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Building ecosystem momentum: The case of AppCampus

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Abstract

Taking an approach that considers both socio-political and cognitive legitimacy, we analyze the case of AppCampus, an ongoing ecosystem creation effort funded by Microsoft and Nokia, and managed by Aalto University, in Finland. Our analysis suggests a two-stage model of ecosystem creation. In the first stage, participants of the nascent ecosystem establish and promulgate a shared understanding of its purpose, internal roles and operations among existing and prospective ecosystem participants, while in the second stage, having gained at least some momentum, the legitimation emphasis gradually shifts from establishing cognitive legitimacy to establishing wider socio-political legitimacy. Our model confirms and extends prior work on cognitive and socio-political legitimacy, while reintroducing the importance of socio-political legitimacy into discussion of the evolution of ecosystems and other institutional fields.

BUILDING ECOSYSTEM MOMENTUM: THE CASE OF APPCAMPUS

ABSTRACT

Taking an approach that considers both socio-political and cognitive legitimacy, we analyze the case of AppCampus, an ongoing ecosystem creation effort funded by Microsoft and Nokia, and managed by Aalto University, in Finland. Our analysis suggests a two-stage model of ecosystem creation. In the first stage, participants of the nascent ecosystem establish and promulgate a shared understanding of its purpose, internal roles and operations among existing and prospective ecosystem participants, while in the second stage, having gained at least some momentum, the legitimation emphasis gradually shifts from establishing cognitive legitimacy to establishing wider socio-political legitimacy. Our model confirms and extends prior work on cognitive and socio-political legitimacy, while reintroducing the importance of socio-political legitimacy into discussion of the evolution of ecosystems and other institutional fields.

Keywords: Ecosystem Creation, Ecosystem Momentum, Ecosystem Strategy, Legitimacy, Institutional Theory, Platform-based Market.

INTRODUCTION

To date, much of the literature on ‘business ecosystems’ or ‘innovation ecosystems’ (e.g., Moore, 1993; Adner & Kapoor, 2010) has focused on understanding the structure and dynamics of existing innovation ecosystems, with research attention focused on issues such as value co-creation and value appropriation in ecosystem contexts (Adner & Kapoor, 2010; Gawer & Cusumano, 2002; Jacobides, Knudsen, & Augier, 2006). Much less attention has been attached to the creation of innovation ecosystems (Autio & Thomas, 2012). Our lack of knowledge about ecosystem creation processes is a concern from a management practice, as well as a management theory, perspectives, as many companies, particularly in ICT sectors, are now explicitly seeking to create thriving ecosystems in order to gain the upper hand against rivals. As value creation processes become increasingly intertwined in today’s interdependent and highly specialized industrial landscape, it is important to improve our understand of how ecosystems are created in the first place, what processes and dynamics characterize ecosystem creation and evolution, and of the conditions under which ecosystem innovators stand a realistic prospect of achieving success (Ozcan & Eisenhardt, 2009).

The relevance of ‘ecosystems’ as an object of strategic management research is further emphasized by the emergence of the concept of ‘platform strategies’ in the strategy literature (Gawer & Cusumano, 2002, 2008), and the consequent focus on ‘platforms’ as an object of managerial attention and strategic planning. Platforms are shared technological architectures that connect several complementary producers and even customers into a collective value co-creation and appropriation dynamic (Autio & Thomas, 2012; Adner & Kapoor, 2010). In our parlance, platforms represent the shared technological architectures that provide the glue that binds its adjacent ecosystem together. The importance of platform-centric ecosystems is manifested in, e.g., today’s competition between alternative operating system platforms in the personal computer industry (e.g., Microsoft Windows vs Linux vs Apple), and also, in the recent upheavals in the smartphone industry (e.g., Symbian vs Android vs iPhone vs Windows Mobile). However, while the importance of ecosystem dynamics shaping industry competition is obvious, fairly little is still known about the strategies that industry incumbents and followers can use to promote and facilitate ecosystems to their advantage. It is our objective in this

paper to provide insight into this important question through the empirical lens provided by an on-going ecosystem creation effort.

In order to improve our understanding of ecosystem emergence and creation processes, we develop a theory of ecosystem momentum and to apply it to an on-going effort of ecosystem creation in the context of mobile (i.e., smartphone) applications. Our theoretical model distinguishes between technological, economic, institutional and behavioral strategies of ecosystem creation. We draw on the literatures of economic externality, complementarity, positive feedback, and social movements to create a theoretical framework that articulates the scope and mechanisms of firm-level agency in ecosystem creation (Arthur, 1990; Autio & Thomas, 2012; Lounsbury, Ventresca, & Hirsch, 2003; Schilling, 2002). As our empirical context, we study the “AppCampus” initiative, through which Nokia and Microsoft seek to catalyze the development of new applications specific to the Windows Mobile platform in an effort to regain the initiative in the smartphone industry. We propose a two-phase model of ecosystem emergence, demonstrating that there is first a process of internal cognitive legitimization, followed by a process of external socio-political legitimization. We conclude with implications and directions for future research.

THEORY

The concepts of ‘business ecosystems’ or ‘innovation ecosystems’ were introduced into the management literature 20 years ago (Moore, 1993), and their popularity does not seem to be fading. Managerial attention to this concept has remained strong throughout this period, while research attention seems to be increasing (Adner & Kapoor, 2010). This trend is arguably sustained by the continuous diffusion of ICT technologies across industry sectors and the associated spread in the use of ‘platform strategies’ (Gawer & Cusumano, 2002, 2008). Because the successful introduction of platform-centric innovation ecosystems can rapidly undermine even seemingly unassailable positions in seemingly matured and settled industries by overturning their value creation logic, as illustrated by the examples of IBM in the 1980s and Nokia in the 2000s, the continued popularity of the ecosystem concept is not surprising (Adner, 2006; Evans, Hagi, & Schmalensee, 2006; Gawer & Cusumano, 2002, 2008; Schilling, 2002).

In management research, the term ‘ecosystem’ has normally been used to refer to a network of interconnected organizations that are linked to or operate around a focal firm or a platform (Adner, 2006; Adner & Kapoor, 2010; Iansiti & Levien, 2004; Moore, 1993, 1996; Teece, 2007). Unlike other network constructs in management research, ecosystems cover both production side and use side participants (Iansiti & Levien, 2004; Teece, 2007). Following Autio and Thomas (forthcoming), we define an ecosystem as a network of interconnected organizations, organized around a focal firm or a platform, incorporating both production and use side participants, and focusing on the development of new value through innovation.

Given that ecosystems comprise multiple participants who need to coordinate their actions, an institutional theory perspective provides a potentially useful framework to understand the evolution of ecosystems¹. Structurally, the notion of ecosystems resonates closely with the notion of institutional fields in institutional theory, with both comprising suppliers, complementors, customers, competitors, universities, regulators, judiciary, and standard setting bodies (DiMaggio & Powell, 1983; Iansiti & Levien, 2004; Scott, 2008; Teece, 2007). An institutional field is the set of organizations that constitute a recognized area of life, characterized by structured network relations, and that share a set of institutions (Lawrence & Phillips, 2004). Both institutional fields and ecosystems cut across traditional industry boundaries and are defined by activities within which groups of organizations participate. Ecosystem structures represent an institutional arrangement among distinct but related organizations characterized by often close network interactions, a certain degree of reflexivity, and a logic of mutual exchange that operates differently from that of markets and hierarchies (Sydow & Windeler, 1998). Given these similarities, we use an institutional theory lens to understand the evolving participant structure, logics, and governance structures of ecosystems (Scott, 2008).

From the perspective of understanding the major challenges involved in ecosystem creation and facilitation, perhaps the most salient aspect of ecosystems is their governance structure. Although ecosystem participants are bound by complex relations that often involve mutual interdependence, they are not part of the same hierarchy. This means that incumbents cannot simply command ecosys-

¹ By introducing an institutional theory perspective to ecosystems research, we are not necessarily arguing that an ecosystem is an institution in the context of wider society, although in some cases this is indeed be the case – consider the iconic status of Apple Inc.

tem participants to invest in desired developments and then ensure that commands are followed. Instead, ecosystem creation and facilitation has to employ informal governance mechanisms such as trust, legitimacy, and leadership. To understand the role of these, we next review relevant sections of the institutional literature.

The network of actors involved in an ecosystem are situated within a contingently stable alignment of material, organizational and discursive forces (Levy & Scully, 2007). Ecosystems and institutional fields are also the center of the common channels of dialogue and discussion around which markets, technologies, and issues arise and evolve (Beckert, 2010; Gawer & Cusumano, 2002; Hoffman, 1999; Iansiti & Levien, 2004). More broadly, ecosystems can be considered as “arenas of power relations” (Brint & Karabel, 1991; Gawer & Cusumano, 2002; Gawer & Henderson, 2007; Teece, 2007). Rather than directing ecosystems through hierarchical governance mechanisms, incumbents need to influence their evolution through, for example, influencing the on-going discourse and sense-making processes and through the subtle exercise of power (Weick, 1995). The importance of discourse and power within ecosystem contexts underlines the importance of legitimacy as a governance device.

Legitimacy is the “generalized perception or assumption that the actions of an entity are desirable, property or appropriate within some socially constructed system of norms, values, beliefs and definitions” (Suchman, 1995: 574). It is a condition that reflects perceived consonance with relevant social and behavioral norms as well as established rules, laws, and regulations (Scott, 2008). Legitimacy has been considered but not explicitly developed within the ecosystem literature. Iansiti and Levien (2004:208) underlined the importance of legitimacy and trust in relation to ecosystem operations, noting that “*trust is fundamental ... [as] ... ultimately it decreases operating costs and risk exposure. A well-trusted marketplace will need to spend less in attracting customers and in managing their relationships.*” Others have also acknowledged the importance of openness, trust, tact and professionalism in developing an ecosystem (Agerfalk & Fitzgerald, 2008). The concept of ‘platform leadership’ (Gawer & Cusumano, 2002) implies legitimacy through its focus on leadership – a hub firm cannot lead an ecosystem without being seen as legitimate by partners and other ecosystem participants (Olleros, 2008; Sivadas & Dwyer, 2000). To effectively facilitate ecosystems, therefore, hub

firms need to gain social acceptability and legitimacy in order to gain a leadership position within the ecosystem (Adner & Snow, 2010). Research has indicated that participating firms are attracted to the dominant actor in an ecosystem for reasons of legitimacy and stability (Oliver, 1990), which in itself leads to the creation of hub firms in an ecosystem (Barabási, 2002). Recently, Gulati et al (2012) noted that legitimacy in ecosystems can be enhanced through the inclusion of high-status participants at an early stage.

Specifically, in the context of ecosystem creation and facilitation, it is useful to distinguish between two forms of legitimacy: cognitive legitimacy and socio-political legitimacy (Aldrich & Fiol, 1994). Cognitive legitimacy is important to attract participants into the ecosystem, whereas socio-political legitimacy is crucial for gaining acceptance and support within the wider society in which the ecosystem resides.

Simply put, cognitive legitimacy refers to a shared understanding of what the emergent ecosystem is about and what it seeks to achieve. Cognitive legitimacy is built through the spread of knowledge and through the establishment of culturally appealing mental models that furnish plausible explanations and a sense of inevitability and permanence of the ecosystem (Aldrich & Fiol, 1994; Suchman, 1995). By promoting a shared understanding of what the ecosystem is about and what it seeks to achieve, ecosystem facilitators seek to advance its comprehensibility and taken-for-grantedness (Suchman, 1995). As such, the establishment of cognitive legitimacy for the ecosystem involves active sense-making and discourse and occasional controversy, as ecosystem participants seek to establish a shared understanding of how the ecosystem functions and what the roles of various participants are within it (Aldrich & Fiol, 1994; Munir & Phillips, 2005; Phillips, Lawrence, & Hardy, 2004; Suddaby & Greenwood, 2005). Sense-making is facilitated by shared narratives, appealing rhetoric and culturally powerful analogies, promoted through shared texts (such as white papers) and field-organizing events such as conferences and workshops (Etzion & Ferraro, 2010; Suddaby & Greenwood, 2005; Zilber, 2007). Actions that draw attention to the meaning of an object that goes beyond its functional use are also vital to drawing participants to the ecosystem (Zott & Huy, 2007). This discourse is complemented by intense experimentation and search for good practices as participants seek to adopt, adapt, and utilize the new technologies in the emerging ecosystem (Garud &

Rappa, 1994; Kaplan & Murray, 2010; Kaplan & Tripsas, 2008; Tushman & Rosenkopf, 1992). Certification contests can act as credentialing mechanisms that to promote cognitive validity, as well as organizing the field by creating a status hierarchy and build reputations (Rao, 1994). Together these activities support the formation of a shared field-level identity among the ecosystem participants (Lounsbury et al., 2003; McAdam, Tarrow, & Tilly, 2001; Rosenkopf & Tushman, 1998).

Socio-political legitimacy considers how key stakeholders, opinion leaders and wider society accept and endorse the ecosystem as appropriate and proper (Aldrich & Fiol, 1994; Scott, 2008). One particular focus of socio-political legitimacy has been to ensure that the entity in question has been established by and operates within relevant legal and quasi-legal requirements (Scott, 2008). A related mechanism by which an ecosystem can gain socio-political legitimacy is through certification from authorities (Sine, David, & Mitsuhashi, 2007). This essentially reflects how an ecosystem is accepted by salient external stakeholders. A further source of socio-political legitimacy beyond basic legal compliance is through a consideration of how an ecosystem can get the endorsement of key stakeholders, opinion leaders, and wider society. Hub firms and an ecosystem can also achieve endorsement by key stakeholders and others by addressing the external environment through social movement-like activities (Rao, Morrill, & Zald, 2000; Swaminathan & Wade, 2001). Key stakeholders and opinion leaders are more likely to view the ecosystem as appropriate and right when high-status participants are included and accepted within the ecosystem (Battilana, Leca, & Boxenbaum, 2009; Gulati et al., 2012; Maguire, Hardy, & Lawrence, 2004). The a large number of ecosystem participants can also provide legitimacy in its own right (DiMaggio, 1988; Hinings, Greenwood, Reay, & Suddaby, 2004), particularly if they are operating in “going concern” activities and focusing on ecosystem optimization. Market feedback in favor of the ecosystem will also positively influence adoption and legitimacy (Lee & Pennings, 2002).The institutionalization of cooperative routines, practices and rules (Battilana et al., 2009; Hargrave & Van De Ven, 2006) and a convergence around an accepted mode of operation (Campbell, 2005) can also provide the basis for diffusion of these practices. The diffusion of ecosystem practices, rules and meanings, and subsequent transformation of wider socio-economic practices can lead to legitimacy in the wider social and political environment within which the ecosystem is embedded (Hinings et al., 2004; Kaplan & Murray, 2010; Lounsbury et al., 2003).

Because ‘command-and-control’ type governance mechanisms are not available for ecosystem facilitators, they need to employ more indirect strategies to cajole the allocation of collective energies towards desired directions. As advanced elsewhere by Autio and Thomas (2012; forthcoming), one important control device is the manipulation of technological, activity, and value architectures of the ecosystem. By manipulating the technological architecture of the shared technology platform at the core of the ecosystem, ecosystem facilitators can subtly influence who is able to connect to the platform and in which roles. This means that control over the shared technology architecture provides the ecosystem facilitator with leverage to manipulate the ecosystem’s activity architecture – i.e., the constellation of roles, business models, and associated transactive processes that the ecosystem maintains. Combined, these two architectures define the value architecture of the ecosystem – i.e., how value is created, by whom, and how this value is distributed among ecosystem participants.

In addition to orchestrating field-level sensemaking and discourse, and manipulation of the architectural aspects of the ecosystem, ecosystem facilitators also need to take more straightforward action to build momentum within the ecosystem. Such momentum strategies have also been considered by Autio and Thomas (forthcoming; 2012) who have suggested four categories of strategies that can be used to drive ecosystem creation around technology platforms – see Figure 1.

[Add Figure 1 around here]

Technological strategies manipulate the technological design of the platform and invest in the creation of complementary products and services to add value to the ecosystem. Examples of such strategies include, open source strategies for software products (e.g., MySQL); modularization; connectivity; and the creation of compatible products and services by the platform owner. Economic strategies manipulate and reorganize value chain assets so as to promote the creation of economies of scale and scope around the core platform. Such strategies include business model innovation to reorganize value chain activities for greater efficiency; investment in complementary value chain assets to increase specialized manufacturing capacity; and the outsourcing and spinning out of previously in-house activities to specialized units. Institutional strategies seek to influence and manipulate end-user choice through promoting the acceptability of one platform over alternatives. Formal institutional strategies seek to accomplish this through standardization and regulatory influencing. Informal institu-

tional strategies seek to accomplish this through opinion leaders, recommendations by professional bodies, and, for example, communication strategies that make the platform concept more digestible for various stakeholders. Behavioral strategies differ from institutional strategies in that they are directed at individual stakeholders, whereas institutional strategies seek to influence multiple stakeholders at once. Such strategies include various negotiating tactics; sequencing strategies in stakeholder persuasion; lead user strategies; and the creation of a sense of urgency to prompt irreversible commitments by stakeholders.

Above we have drawn on institutional theory to discuss the key challenges in ecosystem creation, emphasizing the importance of processes which build cognitive and socio-political legitimacy. We have also introduced a framework that identifies four distinct ‘momentum building’ strategies for ecosystem creation. In the following, we will use the Nokia – Microsoft – Aalto University’s AppCampus initiative to develop a two-stage conceptual framework proposing how these ecosystem creation challenges may be addressed using strategies that build ecosystem momentum.

THE CASE OF APPCAMPUS

For our empirical setting, we draw on the case of AppCampus, an ongoing ecosystem creation effort funded by €9 million each from Microsoft and Nokia, and managed by Aalto University in Finland. Launched in May 2012, AppCampus offers grants and training to developers of applications (apps) for the Windows Phone platform in exchange for an exclusivity agreement requiring that the app not be released on competing smartphone platforms for at least six months after its Windows Phone launch. The available grants range in size from €20,000 to €70,000, and submissions go through a stringent selection process with an emphasis on app novelty and quality. In particular, applications submitted to AppCampus should not have previously been released on a competing platform, and they should support key features of Windows Phone software and hardware. By the end of 2012, AppCampus had received 1,647 app submissions, of which 80 were approved for funding. The first apps funded by the program were released to the public via the Windows Phone marketplace at the end of December 2012.

This case is interesting from two perspectives. First, AppCampus represents an explicit effort to build an ecosystem around a platform that is a late entrant to a smartphone market dominated by the rival ecosystems of Google and Apple. Despite the significant resources of Microsoft and Nokia, attracting application developers to a platform that is behind competition in terms of user base is challenging, yet vitally important as user smartphone choice is largely driven by the strength of the ecosystem accessible through the phone. An analysis of the process through which AppCampus was created, of the strategies it has pursued to grow the ecosystem on the developer side, and of the outcomes of these strategies could therefore improve our understanding of ecosystem development. Furthermore, such an analysis could also inform practice by bringing to light some of the strategic options available to organizations looking to establish ecosystems in markets with strong incumbents.

Second, AppCampus as an organization is interesting in itself, due to both its origin and its embeddedness in the Finnish entrepreneurial ecosystem. As a joint project between two large multinational corporations and a non-profit university with a growing reputation for being at the center of entrepreneurial activity in Finland and beyond, a discussion of the founding and operation of AppCampus could inform our understanding of the role of established companies, research institutions and accelerator programs in the functioning of entrepreneurial ecosystems. This discussion could also have implications for public policy aiming to support entrepreneurial activity through ecosystem development.

METHODOLOGY

This research is based on a single case study, giving the researchers the opportunity to understand the phenomenon of interest in depth (Siggelkow, 2007). In particular, the AppCampus case has the potential to replicate or extend existing theory (Eisenhardt 1989) as it aligns with the four criteria of Pettigrew (1990) for selecting a subject for study. Firstly, the phenomenon under investigation is transparently observable; the access granted to researchers by the organizational members has meant that the competitive challenges and operational activities are clearly visible. Secondly, AppCampus is a 'polar type', in the sense that it represents one of a kind at the time of writing (although there have been similar initiatives). Thirdly, AppCampus has high experience levels of the phenomenon under

study, as the activities under investigation are all that it does. Finally, extensive access was granted to not only AppCampus personnel, but also to the sponsoring firms (Nokia, Microsoft and Aalto University) as well as to other members of the ecosystem.

The process approach adopted in this research employs narrative explanation. A narrative explanation takes the contribution that actions and events make to a particular outcome and then configures these contributions into a whole episode (Polkinghorne, 1988). Put differently, the narrative approach conceptualizes development and change processes as a sequence of events which have unity and coherence over time. Thus outcomes are explained as the result of the order in which the events unfold and of particular conjunctions of events and contextual conditions. The goal of narrative explanation is to provide an account of how and why a sequence of events unfold that are sufficiently flexible to encompass the observed case, yet also powerful enough to help researchers discern the operation of the underlying deeper structure (Pentland, 1999; Poole, Van De Ven, Dooley, & Holmes, 2000).

Narrative explanation is based upon stories, in that stories help explain the relationships between events in a process (Pentland, 1999). Pentland points out that stories have a number of characteristics that make them particularly useful for process analysis, as they give a surface view of the underlying deeper structure. Importantly, as stories have a clear beginning, middle and ending, each story contains a sequence. Although the surface structure of a narrative may not present events in sequence, the chronology remains the central organizing device. In addition, a story is always about someone or something, and has a focal actor or actors. Along with the sequence, the focal actor is an important element of the deep structure and provides a thread which ties the events of the narrative together. Stories are also embedded with contextual factors, such as those which convey place, time, attributes of characters, and so on, which although do not advance the plot, contain information that is essential to interpretation. However, stories also usually have a specific point of view and an evaluative frame of reference, both of which operate at high levels than the deeper structure.

Narrative data can be collected from many sources, as most forms of data embody, to a greater or lesser extent, some aspect of narrative structure (Pentland, 1999). Narrative data also has the benefit that it is the same kind of data that organizations and their members use to plan, enact, inter-

pret and evaluate their own actions and those of others (Pentland, 1999). In order to gain the level of detail and sophistication required, a triangulated methodology (Pettigrew 1990; Yin 1984) was utilized to gather data from multiple sources, including interviews, archives, observations, field notes and workshops. The thirteen semi-structured interviews, ranging from 21 to 64 minutes, provided depth and subtlety. These were carried out by two of the authors working together, and were recorded and transcribed.² The archives utilized provided current and historical facts, and both online and physical sources have been examined both prior and during the field work period, including strategy and review documents, minutes, memos and operational reports. A protocol was developed to ensure that data extracted from these documents was congruent with the goals of the research. Observations provided a cross check on what the interviewees said and what they actually do, and can counter the risk of selective retrieval of information. Where possible we attended key strategy, planning and operational review meetings at each subject site, as well as chance meetings. Field notes were used to provide a commentary about what is happening in the research (Van Manen 1988; Eisenhardt 1989). Each of these data sources presents its story, more or less, in the form of a narrative. And each gives a surface view of the deep structure of the underlying process.

Narrative data is rich, available and easily codable using standard techniques. In order to maximize the data collection, there was an overlap of analysis with collection. This overlap provided the ability to be flexible with the data collection, giving the ability to make adjustments during the data collection process so as to probe emergent themes or take advantage of any special opportunities (Eisenhardt 1989). Examples of potential adjustments include adding questions to the interview protocol, and adding data sources such as observational evidence (Eisenhardt 1989).

The unit of analysis is primarily the organization, AppCampus. However, as part of process-oriented case study research it is important to ensure that multiple levels of analysis are considered in order to take context into account (Pettigrew 1990). As such, we consider other levels of analysis in accordance with prior literature (although not as the primary level), including the technology, the ecosystem, the industry, and the industry architecture.

² These are early rounds of interviews carried out as part of an ongoing project tracking AppCampus actions and their results over the lifespan of the program.

RESULTS

In the theory section above, we have introduced an institutional lens to the processes of ecosystem creation, and we have proposed that both cognitive and socio-political legitimacy are important in the emergence of an ecosystem. As implied by the theory, our results below clearly demonstrate a two-stage model of ecosystem creation and facilitation (see Figure 2). Our purpose being to derive theoretical insights from rich case data, we first provide a brief summary of our findings before discussing the data itself.

[Insert Figure 2 around here]

During the first stage, the ecosystem needs to establish and promulgate a shared understanding of its purpose, internal roles and operations, so that these are clear and easily communicated with established and prospective ecosystem participants. Key processes during this emergence phase include intense sensemaking, active search and experimentation with good practices and alternative business models, active field discourse, and shared identity formation. This suggests that the ecosystem facilitator needs to act as a visionary leader who engages with potential ecosystem participants and promotes active sensemaking and discourse. Importantly, the ecosystem facilitator cannot monopolize or dictate these processes, as this will undermine trust and the facilitator's own legitimacy. This means that the facilitator needs to employ subtle communication and coordination strategies to orchestrate the field-level sense-making and discourse processes.

In the second stage, the ecosystem will already have gained at least some momentum, and the legitimation emphasis gradually shifts from establishing cognitive legitimacy to establishing wider socio-political legitimacy. This involves taking stock of shared learnings, identifying and promoting business models that have been found to be effective, institutionalizing good practices, and engaging with key external stakeholders, such as regulators, the general public, and related and adjacent industries. The assiduous management of these processes is crucial for the ecosystem to establish long-term viability. The case study of AppCampus, discussed below, illustrates how this two-stage model of ecosystem creation was derived.

The case of AppCampus

The idea which developed into AppCampus came to Will Cardwell, then the head of the Aalto Center for Entrepreneurship, at Mobile World Congress in February 2011. A few days earlier Nokia CEO Stephen Elop had announced that Nokia would partner with Microsoft to build an ecosystem around the Windows Phone platform, ending speculation about Nokia's next move following the leaking of the now-famous 'burning platform' memo. Will recognized that something would need to be done to attract developers to Windows Phone, and got in touch with contacts at Microsoft, who, as it turned out, had also been thinking along similar lines. In the following months the idea was fleshed out and Nokia came on board, having agreed to match Microsoft's €9 million investment. In June 2011, active development of the AppCampus concept began.

Will brought in Tapio Siik, an Aalto colleague and the current head of the Aalto Center for Entrepreneurship, to help further develop the concept and to aid in liaising with Aalto University to secure their support. Together with key stakeholders in Microsoft, Nokia, and Aalto, Will and Tapio engaged in a process of intense sensemaking, working "pretty much round the clock for three or four months" (interview with Will Cardwell) to produce new iterations of the idea. This process of concept development was influenced by the past experiences, interpretations of current context, and understandings of good practices and effective accelerator models of all those involved in the sensemaking process. Through this process, the idea for AppCampus became more substantive and clearly defined. It was at this time that the core aspects of the program were agreed upon, including the idea that grants would be offered and Windows Phone exclusivity asked in return, that app innovativeness would be key selection criterion, the size and range of grants, and the need for a developer capability enhancement aspect.

The intense and highly iterative concept development process described above illustrates the importance of establishing cognitive legitimacy through the development of a shared understanding among member of the nascent ecosystem of what the ecosystem is about and what it seeks to achieve. This shared understanding among initial members contributes to the comprehensibility and taken-for-grantedness of the ecosystem for other prospective ecosystem members (Suchman, 1995), and thus helps to build ecosystem momentum. Also reflected in the case description above are the active sense-

making and discourse involved in the process of seeking to establish a shared understanding of how the ecosystem functions and what the roles of various participants within it are (Aldrich & Fiol, 1994; Munir & Phillips, 2005; Phillips et al., 2004; Suddaby & Greenwood, 2005).

Securing support from Aalto was not straightforward, as there were serious concerns about whether having an organization under the university umbrella managing a significant amount of money from Microsoft and Nokia would mean a loss of independence for the university. The use of a number of behavioral strategies to ease these concerns and to gather support for AppCampus from university stakeholders, led to Aalto agreeing to manage the program and to support it by covering operating costs and providing office space:

“Preserving independence and academic freedom were the key issues in the beginning, but we quickly were able to create a framework where it was clear that all professors, staff members and students still had the absolute freedom to choose platforms right for them. Once this problem was solved, we then spent a lot of time working on the financial model. It was not difficult to find money in the budget for this given the scale of impact we felt we could have in terms of turning novel ideas from our Aalto community into commercially viable apps. For example, there are already several cases of projects coming out of Aalto departments and student ideas being funded. And beyond this, a significant amount of the funding is going into ideas generated in other parts of the Finnish innovation community. It is also important to understand the context that Microsoft and Nokia were going to create this program with some university partner, somewhere around the world, so we thought it was important for us to compete hard to win the competition.” (Interview with Will Cardwell)

The arguments that at least some of Aalto’s investment would likely support spin-outs coming out of Aalto and that the Finnish business ecosystem would certainly benefit, and their apparent success, illustrate the awareness of university stakeholders of Aalto’s position and interest in the Finnish entrepreneurial ecosystem. They also show a keen awareness of the need for socio-political legitimacy for AppCampus, and for the Windows Phone ecosystem more generally, if the ecosystem is to succeed, and represent an attempt to achieve endorsement by key stakeholders and others by addressing

the external environment through social movement-like activities, as suggested in prior literature (Rao et al., 2000; Swaminathan & Wade, 2001).

Alongside the behavioral strategies used to gain stakeholder support, the creation of AppCampus embodies the pursuit of both technological and economic strategies for building ecosystem momentum. From the perspective of Microsoft and Nokia, AppCampus is first and foremost an investment in the creation of high-quality products and services, in the form of apps, which are complements to the Windows Phone platform and have the potential to add to the value that phone buyers get from using the phone and accessing its ecosystem. The program therefore represents the pursuit of one kind of technological strategy for ecosystem creation.

The founding of AppCampus also reflects Microsoft's and Nokia's understanding that while their brands, in-house processes, and capabilities are well-suited for attracting well-established and experienced developers, a different approach may be required in order to attract small, high-risk, potentially innovative developers to the Windows Phone ecosystem. The creation of AppCampus to perform this important role in an independent and, owing to its small size, agile manner represents an aspect of Microsoft's and Nokia's economic strategy for ecosystem creation.

AppCampus also represents another facet of economic strategy in ecosystem creation: that of influencing the costs and benefits of Windows Phone development for a target population of developers who have been largely overlooked by competing ecosystems and whose cost/benefit calculation can be most significantly affected by the incentives offered by AppCampus:

"I think Finland's reach into emerging markets was critical to Aalto's selection as the university partner to AppCampus. While the grants we are giving may be relatively small to a developer in Silicon Valley, even a €20,000 grant can be very significant to a developer from, say, Russia, Romania or Poland, covering salary equivalent of over 1 man-year. And these are proving to be among the strongest regions both in terms of deal flow and performance once in the program." (Interview with Will Cardwell).

This targeting of sources of complementary products and services which incumbent ecosystems have made little effort to pursue reflects the importance for nascent ecosystems of developing

ways to compete which not only seek to match incumbent strengths, but also go beyond these to exploit novel sources of value. From a theoretical perspective, the use of grants to attract developers to join the platform represents an economic resourcing strategy to both facilitate and speed up application creation, and also, facilitate sensemaking processes that support the development of shared understandings of how the AppCampus initiative works, and therefore, facilitate cognitive legitimacy within the ecosystem.

The establishment of AppCampus can also be seen as an institutional strategy, as one of its functions is to operate as a certification contest (Rao, 1994). By aiming to act as a stamp of quality for Windows Phone apps, successful navigation of the AppCampus screening and development processes helps build developer reputations and play a part in building cognitive legitimacy by organizing the ecosystem more broadly through the creation of a status hierarchy among apps and developers.

While the idea of AppCampus met with some resistance inside Aalto, high-status program champions inside of Microsoft and Nokia meant that there were few objections from the industry partners. However, Microsoft's target-focused organizational processes and the major reorganizations going on inside Nokia meant that nine months passed before the three partners signed contracts establishing AppCampus in March 2012. By that time Pekka Sivonen, a technology entrepreneur with 17 years of experience in mobile software, central to the development of a number of earlier mobile ecosystems, had joined the project as the head of AppCampus.

After the contract establishing AppCampus had been signed, Pekka, Will and Tapio began to put together a team to operationalize the idea. The first hire after Pekka was Paolo Borella, an experienced community and service application business development manager who had worked for Nokia for 13 years and was at the time working in a coaching and advisory role with the Aalto Center for Entrepreneurship.

Leveraging their combined experience in ecosystem creation and community management, Pekka and Paolo decided on strategic priorities and began, iteratively, to develop the resources necessary to attract, manage, and evaluate submissions:

“[...] We were first about the key things, what to do and what not, and then we started looking at resourcing. And we all brought in some thinking and ideas about what and how. I think the first focus was actually resources for the communication perspective for the website, as our [...] digital presence, I would say. And then next was related to the capturing the management deal flow – so, how do we open up so that we can take submissions? What do we want from them, and so on, and how to execute [on] that.” (Interview with Paolo Borella)

An experienced software engineer was next to join the team at the start of May and immediately began to set up the first version submission and screening process. Once the website and the submission system had been established, AppCampus began to work through different channels to attract the attention of developers before its launch on May 14th:

“We started five days earlier, in seven languages, spreading the word about AppCampus [on Twitter], and then when the launch date comes, we [...] didn’t just announce that we are now open for business, for submissions, but we also launched the worldwide competition for [the] AppCampus Soundtrack, which went into totally different channels. It was launched in 85 countries. And the tagline competition was also launched in about 80 countries.” (Interview with Pekka Sivonen)

While the above communication efforts reached out to developers worldwide, AppCampus also benefited from publicity provided by Nokia, Aalto and Microsoft. The effects of this publicity were particularly strong in Finland due to the national importance of these organizations, with around half of the initial submissions to AppCampus coming from teams based in Finland.

The case discussion up to this point makes clear the importance of establishing cognitive legitimacy through coherent narratives at the organizational level before acting to create such legitimacy at the level of the ecosystem. The development of functioning intra-organizational processes to handle interactions with prospective ecosystem members before engaging in such interactions is also well illustrated by AppCampus’ development of a website and tools for idea submission and screening before the public announcement of the program. Finally, the above quote illustrates how multiple

channels of communication can be used in order to reach the specific kind of prospective ecosystem participant targeted by the program.

The number of submissions received after launch overwhelmingly exceeded expectations:

“We got swamped by the number of submissions. We were thinking about maybe two to three thousand submissions in three years, and within a month we got 600.” (Interview with Paolo Borella)

This success in meeting and exceeding early targets worked to augment the cognitive legitimacy of both AppCampus, as current and prospective ecosystem members saw that the program had succeeded in attracting the attention and efforts of developers, of the ecosystem more broadly, as smartphone users and developers with applications on other mobile platforms saw evidence of complementary interest in the Windows Phone ecosystem, suggesting future availability of a range of complementary goods and services. This favorable market feedback also positively influenced the development of the ecosystem’s socio-cognitive legitimacy as actors outside of the ecosystem observed this evidence of its building momentum, a process similar to those suggested by prior work (Lee & Penning, 2002).

As the initial number of submissions greatly exceeded expectations, further development of the screening process had to be done concurrently with the submission screening. To help deal with the large number of submissions already in the pipeline, another member of the screening team joined AppCampus in June. Another hire made shortly after launch was Teemu Tapanila, a computer science student at Aalto University and leader of the Windows Phone Aalto Community. Teemu plays a key role in executing AppCampus’ institutional strategies by acting as a bridge between AppCampus and developers. His description of the role he plays emphasizes the importance of ensuring that communication between AppCampus and developers takes into account differences in concerns and logics between the two parties:

‘So, my role currently is that I make sure that everyone else in our team understands all of the key benefits of the Windows Phone platform. Also, I make sure that our message to developers is clear for them, because developers have a different kind of mind-set than others. They see

developer tools, communities and stuff like that as more important than the amount of customers. So *I'm fine-tuning* our message for them.' (Interview with Teemu Tapanila)

Teemu's experience as a developer and his connections in the developer community make him well-positioned to reach out to other developers at mobile development events, acting as a conduit for the exchange of knowledge about AppCampus on the one hand, and talented developer teams and interesting app ideas on the other. Participation in ecosystem-building events has been a key way in which AppCampus has raised its profile amongst developers, while also being an important means of contributing to discussions about what the Windows Phone ecosystem should be, discussions which work to establish an ecosystem identity that is shaped and shared by the ecosystem's various members. By the end of 2012, members of the AppCampus team had participated in around 100 ecosystem organizing events.

The focus on communication with current and prospective ecosystem members through participation in ecosystem-organizing events as well as through day-to-day interactions of team members with developers facilitates and promotes sense-making at the level of the ecosystem, and works towards establishing the ecosystem's cognitive legitimacy (Etzion & Ferraro, 2010; Suddaby & Greenwood, 2005; Zilber, 2007).

As the screening team got on top of the stream of submissions and the investment board comprised of Will, Tapio, Pekka and Paolo began to select app ideas for funding, Tiina Mutttilainen, experienced in quality assurance management and consulting, joined the team in August to manage the award and quality assurance process through which app ideas selected by the investment board would go from concept to functioning Windows Phone application. Tiina's role begins with making sure that the teams have met all formal requirements for program participation, such as signing a contract with AppCampus and registering themselves with the Windows Phone Store and Developer Center, before guiding the teams through development of a design document for their app. This document includes a wealth of information about development goals, timing, app languages and geographies, and an information map which essentially represents a paper version of the app, the resources it uses, and its functionality. Development of the design document is an iterative process with AppCampus suggest-

ing changes to improve aspects of the application or to use more capabilities of the Windows Phone software and hardware. Once the design document meets AppCampus standard, 30% of the grant funding is released to the team who can then focus on coding the application. The remaining 70% of the grant is transferred upon the release of the application in the Windows Phone store.

As with the other operational processes used in AppCampus, the award and QA process was developed iteratively and changed as time went on. In particular, the initial milestone for the release of the first 30% of the grant was the development of a beta version of the app which met quality requirements. However, judging the quality of a beta app proved to be very difficult, so the milestone changed to design document acceptance as this was seen as easier to evaluate and also less costly for the developer teams to alter in response to AppCampus feedback.

The QA process described above illustrates efforts to build cognitive legitimacy for the ecosystem in two different but complementary ways. First, by making a well thought-through app design such a key part of the development process, AppCampus encourages developers to focus on the meaning that their app will have for users, going beyond its functional value, a strategy that has been argued to be vital to drawing participants to an ecosystem (Zott & Huy, 2007). Second, this process seeks, on the one hand, to build on prior intense experimentation and search for good practices in application development that members of the AppCampus team participated in at earlier stages of their careers, while, on the other hand, leaving developers room to adopt, adapt, and utilize the new technologies in the emerging ecosystem in creative and innovative ways (Garud & Rappa, 1994; Kaplan & Murray, 2010; Kaplan & Tripsas, 2008; Tushman & Rosenkopf, 1992).

This focus on app quality through careful evaluation of app design and implementation aims not only to ensure that AppCampus-funded applications are of high quality, but also to build up the skills of participating developers so that they can produce high quality applications for the Windows Phone ecosystem independently of AppCampus in the future:

“We want to get more of these new apps out, but we want to create new Windows Phone developers as well, who, in the future, are able to contribute and create quality Windows Phone apps themselves without going through our processes.” (Interview with Tiina Muttilainen)

Despite its remit being focused on bringing apps into the ecosystem, the above quote illustrates that organizational members also see AppCampus as part of a longer-term technological strategy to increase the number of high-quality application developers in the Windows Phone ecosystem, developers who would produce high-quality applications without the support of AppCampus or a similar program. This focus on capability development also contributes to the creation of socio-political legitimacy for the ecosystem by serving as an exemplar of “good citizenship” practices of ecosystem members.

Although the vast majority AppCampus’ interactions with developers have been positive, the program has not escaped occasional controversy. Some developers have attempted to manipulate the selection and award process by sending numerous e-mails to AppCampus, Microsoft and Nokia, and one developer whose app idea had been selected for funding took to Twitter to complain about the size of the grant offered to him. Such occasional controversy is part and parcel of the process of sensemaking and discourse through which the cognitive legitimacy of an ecosystem is established (Aldrich & Fiol, 1994; Munir & Phillips, 2005; Phillips et al., 2004; Suddaby & Greenwood, 2005).

In addition to the development of the award process, August also saw the hiring of a communications manager to work on AppCampus’ social media presence. Another aspect of AppCampus’ institutional communication strategy developed during the summer was a brand image that would be appealing to the small, innovative developers that AppCampus was targeting. Having such an image was seen to be an important way of differentiating AppCampus from Microsoft and Nokia in the minds of developers:

“We started to work on our image and tried to be young and fresh. [...] And that was just to make sure that we don’t prevent teams from applying, because they think we smell too much [like] corporate. That’s always the antithesis of the entrepreneur because with corporate, [you get] slow, long cycles and big decision chains [...]. We wanted to totally avoid that in terms of image.” (Interview with Paolo Borella).

By distancing the program from its funding organizations in the minds of developers through the brand image communicated by AppCampus’ website, a new version of which launched in Sep-

tember, replacing the rather functional first version, as well as through business cards and other promotional materials, AppCampus hope to make development for Windows Phone more attractive for those developers who wouldn't find the idea of working directly with a large corporation such as Microsoft or Nokia appealing. Members of AppCampus staff attending developer events also focus on emphasizing their independence from their corporate partners in pursuit of the same goal.

The image-building approach described above appears to be tailored for the target population of nascent developers that AppCampus is trying to attract, and thus seems well-matched to complement the program's economic strategy aimed at attracting developers who have been overlooked by competing ecosystems.

Alongside building developer capabilities in the course of the award and quality assurance process, AppCampus also hosts quarterly month-long training camps for developer teams whose apps have been chosen for funding. In November 2012 AppCampus ran its first training camp for 13 teams, consisting of sessions on application design and development, as well as more general entrepreneurial skills such as pitching app ideas to investors, marketing and communications. As part of this broader entrepreneurial training, some of the teams participated in the pitching competition at the Slush tech, design, and start-up conference, which took place during the training camp.

While such training camps mainly focus on enhancing developer capabilities, and thus act as further demonstration of "good citizenship" by members of the Windows Phone ecosystem, by acting as a forum for face-to-face engagement between members of the AppCampus team and developers, they also serve as opportunities to socialize developer teams into the application quality mindset promoted by AppCampus, and to improve mutual understanding between developers and AppCampus staff:

"When you really feel that you are doing work that's worth something, is when you actually meet the teams, you work together, and they appreciate the help. [Then] they really are not negative that, oh, you're just bitching about our app and design, and you don't understand - that's kind of the normal attitude towards QA. But when the teams have worked with us, they're more like "yes, thank you so much, we appreciate that, we really understand why, now" and so on, and they make the improvement. [...] Maybe when they have met us, as per-

sons, as human beings, not just some organization, some faceless thing, then they maybe have understood better that we have reasons why we're giving these comments, and that we're just trying to help, not to make life more *difficult*." (Interview with Tiina Muttilainen).

The capability-development aspects of AppCampus are planned to extend beyond the teams selected for funding, with work ongoing at the time of our interviews to set up a website through which recorded talks from the training camps and other materials focused on high-quality Windows Phone application design and development could be accessed by anyone thinking of creating a Windows Phone app.

In addition to the first training camp, November 2012 also saw the addition of a consultant test engineer to the team to work with Tiina on creating a software tool to standardize the app design and testing process based on the experience gained in the prior three month. This was also seen as an opportunity to customize the software testing process, which up to that point had been based on Microsoft's Developer Partner Support toolkit, to be better aligned with AppCampus' design and quality focus and the need to get apps to market without relying on testing processes external to the organization. Efforts to improve and standardize quality were also being made on the submission screening side, illustrated the recent posting of an example of a good app proposal on the blog of the AppCampus website.

These efforts to institutionalize of cooperative routines, practices and rules (Battilana et al., 2009; Hargrave & Van De Ven, 2006) among ecosystem participant and to converge around an accepted mode of operation (Campbell, 2005) for application development reflect efforts to build socio-political legitimacy after the ecosystem has managed to establish itself to some extent, and also aim to provide the basis for diffusion of these development practices among all ecosystem members.

By the end of 2012, AppCampus had received 1,647 app submissions, of which 80 were approved for funding. The first apps funded by the program were released to the public via the Windows Phone marketplace at the end of December 2012, marking the beginning of a crucial period for AppCampus in which the results of the program would be evaluated by the market. Demonstrating evidence of success in the form of popular and highly-rated applications unique to the Windows Phone

ecosystem was seen as crucial by most team members, both to show the value of the program to its funding organization, and, perhaps more importantly, to attract users to the ecosystem by showcasing novel, high-quality applications not present in competing ecosystems:

“It’s like you have something so cool and unique, that you rather think of buying a Windows phone because it’s better than the others. [...] If I can help developers as well, or entrepreneurs as well, to succeed faster and more, and make more and bigger revenues, that’s even [better] because then it means that you bring more richness and more value into the ecosystem. Therefore, there’s more chance that it will grow faster and attract more [users].” (Interview with Paolo Borella)

The second part of the above quote illustrates another important concern, that of making creation of apps for Windows Phone an economically sustainable way of life for developers. Both this concern and the need to demonstrate evidence of success show that strategies to build both cognitive and socio-political legitimacy can be pursued simultaneously, once the ecosystem has established itself to some extent. Success of apps funded by AppCampus in the Windows Phone market would act to demonstrate the value of the ecosystem both to ecosystem members and to those outside of it who observe developers achieving economic success through their participation. Helping developers bring apps to market which can sustain them economically will also act to attract other developers to the ecosystem, building ecosystem momentum and providing both cognitive and socio-political legitimacy by demonstrating an increasing extent of participation in the ecosystem (DiMaggio, 1988; Hinings et al., 2004).

Alongside these Windows Phone ecosystem-focused goals, members of AppCampus also see the program as having the potential to have an impact on the Finnish economy more generally, again acting to build socio-political legitimacy for the ecosystem as a whole. The role of Aalto University, of AppCampus, and in particular of Microsoft’s investment in signaling the quality of the Finnish high-tech ecosystem, was emphasized by Will when he spoke about the recent opening by Huawei of a Finnish R&D center:

“I believe AppCampus was a significant driver in being able to show global giants, like Huawei for instance, the commitment that large companies are making to the developer ecosystems we are building around Aalto and in Finland overall. We are also seeing growing commitment from companies like Intel, Electronic Arts, and there are strong rumors of more major ICT firms opening R&D centers soon. While Nokia’s *commitment* has always been clear, bringing in Microsoft at this level was really a major credibility signal.” (Interview with Will Cardwell)

To summarize, the foundation of AppCampus and the strategies that it has pursued represent strategies for building ecosystem momentum spanning technological, economic, institutional and behavioral categories. The vast majority of these strategies also work towards building cognitive and socio-political legitimacy for the Windows Phone ecosystem. The initial focus was on establishing cognitive legitimacy, first within AppCampus itself, and then within the nascent ecosystem, although references to potential broader societal benefit were made as part of behavioral strategies seeking to gather the support of key stakeholders. Once the ecosystem had gained some momentum, efforts to build legitimacy for the ecosystem became more evenly split between those focused on reinforcing and further developing its cognitive legitimacy among its members, and those focused on establishing socio-political legitimacy, particularly through the extension of the program’s capability-development aspects beyond its participants.

DISCUSSION

Above we have empirically established that there is a two-stage model that describes early ecosystem creation. During the first stage, the ecosystem needs to develop and promulgate a shared understanding of its purpose, internal roles and operations, so that these are clear and easily communicated with established and prospective ecosystem participants. In the second stage, the ecosystem will already have gained at least some momentum, and the legitimation emphasis gradually shifts from establishing cognitive legitimacy to establishing wider socio-political legitimacy.

Our findings confirm and extend the framework advanced by Aldrich and Fiol (1994) in a number of ways. Firstly, these results confirm the organizational level entrepreneurial strategy of maintaining internally consistent stories to promote the development of trust. In doing so these findings also support the emphasis on discourse in institutional theory (Battilana et al., 2009; Lawrence & Phillips, 2004; Phillips et al., 2004). As the results demonstrate, once the purpose and goals of AppCampus were formalized, the messaging and positioning of AppCampus has been internally consistent, which resonated with the aspirations and goals of the targeted ecosystem participants. This in turn has the dual effect of the acceptance of AppCampus not only within the ecosystem, but also at a higher social level. Similarly, these results confirm the intra-industry level entrepreneurial strategy of mobilizing for collective action to drive perceptions of reliability. In doing so these findings also recognize the importance of the mobilizing structure in social movement theory, which emphasizes the importance of pre-existing social arrangements (Davis & Thompson, 1995; McAdam & Scott, 2005; Tilly, 1978). More specifically, the emergence of cognitive legitimacy and the focus on the release of successful apps into the ecosystem enabled the ecosystem participants to act in such a way that the ecosystem and AppCampus were perceived as reliable.

Secondly, the two-stage model confirms Aldrich and Fiol's suggestion that progressive building of trust and legitimacy can work its way up the social hierarchy. The two-stage model of ecosystem emergence advanced here implies that legitimacy is first established at the ecosystem level and then established at the higher societal level. In particular, we showed how AppCampus first gained both cognitive and social-political legitimacy at the ecosystem level through the use of symbolic behaviors and actions, as well as through the use of internally consistent stories. From this basis then AppCampus was able to collectively mobilize the ecosystem to attain socio-political legitimacy at the higher level. In doing so we also imply that beyond the organizational level of social hierarchy, cognitive legitimacy may be a precursor of socio-political legitimacy at any given social level. Put differently, cognitive legitimacy first needed to be attained at the ecosystem level before it can provide the basis for attaining socio-political legitimacy at a higher social level.

Thirdly, perhaps a little counter-intuitively considering the second point above, these findings extend Aldrich and Fiol (1994) by suggesting that organizations seeking to create and grow ecosys-

tems should simultaneously implement cognitive strategies at all levels of the social hierarchy. For instance, from its inception AppCampus utilized symbolic language and behaviors, promoted activity through third party actors and created linkages with established educational initiatives. As Aldrich and Fiol place these entrepreneurial strategies at the organizational, inter-industry and institutional levels of analysis, these results imply that a multi-level strategy can be used in ecosystem contexts. This may be necessary as ecosystem participants often cut across differing industries (Adner & Kapoor, 2010; Iansiti & Levien, 2004). As such in order to gain cognitive legitimacy at the organizational level, strategies targeted at the inter-organizational and institutional levels are also required.

The finding of the two stage model of ecosystem creation is intriguing when considered in context of the extant literature on institutional formation and change. Although the institutional literature does acknowledge the importance of socio-political legitimacy, considering it both conformity to laws and endorsement from other powerful actors (DiMaggio, 1988; Meyer & Rowan, 1977; Rao et al., 2000; Scott, 2008), its focus has been mostly on operation within relevant legal and quasi-legal requirements (Scott, 2008). In contrast, the typology of Suchman (1995) has underlined most empirical research on legitimacy. Suchman proposed three types of legitimacy: pragmatic legitimacy based on audience self-interest, moral legitimacy based on positive normative approval, and cognitive legitimacy based upon taken-for-grantedness. As such, process models of institutional change argue that legitimacy moves from the pragmatic to the moral to the cognitive and becomes more elusive to obtain and more difficult to manipulate as it moves towards the cognitive mode (Greenwood, Suddaby, & Hinings, 2002; Hinings et al., 2004; Scott, 2008; Suchman, 1995).

Applying this to our two-stage model, pragmatic, moral and cognitive legitimacy have been folded into our single construct, cognitive legitimacy. In addition to the cognitive legitimacy elements expounded in the results, there are clear examples of both pragmatic and moral legitimacy development. For instance, participants signed up to AppCampus based upon the expected value that AppCampus could deliver for them, as well as because it appeared that AppCampus has “their best interests at heart”. These two rationales correspond to the exchange and dispositional types of pragmatic legitimacies that Suchman identified. Furthermore, from an early stage AppCampus gained moral legitimacy as it achieved milestones, established clear and fair procedures, and socially positioned itself

as a way into the ecosystem for nascent developers. These actions correspond to the consequential, procedural and structural types of moral legitimacies of Suchman.

Our findings have significant implications for managers working to create ecosystem momentum. First, the case of AppCampus demonstrates that ecosystem seeding is possible, even when the nascent ecosystem is competing against established incumbents. In such cases, targeting prospective ecosystem members who have been largely overlooked by incumbents despite having the potential to bring value into the ecosystem may be a wise approach, especially since these potential participants may be more responsive to incentives which are relatively small in size than those who have already been targeted by competing ecosystems. The case suggests that firms pursuing such a strategy for building ecosystem momentum should pay attention to the organizational form through which this strategy is carried out, and also to calibrating the organizational persona projected in their communication efforts so as to make it attractive for their target complementors. AppCampus' independent, highly agile and iterative approach appears well-suited for co-operation with nascent developers, while its development of an image separate to that of its funding organizations has seemingly been effective in attracting submissions from this target group.

Second, the case makes clear the importance of stories and symbolic actions in building ecosystem momentum. Developing coherent narratives about the ecosystem before inviting other participants to join helps to create a shared understanding of ecosystem functions and purposes and helps to establish cognitive legitimacy. The year that the founders of AppCampus spent refining the program concept appears to have produced a coherent shared understanding of the Windows Phone ecosystem among AppCampus members, facilitating the diffusion of this narrative, and thus helping the program to reach a broad audience of current and prospective ecosystem members. A focus on complementor capability development, as exemplified in AppCampus' quality focus and training components, has further helped to establish the legitimacy of the ecosystem both among participants and among other members of society.

Although our research suggests interesting implications both for institutional field theory and managerial practice, it is not without limitations. We are still observing the early stages of the AppCampus initiative. While this context has provided us with an interesting lens to observe emergence

phases of an ecosystem facilitation initiative, we cannot know as yet whether the initiative will be ultimately successful. Although our objective has not been to predict the success of ecosystem initiatives, the reader is nevertheless reminded that our focus has been on observing early development processes in ecosystem initiatives through an institutional theory lens. Establishing causal influences on subsequent success provides an interesting focus for further research. In addition, our interviews have been limited to individuals actively participating in the ecosystem. We have not interviewed representatives of wider societal stakeholders. Again, this limitation reflects the early stage of the ecosystem facilitation process, where the emphasis largely remains on facilitation of cognitive legitimacy, and efforts to facilitate wider socio-political legitimacy remain at a nascent stage. Exploring such wider legitimacy-building processes using the two-stage model developed here could provide an interesting focus for further research.

CONCLUSION

Above, we have suggested that an institutional approach to ecosystems provides a valuable lens with which to study the early processes of ecosystem emergence. Taking an approach that considers both socio-political and cognitive legitimacy, we analyzed the case of AppCampus and suggested a two-stage model of ecosystem creation. In the first stage, participants of the nascent ecosystem establish and promulgate a shared understanding of its purpose, internal roles and operations to existing and prospective ecosystem participants, while in the second stage, having gained at least some momentum, the legitimation emphasis gradually shifts from establishing cognitive legitimacy to establishing wider socio-political legitimacy.

We both confirm and extend the model of cognitive and socio-political legitimacy of (Aldrich & Fiol, 1994) by not only confirming the relevance of the suggested socio-political entrepreneurial strategies, but also that multi-level cognitive strategies are required for ecosystem contexts and that the progressive building of trust and reliability leads to legitimacy at higher levels of the social hierarchy. Specifically it has explicitly considered how an emerging ecosystem gains endorsement from the general public, key opinion leaders or government officials so that they accept it as appropriate and right (Aldrich & Fiol, 1994). Our results are also congruent with existing process models of institu-

tional entrepreneurship. As a consequence our two stage model reintroduces the importance of socio-political legitimacy into discussion of the evolution of ecosystems and other institutional fields.

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FIGURE 1 – TEIB Model

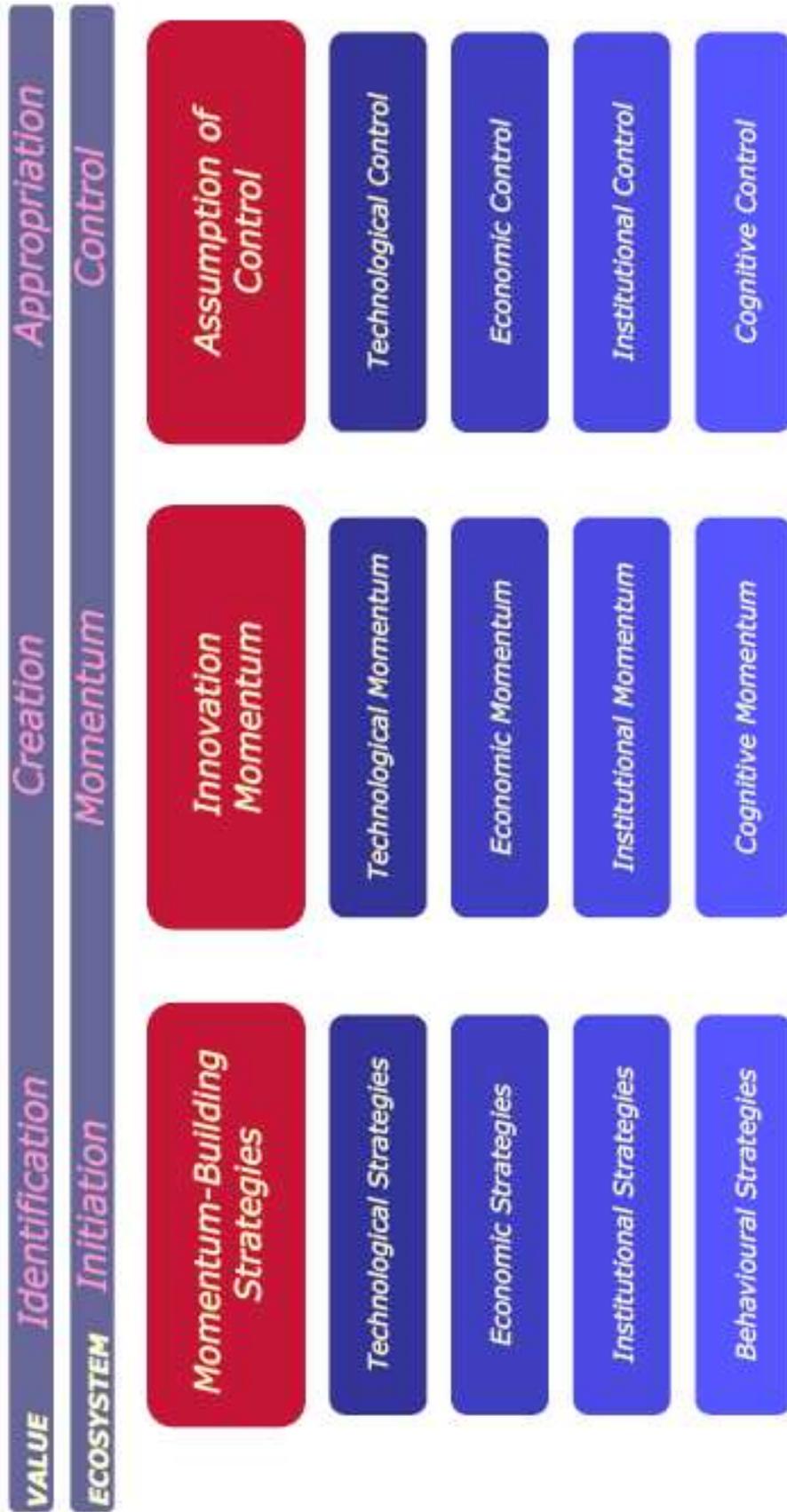


FIGURE 2 – Model of Field Evolution

