reporting," *Journal of Information Technology* (31:3), pp. 241-249.
- Deodhar, S. J., Saxena, K., Gupta, R. K., and Ruohonen, M. 2012. "Strategies for Software-Based Hybrid Business Models," *Journal of Strategic Information Systems* (21:4), pp. 274-294.
- DiMaggio, P., and Powell, W. W. 1983. "The Iron Cage Revisited: Collective Rationality and Institutional Isomorphism in Organizational Fields," *American Sociological Review* (48:2), pp. 147-160.
- DiMaggio, P. J. 1988. *Interest and Agency in Institutional Theory*. Cambridge, MA: Ballinger.
- Dubé, L., and Paré, G. 2003. "Rigor in Information Systems Positivist Case Research: Current Practices, Trends, and Recommendations," *MIS Quarterly* (27:4), pp. 597-636.
- Dunford, R. 2000. "Key Challenges in the Search for the Effective Management of Knowledge in Management Consulting Firms," *Journal of Knowledge Management* (4:4), pp. 295-302.
- Enkel, E., Gassmann, O., and Chesbrough, H. 2009. "Open R&D and Open Innovation: Exploring the Phenomenon," *R&D Management* (39:4), pp. 311-316.
- Etzion, D., and Ferraro, F. 2010. "The Role of Analogy in the Institutionalization of Sustainability Reporting," *Organization Science* (21:5), pp. 1092-1107.
- Faraj, S., Jarvenpaa, S. L., and Majchrzak, A. 2011. "Knowledge Collaboration in Online Communities," *Organization Science* (22:5), pp. 1224-1239.
- Feller, J., Finnegan, P., Fitzgerald, B., and Hayes, J. 2008. "From Peer Production to Productization: A Study of Socially Enabled Business Exchanges in Open Source Service Networks," *Information Systems Research* (19:4), pp. 475-493.
- Fitzgerald, B. 2006. "The Transformation of Open Source Software," *MIS Quarterly* (30:3), pp. 587-598.
- Fitzgerald, B., and Kenny, T. 2004. "Developing an Information Systems Infrastructure with Open Source Software," *Software, IEEE* (21:1), pp. 50-55.
- Germonprez, M., Kendall, J. E., Kendall, K. E., Mathiassen, L., Young, B., and Warner, B. 2016. "A Theory of Responsive Design: A Field Study of Corporate Engagement with Open Source Communities," *Information Systems Research* (28:1), pp. 64-83.
- Gillham, B. 2000. *Case Study Research Methods*. Bloomsbury Publishing.
- Guilloux, V., Locke, J., and Lowe, A. 2013. "Digital Business Reporting Standards: Mapping the Battle in France," *European Journal of Information Systems* (22:3), pp. 257-277.
- Hallett, T. 2010. "The Myth Incarnate: Recoupling Processes, Turmoil, and Inhabited Institutions in an Urban Elementary School," *American Sociological Review* (75:1), pp. 52-74.
- Hannan, M. T., and Carroll, G. R. 1992. *Dynamics of Organizational Populations: Density, Legitimation, and Competition*. Oxford University Press.

- Hannan, M. T., Carroll, G. R., Dundon, E. A., and Torres, J. C. 1995. "Organizational Evolution in a Multinational Context: Entries of Automobile Manufacturers in Belgium, Britain, France, Germany, and Italy," *American Sociological Review* (60:4), pp. 509-528.
- Hannan, M. T., and Freeman, J. 1977. "The Population Ecology of Organizations," *American Journal of Sociology* (82:5), pp. 929-964.
- Haveman, H. A., and David, R. J. 2008. "Ecologists and Institutionalists: Friends or Foes," in *The Sage Handbook of Organizational Institutionalism*, R. Greenwood, C. Oliver, K. Sahlin and R. Suddaby (eds.). London, UK: Sage Publications Inc., pp. 573-595.
- Henfridsson, O., and Yoo, Y. 2013. "The Liminality of Trajectory Shifts in Institutional Entrepreneurship," *Organization Science* (25:3), pp. 932-950.
- Howison, J., and Crowston, K. 2014. "Collaboration through Open Superposition: A Theory of the Open Source Way," *MIS Quarterly* (38:1), pp. 29-50.
- Humphreys, A. 2010. "Megamarketing: The Creation of Markets as a Social Process," *Journal of Marketing* (74:2), pp. 1-19.
- Hyvönen, T., Järvinen, J., Oulasvirta, L., and Pellinen, J. 2012. "Contracting out Municipal Accounting: The Role of Institutional Entrepreneurship," *Accounting, Auditing & Accountability Journal* (25:6), pp. 944-963.
- Johns, G. 2006. "The Essential Impact of Context on Organizational Behavior," *Academy of Management Review* (31:2), pp. 386-408.
- Kaganer, E. A., Pawlowski, S. D., and Wiley-Patton, S. 2010. "Building Legitimacy for IT Innovations: The Case of Computerized Physician Order Entry Systems," *Journal of the Association for Information Systems* (11:1), pp. 1-33.
- Lakhani, K. R., and Von Hippel, E. 2003. "How Open Source Software Works: "Free" User-to-User Assistance," *Research Policy* (32:6), pp. 923-943.
- Lawrence, T., Suddaby, R., and Leca, B. 2011. "Institutional Work: Refocusing Institutional Studies of Organization," *Journal of Management Inquiry* (20:1), pp. 52-58.
- Lerner, J., and Tirole, J. 2002. "Some Simple Economics of Open Source," *Journal of Industrial Economics* (50:2), pp. 197-234.
- Lincoln, Y. S., and Guba, E. G. 1985. *Naturalistic Inquiry*. Newbury Park, CA: Sage Publications, Inc.
- Maguire, S., Hardy, C., and Lawrence, T. B. 2004. "Institutional Entrepreneurship in Emerging Fields: Hiv/Aids Treatment Advocacy in Canada," *Academy of Management Journal* (47:5), pp. 657-679.
- Mair, J., Martí, I., and Ventresca, M. J. 2012. "Building Inclusive Markets in Rural Bangladesh: How Intermediaries Work Institutional Voids," *Academy of Management Journal* (55:4), pp. 819-850.
- Marsan, J., and Paré, G. 2013. "Antecedents of Open Source Software Adoption in Health Care Organizations: A Qualitative Survey of Experts in Canada," *International Journal of Medical Informatics* (82:8), pp. 731-741.
- Marsan, J., Paré, G., and Beaudry, A. 2012. "Adoption of Open Source Software in Organizations: A Socio-Cognitive Perspective," *Journal of Strategic Information Systems* (21:4), pp. 257-273.

- McPherson, M., Smith-Lovin, L., and Cook, J. M. 2001. "Birds of a Feather: Homophily in Social Networks," *Annual Review of Sociology*, pp. 415-444.
- Mergel, I. 2015. "Open Collaboration in the Public Sector: The Case of Social Coding on Github," *Government Information Quarterly* (32:4), pp. 464-472.
- Mockus, A., Fielding, R. T., and Herbsleb, J. D. 2002. "Two Case Studies of Open Source Software Development: Apache and Mozilla," *ACM Transactions on Software Engineering and Methodology (TOSEM)* (11:3), pp. 309-346.
- Morgan, L., Feller, J., and Finnegan, P. 2013. "Exploring Value Networks: Theorising the Creation and Capture of Value with Open Source Software," *European Journal of Information Systems* (22:5), pp. 569-588.
- Morgan, L., and Finnegan, P. 2014. "Beyond Free Software: An Exploration of the Business Value of Strategic Open Source," *Journal of Strategic Information Systems* (23:3), pp. 226-238.
- O'Mahony, S., and Ferraro, F. 2007. "The Emergence of Governance in an Open Source Community," *Academy of Management Journal* (50:5), pp. 1079-1106.
- Olson, M. 2009. *The Logic of Collective Action: Public Goods and the Theory of Groups*. Cambridge, MA: Harvard University Press.
- Orlikowski, W. J., and Scott, S. V. 2015. "The Algorithm and the Crowd: Considering the Materiality of Service Innovation," *MIS Quarterly* (39:1), pp. 201-216.
- Patton, M. Q. 2002. *Qualitative Research & Evaluation Methods*. SAGE Publications.
- Powell, W. W., and DiMaggio, P. J. 1991. *The New Institutionalism in Organizational Analysis*. Chicago, Illinois: University of Chicago Press.
- Ramiller, N. C., and Swanson, E. B. 2003. "Organizing Visions for Information Technology and the Information Systems Executive Response," *Journal of Management Information Systems* (20:1), pp. 13-50.
- Raymond, E. S. 1999. "A Brief History of Hackerdom," in *Open Sources: Voices from the Open Source Revolution*, C. DiBona, S. Ockman and M. Stone (eds.). Sebastopol, CA: O'Reilly Media, Inc., pp. 19-30.
- Rivard, S., and Lapointe, L. 2012. "Information Technology Implementers' Responses to User Resistance: Nature and Effects," *MIS Quarterly* (36:3), pp. 897-920.
- Safadi, H., Chan, D., Dawes, M., Roper, M., and Faraj, S. 2015. "Open-Source Health Information Technology: A Case Study of Electronic Medical Records," *Health Policy and Technology* (4:1), pp. 14-28.
- Schlagwein, D. 2018. "'Escaping the Rat Race': Justifications in Digital Nomadism," *European Conference on Information Systems*, Portsmouth, UK.
- Schlagwein, D., Conboy, K., Feller, J., Leimeister, J. M., and Morgan, L. 2017. "'Openness' with and without Information Technology: A Framework and a Brief History," *Journal of Information Technology* (32:4), pp. 297-305.
- Scott, W. R. 2013. *Institutions and Organizations: Ideas, Interests, and Identities*. Sage Publications.
- Shaikh, M. 2016. "Negotiating Open Source Software Adoption in the UK Public Sector," *Government Information Quarterly* (33:1), pp. 115-132.
- Stewart, K. J., and Gosain, S. 2006. "The Impact of Ideology on Effectiveness in Open Source Software Development Teams," *MIS Quarterly* (30:2), pp. 291-314.
- Suchman, M. C. 1995. "Managing Legitimacy: Strategic and Institutional Approaches," *Academy of Management Review* (20:3), pp. 571-610.

- Suddaby, R., and Greenwood, R. 2005. "Rhetorical Strategies of Legitimacy," *Administrative Science Quarterly* (50:1), pp. 35-67.
- Tolbert, P. S., and Zucker, L. G. 1996. "The Institutionalization of Institutional Theory," in *Handbook of Organization Studies*, S.R. Clegg, C. Hardy and W.R. Nord (eds.). Thousand Oaks, CA, USA: SAGE Publications Inc., pp. 175-190.
- Von Krogh, G., Haefliger, S., Spaeth, S., and Wallin, M. W. 2012. "Carrots and Rainbows: Motivation and Social Practice in Open Source Software Development," *MIS Quarterly* (36:2), pp. 649-676.
- Wang, P., and Swanson, B. E. 2007. "Launching Professional Services Automation: Institutional Entrepreneurship for Information Technology Innovations," *Information and Organization* (17:2), pp. 59-88.
- Wang, P., and Swanson, B. E. 2008. "Customer Relationship Management as Advertised: Exploiting and Sustaining Technological Momentum," *Information Technology & People* (21:4), pp. 323-349.
- West, J. 2003. "How Open Is Open Enough?: Melding Proprietary and Open Source Platform Strategies," *Research Policy* (32:7), pp. 1259-1285.
- Yin, R. K. 2009. *Case Study Research: Design and Methods*. Thousand Oaks, CA: Sage Publications Inc.