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The Capabilities of bazaar governance: investigating the advantages of business models on open communities.

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Introduction

For two decades, more and more entrepreneurs and organizations (whether established firms or not-for profit organizations) have been using open communities to develop their activities and projects. The advent of these forms may be perceived as a consequence of the development of information technologies. But explaining open communities by technologies means assuming technological determinism. For instance, the scientific field can be considered overall as composed of open communities working in various fields on the elaboration of new knowledge (Gläser, 2003). The advent of the Internet has changed the data exchange and the diffusion of research but not the fundamental organization of scientific communities.

However, West and Lakhani (2008) underline the fuzziness of the ‘community’ concept. In particular, they raise numerous questions concerning what researchers refer to when they evoke communities. Indeed, does the community imply or not individuals and/or firms? Do members share norms or not within the community? How interactions occur between members? Does community suppose a common objective shared by members? Consequently, West and Lakhani call researchers to provide a deeper theoretical conceptualization of communities in order to differentiate the concept from the one of network as developed by Powell (1990).

Open communities take multiple empirical forms depending on their “raison d’être” (free software, open source, crowdsourcing, crowdfunding, open design...) and are used in diverse settings (software, drugs, sporting equipment, engineering, cultural products...). They have also various objectives (developing innovations, creating products, funding projects...). Facing this empirical heterogeneity, researchers may investigate the concrete forms of these communities and the way they function. They can also adopt a more theoretical approach to find commonalities in empirical forms. That is the line we follow in this article. In our view, open communities have in common to be organized by what has been described as a generic governance structure, labeled ‘bazaar governance’ (Demil and Lecocq, 2006) or ‘commons-based peer production’ (Benkler, 2006) among others.

Indeed, the use of bazaar to govern transactions leads to the emergence of open communities. This specific governance structure displays two main features: the open access to the community and the specific contract regulating the tangible or intangible assets shared in the community or resulting from the peer production of members.

While the empirical forms and functioning of open communities have been largely documented, the study of these communities rarely leads to a comparison with other alternative forms of organization. However, from a managerial perspective, a crucial question is why bazaar instead of another governance structure? In other words, why would an entrepreneur or a company willing to develop or release a product or service use bazaar governance? A first possible answer would be to follow the traditional logic of transaction costs economics, arguing that bazaar governance would be chosen relatively to the characteristics of transactions and context. In this paper we follow a different logic. Instead of looking at the type of transactions that should be governed by bazaar governance, we look at the advantages associated with this structure for the transactions it has to govern.

Thus, we overturn the traditional reasoning of transaction cost economics to question the advantages of the bazaar. We adopt a comparative approach of governance structures building on a sparse literature to develop the idea that a given governance structure may convey some advantages to reach specific goals. Therefore, the implemented structures of governance result less from contingent factors affecting individual transactions than from the goals pursued by actors. However, bazaar governance has not benefited so far from a systematic theorization through this lens we label “Capabilities of Governance Structures”.

In this theoretical paper, we advance in a first section that structures of governance ‘equip’ actors with particular capabilities. In a second section, we identify the specific capabilities of bazaar, shedding light on the rationale for the adoption of this governance structure. However, the choice of a governance structure operates at the level of a given transaction. Investigating bazaar through a management lens supposes to move from the level of transaction to the organizational level and to look at the consequences of bazaar on the performance of the organization. Thus, in the third section of this paper we study the impact of bazaar governance on the business models of entrepreneurs and organizations that may adopt it. In particular, we show how the capabilities of bazaar governance influence the three pillars of business models: economizing, value creation and value capture.

The capabilities of governance structures

Governance structures are social arrangements built to organize transactions between parties through coordination mechanisms and allocation of property rights (Grandori, 1997). In this sense, a

governance structure is no more than a way of organizing activities. Governance structures have broadly speaking a judicial dimension as they are providing rights and obligations to actors, and regulate their potential conflicts. They can be defined as *'the explicit or implicit contractual framework within which a transaction is located'* (Williamson, 1981: 1544). Beyond structural arrangements and the role of human agency, governance structures may also have an important technological dimension. Technological devices participate largely in the regulation of human actors, as in the cyberspace where protocols play a crucial role to control flows of exchanges in a distributed manner (Galloway, 2000). More generally, information and communication technologies draw spaces where interactions occur between participants and which are simultaneously constraining and enabling these interactions (Lessig, 1999; Giddens, 1984). However, in this article, we do not insist on the role of the technological dimension as open communities are not limited to the Internet context. We have in mind both “virtual” communities but also “physical” ones, such as when sport enthusiasts freely share information and provide assistance in sport communities to develop new products (Franke and Shah, 2003).

For a while, three structures have been evoked in the literature: market, hierarchy and network (e.g. Williamson, 1981; Powell, 1990). However, beyond these traditional forms of organization, there is now a consensus to acknowledge that bazaar governance¹ (Demil and Lecocq, 2006), virtual communities (Dubé et al., 2006), commons-based peer production (Benkler, 2006) or open collaboration (Gorbatai et al., 2012) has specific features which may lead to consider its existence as a generic form of organization. Indeed, bazaar governance has shown to be helpful to contribute to the development, production or distribution of a variety of intangible and tangible goods (Raasch et al., 2009). Moreover, as noted by Grandori (1997), the number of governance structures tends to remain poor in the traditional theoretical literature compared to the multiple empirical forms of the economic organization. The inclusion of bazaar governance contributes to improve the study of organizational forms.

Each of the four generic structures of governance has specific characteristics in its discrete or ‘pure’ form. Pure forms of governance could be assimilated with ideal-types in the sense of Weber. Indeed, ideal-types result from an accentuation of empirical facts and constitute a synthesis of “(...) *many diffuse, discrete, more or less present and occasionally absent concrete individual phenomena (...) into a unified analytical construct*” (Weber, 1949, p. 90). This mental construction does not exist *per se* in real life but constitutes a powerful tool to investigate organizational life. Thus, each ideal-typical structure constitutes the essence of the organizational forms it embodies. For instance, while firms rarely function with purely hierarchical mechanisms, hierarchy as a governance structure

¹ Demil and Lecocq (2006) have coined the term “bazaar governance” for two reasons. First, it is a reference to Eric Raymond (1999), a founder of the open source movement, who uses the image of a bazaar (as opposed to the usual approach to building software as a “cathedral”) to describe how open source projects functions. Second, the bazaar as an oriental market refers to a specific organization of economic transactions with chaotic appearance, which enables vendors to propose products varying greatly in quality (Geertz 1978). These features are congruent with projects developed within open communities.

constitutes the essence of firms. However, as we will see later in this paper, we then need to move to the real-life organizational forms to understand their functioning.

The characteristics of ideal-typical governance structures can be presented comparatively. Such a comparison helps actors to choose the most adequate structure for managing their transactions (Table 1). In a transaction cost economics view (TCE), these structures are based on a contractual framework and produce various levels of incentives and control. These characteristics indicate how actors will be motivated to be efficient in production, and how the governance structure allows the containing of the opportunistic behaviors of parties. In this view, the pure form of bazaar produces low incentives, as participants are most of the time volunteers who are not rewarded according to their contribution, and low control, as there is no hierarchy to direct the behavior of participants.

Table 1. A comparison of governance structures (Source: Demil and Lecocq, 2006)

	Market	Hierarchy	Network	Bazaar
Contractual framework	Classical contract	Employment contract	Neoclassical contract	Open licence contract
Incentives intensity	High	Low	Intermediate	Low
Control intensity	Low	High	Intermediate	Low

Traditionally, choosing the effective governance structure aims at reducing costs (Williamson, 1985). For instance, in TCE the choice of a given structure depends on the characteristics of the transaction (specificity of assets, uncertainty, frequency) and a good alignment is supposed to minimize the cost of production and/or cost of transaction. However, as noted by Langlois and Foss (1999), in TCE “*the problem of organizations is one of creating governance structures to constrain the unproductive rent-seeking behaviour that imperfect information permits. In fact, the basic heuristic driving this literature is to reduce literally all problems of economic organization to problems of incentive-conflicts attendant on imperfect information*” (p.201).

An alternative view is to consider that the choice of actors among alternative structures of governance depends on costs but also on their preferences (North, 1990), i.e. on their strategic goals. This view enables us to avoid an exclusive cost-focusing approach of organizational choice and to take into

account value creation and value capture processes (Dietrich, 1994; Ghoshal and Moran, 1996). It entails that actors can reach their strategic goals (for instance, capture value rapidly, avoid irreversible investments, promote an innovation, improve a product...), thanks to alternative forms of organization. However, some governance structures appear less costly to attain a given goal and consequently, the economizing reasoning should not be definitely rejected. It constitutes only one of the multiple stakes at play (economizing, value creation and value capture) when actors are organizing their transactions. In this paper, we contend that governance structures are chosen for their capabilities to reach strategic goals at lower cost.

Indeed, it appears that each structure, beyond the mere governance of a given transaction and a pure logic of economizing, may grant strategic complementary advantage while actors are performing an activity. Given these characteristics, we label “capabilities of governance structures” these abilities to reach efficiently a strategic goal. Even if traditionally the word “capability” is associated with the firm, we may observe that its common definitions also apply to governance structures. For instance, Grant (1991, p.119) mentions that a capability is the capacity to perform some task or activity. Winter (2000) states “*that to be capable of something is to have a generally reliable capacity to bring that thing about as result of intended action (...) Capabilities fill the gap between intention and outcome and they fill it such a way that the outcome bears a definite resemblance to what was intended*” (p.2). Thus, as the ability to perform efficiently a set of operations (and/or transactions) and to reach a goal, the capability concept applies also to governance structures and not only to the firm.

This conception departs from a functionalist argument for which structures of governance are an answer to market failures. In contrast, we support the view that governance structures can be chosen for their own sake because they facilitate the attainment of the goals of actors.

For more than twenty years a very sparse literature (whether in economics, in strategic management, or in economic sociology), encompassing essentially research on the characteristics of given organizational forms, has documented the existence of some benefits or advantages to the use of governance structures. While Ghoshal and Moran (1996) have proposed an “organizational advantage”, Kogut and Zander (1992) or Conner and Prahalad (1996) have suggested the superiority of the firm (compared to market) to develop and manage knowledge. Pitelis and Teece (2009) build on this stream of research to argue that “*the advantages of organization (over the market) go well beyond savings in transaction costs*” (p.5). These authors affirm that the firm is the best governance structure to capture value from innovation. More precisely, there is a superiority of firms compared to markets to combine co-specialized assets and capture value from intangible assets. In the same line, while Porter (1985) framework does not appear to be in a first stage a theory of the firm, it clearly states that the integration (hierarchy) yields bargaining power and allows benefiting from monopoly power. Thus, generally speaking, hierarchy has the capability to facilitate the capture of value generated by transactions.

Market appears also to grant some advantages to an entrepreneur. Indeed, a firm choosing market governance structure for a given transaction might benefit from a risk reduction related to operations and an increased flexibility (Blomqvist et al., 2002). Market facilitates also independent or spontaneous adaptation of numerous actors through the price mechanism whereas hierarchy promotes a coordinated adaptation among actors. In the first case, actors need to know little to take their

decisions. In the second case, they have to establish goals and to coordinate to reach them (Williamson, 1991). As a consequence, a capability of the market is its adaptability to change in demand and supply.

Finally, as noted by Dyer (1996, 1997), Jones et al. (1997), Dyer and Singh (1998), Madhok and Tallman (1998) among others, network form of organization generates particularly trust and benefits from investments in relation-specific assets, enables to address collective and complex problem-solving and promotes risk sharing through separate ownership of assets.

We provide a brief summary of the capabilities associated with each traditional governance structures (hierarchy, market, network) in Table 2. As explained previously, these capabilities are matching with the strategic goals actors may have running their activity. However, capabilities of governance structures are only potential and actors benefit from them only if they implement and manage the structure actualizing these capabilities. For instance, price mechanisms help to adapt if information flows without too much frictions in market. Synergies or scale economies are arising in hierarchies only if actors generate pooling of resources and exchange between subunits.

In the next section, we focus exclusively on the capabilities of bazaar governance that have not benefited from a systematic analysis.

Table 2. Some capabilities of governance structures (source: Authors)

Generic Governance Structure	Examples of Governance Structure Capabilities	Contributions
Hierarchy	<ul style="list-style-type: none"> • Learning • Value appropriation from assets • Increased negotiation power • Accountability • Adaptability to unanticipated circumstances (coordinated adaptation) • Generation of synergies • Scale economies 	Conner et Prahalad (1996); Chandler (1977); Ghoshal and Moran (1996); Kogut and Zander (1992); Porter (1985); Powell (1990); Williamson (1991).
Market	<ul style="list-style-type: none"> • Adaptability to change in demand and supply (autonomous adaptation) • Risk transfer • Flexibility • Price knowledge / Costs control 	Adler (2001); Blomqvist et al. (2002); Cheung (1983); Williamson (1991).
Network	<ul style="list-style-type: none"> • Investments in relation-specific assets • Joint complex problem-solving • Limiting investments • Risk sharing through separate ownership of assets 	Dyer (1996, 1997); Dyer and Singh (1998); Jones and al. (1997); Madhok and Tallman

	<ul style="list-style-type: none"> • Development of knowledge 	(1998) ; Powell (1990); Provan and Kenis (2007).
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The specific capabilities of bazaar governance

The essence of bazaar as a structure governing open communities relies on two general principles and characteristics. First, as any governance structure, it has a specific contractual basis. In particular, it is ruled by an explicit or implicit contract² that allows participants to the open community to use, copy, modify, improve or distribute various assets, most commonly information and knowledge, but also tangible products (such as cars in the case of Wikispeed). Whereas other governance structures promote the control of assets through ownership (whether individually such as in firm or jointly such as in the network), bazaar prevents contributors from appropriating totally the shared asset.

The second generic characteristic of bazaar concerns specifically the openness. The concept of openness refers to the absence of barriers to participate –a kind of “ideal democracy” (Lessig, 1999). Indeed, contributions are based on the freedom to participate. Thus, participants are not selected –or are self-selected (Afuah and Tucci, 2012) - to enter in a community contrarily to what happens in other structures. Firms recruit their members. Entering in a market supposes overcoming entry barriers. Belonging to a network involves having been co-opted by other members or fellows.

Openness has several consequences on the functioning of the community. First, each participant may be alternatively a producer in a transaction and a consumer in another one, blurring the traditional roles established by other governance structures, especially market and hierarchy. Second, bazaar is a governance structure in which free riding has a very low cost, both for free riders –no risk of being excluded- and for the community.

Thus, contrarily to alternative forms of governance, bazaar –in its pure form-promotes open membership and absence of control (Lee and Cole, 2003). These characteristics lead potentially to problems of coordination and control, due to lack of shared basis of authority (O’Mahony and Ferraro, 2007). We do not idealize the functioning of such a form of organization in its pure form and acknowledge that open communities may perform poorly (e.g., Keen, 2007). As a consequence, actors modify pure forms, mixing governance structures to organize their transactions and counterbalance potential limits. For instance, Google decided to improve incentives for open source

²While there are several types of contracts within the bazaar governance (as within market, hierarchy or network), they all share the idea of potential multiple contributors to a given transaction, a certain openness in terms of participation to the transaction, and mechanisms to avoid full appropriation by some contributors (as in the case of open source software) or by all contributors (as in the case of free software).

community to increase the number of applications for its OS Android. It granted pecuniary rewards for the selected projects through several Android Developer Challenges, introducing market mechanism. Similarly, Linus Torvalds used rapidly hierarchical mechanisms to organize the community of Linux developers, especially by attributing roles of supervision and coordination to some of the developers (his “lieutenants”). Providing guidelines or sharing communication protocols are also means to insure coordination (Bonaccorsi and Rossi, 2003) inspired by hierarchy.

Beyond this general characterization of bazaar, the main question refers to the strategic reasons for the choice of this particular structure: What are the capabilities offered by bazaar which are sought by entrepreneurs or organizations adopting it? Based on literature and examples, we identify four main capabilities generated preferably by using bazaar to govern transactions. This does not mean that other structures are unable to be used for the same transactions or to reach similar goals. Indeed, from a theoretical standpoint, any structure may govern any transactions. Indeed, an actor can develop an innovation within a hierarchy, by buying a company or a license on the market or by co-developing it with partners in a network. But we contend that the ability of each structure to contribute to achieve a given goal may differ greatly in terms of costs. For instance, you can promote adaptation to demand through organization (hierarchy) but this will have generally a higher cost compared to the use of market which appears as the best structure to preserve adaptability to environment.

Generally speaking, capabilities of bazaar relate to an improvement of the innovation process deriving directly from openness and from the absence of total appropriability of assets or output of production. Indeed, these two characteristics provide strong incentives to participate, even if they are not producing incentives to be efficient (as opposed to market). Thus, bazaar generates an entry inducement for volunteers with diverse experience and knowledge. Such an inducement leads to a reduction of search costs to find support to a project, as discussed by Afuah and Tucci (2012). Building on the case of crowdsourcing, they demonstrate that bazaar eventually allows innovating far from the knowledge base of the entrepreneur or organization choosing it to govern a transaction. Under bazaar governance, a transaction that supposes distant search may benefit from the cost and effectiveness of local search, allowing exploration behavior at minimal costs. Thus, this mechanism increases the multiplicity of potential sources of innovation, but also the reduction in the cost to reach them. Distant search may be supported by the use of technologies such as the Internet but also from direct contact between participants. For instance, innovators may benefit from the assistance of people outside their initial community through networking effects (Franke and Shah, 2003).

The distant search characterizing open communities leads to an improvement of the innovation process during stages of conception, production or diffusion (see Table 3).

The first capability of bazaar is to favor the diffusion of a product or a technology by enhancing adoption. For instance, an open community may help a sponsor to diffuse its standard or solution, such as in the case of Java (Garud and Kumaraswamy, 1993). The mechanism at play is essentially that openness lowers the barriers to entry (Langlois and Robertson, 2003: 103) and eventually favors

entry inducement in the industry to adopt a technical solution (Lecocq and Demil, 2006). By providing a free product as in the case of the OS Android for mobile devices (in this case, a software development kit), Google reached a leadership position in a few years with a large number of applications. Moreover, weak appropriation generates partial or total access to proprietary knowledge (depending on the underlying contract of the transaction), which can reduce switching and incompatibility costs (Farrell and Saloner, 1986) and the capital required to operate in a sector (Lecocq and Demil, 2006).

A second capability of bazaar governance relates to the creation or improvement of a product or technology. Distant search facilitated by bazaar governance (Afuah and Tucci, 2012) permits reaching unexpected sources of knowledge for problem-solving and particularly for the creation of a new product or technology. Moreover, as any member of an open community may participate in the innovation process, the probability of providing regular and rapid improvements is increased (McKelvey, 2001). Even if, on average, each individual participant makes little contribution the huge number of participants compensates for this weakness (Demil and Lecocq, 2006). As bazaar governance allows several participants to contribute to the same transaction, it favors incremental improvement and the possibility, for participants, to remain in their area of expertise (if any) when contributing.

A third capability of bazaar governance concerns the capacity of open communities to potentially increase product diversity. Indeed, by extending the number of potential participants in the innovation process of products or technology and favoring sharing of information with and between end-users, openness promotes permanent innovation whether in BtoB or BtoC markets (Baldwin et al., 2006). For instance, Franke and Shah (2003) show how sports enthusiasts share freely information and provide assistance in sports communities to develop incremental innovations or totally new products. This capability entails also the emergence of complementary products. By granting access to a shared asset (e.g. a source code, knowledge, facilities...), members of a community attract new members who would develop eventually complementary products which were not envisaged when the community was founded. Indeed, open participation entails unpredictability concerning the results of interactions among members, potentially letting room for new complementary products (what Lessig -1999- mentions as “open evolution”). These complementary products create a supportive ecosystem for the initial offer. They have been particularly observed in the smartphone platforms where their openness (total or relative towards complementors or competitors) appears as a crucial factor, reinforcing their success (Hilkert et al., 2011). More generally, Boudreau (2010) found that openness of a platform in handheld computing systems accelerates up to fivefold the rate of new device development. This capability of bazaar leads to the potential creation of an ecosystem of products and/or services.

Fourth, bazaar potentially favors the best matching between products and preferences of consumers (Almirall and Casadesus-Masanell, 2010; Gorbatai, 2011). Because participants are alternatively consumers and producers they develop solutions adapted to their needs (Raymond, 1999). In this

sense, bazaar reveals the private knowledge of actors instead of using mechanisms such as prices. For instance, fab labs enable participants to have access to various equipments such as cutting machines, milling machines or laser cutting that are computer controlled (Gershenfeld, 2005). Thanks to this access, participants develop their own personal projects and objects that can't be found on markets. These small factories encourage knowledge sharing within the community and more largely within the network of fab labs. Of course, they can't produce scale economies as offered by an organization releasing products on the market at thousands of exemplars. But they help to satisfy narrow niches by creating a 'long tail of things' (Anderson, 2013).

The identified capabilities are directed towards an increase of innovation and creativity, and an acceleration of these processes (See Table 3). The above-mentioned characteristics appear to be more than 'benefits' (Blomqvist et al., 2002) or 'transaction values' (Madhok and Tallman, 1998) associated to operations. While these capabilities of governance structures operate at the transaction level, they contribute to reach strategic goals of actors (whether individual entrepreneur or an organization using open communities).

Table 3. Main capabilities of bazaar governance (Source: Authors)

Generic Governance Structure	Examples of Governance Structure Capabilities	Contributions
Bazaar	<ul style="list-style-type: none"> • Rapid and large diffusion of a product or technology • Creation and improvement of the product or technology • Increased product diversity • Matching of products and consumer preferences 	Afuah and Tucci (2012), Almirall and Casadesus-Masanell (2010); Anderson (2013); Benkler (2002); Demil and Lecocq (2006); Franke and Shah (2003); Lecocq and Demil (2006); Lessig (1999)

The advantages of business models based on open communities

As demonstrated by Demil and Lecocq (2006), bazaar is a generic structure of governance. This implies that open communities are not limited to "OSS" (Open Source Software) or more generally to information goods. Indeed, bazaar governance may also be implemented to govern transactions

related to any tangible products as exemplified by Raasch et al. (2009). While the capabilities of bazaar help to develop projects in the digital world, for instance through open source communities, they are now reaching the product world through the so-called open design. Indeed, positive network effects are also playing a key role in the development of product such as in ‘makers’ movement (Anderson, 2013) where people are sharing designs for new products and can send them to a manufacturer or manufacture them with powerful digital fabrication tools such as 3D-printers. The Wikispeed project is another example of the development of bazaar governance to create and fabricate very complex products. Among others goals, this community aims to solve pollution problems and to produce ultra-efficient vehicles. It does not only encompass transactions for designing the vehicle but also to fund the project and to produce prototypes.

As open communities become more and more visible in various environments, developing and promoting products used daily by more and more people worldwide (Gorbatai, 2011), bazaar governance has definitely entered in the cognitive repertoire of most individuals as a way to organize activities. As a result, more and more companies are relying on communities for some part of their activities, from software development to maintenance of water distribution network in developing countries. Thus, bazaar governance will probably less and less be associated with not-for-profit sector. We contend that in the future, bazaar will be implemented in most industries in all the aspects and forms of economic organization, from NGOs to traditional business. Conversely, the diffusion of bazaar governance in the cognitive repertoire of managers should lead to observe the progressive extinction of pure and entire proprietary strategies in the business environment. In our opinion, in the near future entrepreneurs and organizations will not adopt bazaar governance for philanthropic reasons (at least not only), but for its unique capabilities compared to other generic governance structures. Indeed, as argued earlier in this article, the recourse to open communities is the most effective way to ensure the diffusion and improvement of a product or technology. Nowadays, organizations need the capabilities of bazaar governance to compete and pure proprietary strategies become obsolete.

However, when they adopt bazaar governance to govern a transaction, trying to build an open community and relying on it to realize some tasks and operations, entrepreneurs and organizations need to anticipate the consequences of such an adoption on the performance of their activity. Indeed, the analysis and choice of governance structure operate at the transaction level. However, the adoption of bazaar to govern one or several transactions and the resulting emergence of open communities has impact at the organizational level. Moreover, from a managerial point of view, an important step is to move from the capabilities of governance structures to the performance of organization. Thus, a crucial question is: what are the consequences of bazaar adoption on the performance of the organization?

An organization (as an entity) can be conceived as the result of the choices related to governance structures for each transaction its activity necessitates. Such an approach echoes to the configurational approach of business models (Demil and Lecocq, 2010). In this view, a business

model is a configuration resulting from choices made to ensure value creation, value capture and economizing in the conduct of an activity. The unique configuration of the intertwined governance structures constitutes the business model of the organization, defining ultimately its performance.

In order to evaluate the impact of bazaar on the business model of organizations adopting it, we need to analyze the role of bazaar on value creation, value capture and economizing. Taking into account these three elements simultaneously is important as it offers a deep understanding of bazaar governance (and eventually of other structures). On the contrary, previous literature tends to focus on a single element. For instance, there is currently a debate on the characteristics of open communities as far as value capture is concerned (see for instance Afuah and Tucci, 2013; Bloodgood, 2013). Previous literature also tends to discuss the characteristics of bazaar without reference to other governance structures. However, they are alternative forms of organization and should be discussed in a comparative manner.

Business models based on open communities characterize organizations operating with bazaar to govern one or several types of transactions. Such business models may be implemented by non-for profit organizations, by companies, and eventually by individual entrepreneurs. They lead organizations to integrate an open community (or eventually several open communities) in their value network such as in the open innovation approach suggested by Chesbrough (2003).

To study the impact of bazaar governance on the business model of an organization, the capabilities identified in the previous section of the paper have to be analyzed in respect to their contribution to value creation, value capture and economizing. We argue that bazaar contributes strongly to economizing compared to other forms of governance. However, given the characteristics of this governance structure, value creation may vary from very low to very high when this structure is implemented. Finally, it may seem to be at disadvantage as far as value capture is concerned. But a closer look at the concept of value capture allows shedding another light on the advantage of bazaar governance.

Economizing

Due to their characteristics, open communities are not able to generate scale economies as integrated firms may do. Indeed, scale economies require regularity and standardization of production (both in process and results) that most open communities are unable to generate. However, an important mechanism of economizing relies on the capability of bazaar to attract volunteers –i.e. human resources at no cost- as evoked in research on open communities. Indeed, literature has focused on incentives to participate in open communities and distinguish between intrinsic motives such as fun or moral rewards (see Lakhani and Von Hippel, 2003 for a review on open source communities) and

professional signaling, i.e. gaining reputation in the eyes of peers, as suggested by Raymond (1999). However, an important question is to know what allows the participation of numerous members whatever their motives. Another mechanism of economizing consists in proposing only one contract for an indefinite number of transactions. Indeed, in a community, one contract (for instance, an open license) prevails for all participants. Therefore, this contract has not to be renegotiated for each new participant in the community. Moreover, while the lack of control and exit mechanisms in open communities may seem to be a strong weakness, it also yields unique advantage in terms of economizing. Indeed, open communities do not support control and enforcement costs. These features enable actors to economize on the costs of negotiating, writing and eventually enforcing contracts, which is one of Coase's (1937) arguments for explaining the existence of the transaction costs.

Considering the fundamental characteristics of the bazaar we underlined, we may argue that this structure attracts volunteers for two reasons. First, small contributions are possible. Indeed, openness entails that any potential contributor may enter the community, with no specifications or barriers concerning their potential contribution. Eventually, most of the members in the community may not contribute. Hierarchy will demand specific skills. Markets will select on prices and qualities. Network will require complementary assets or competencies. It is not the case for the bazaar where volunteers may handle the most mundane tasks they have chosen (testing, proof reading, or providing comments in forums). For instance, the movement of citizen science requires minimal investment from participants. This movement associates communities of scientists and nonscientists in multiple fields such as biology, ecology or astronomy. Volunteers may handle such diverse transactions as sharing the calculative power of their computer, observing pictures of galaxies, or measuring data concerning their natural environment. Second, the attraction of participants derives also from the residual value that is appropriated at the community level. Indeed, the value created within the community remains –at least partly- in the community due to the explicit or implicit contracts underlying transactions. As a consequence, volunteers participate in positioning the bazaar governance as a very advantageous structure to economize on transactions comparatively with other structures.

Value Capture

Compared to other structures, the bazaar is clearly at disadvantage as far as value capture is concerned, i.e. the capability of retaining value generated by a transaction. Indeed, the capabilities of bazaar tend to be oriented towards development and diffusion of innovation and less towards appropriation of value. However, adopting a broader view of value capture leads to reconsider this statement. Given the kind of contracts on which bazaar is based, residual value goes to the community and eventually (as open communities are “opened”) to society. Absence of capture may appear exactly as an objective of the actors developing an open community such as in the Wikipedia project or in the Linux OS which can be considered as public good and for which no one can be excluded from their consumption (Gorbatai, 2011). The contractual basis of open communities avoids

the full appropriation of value by some contributors and promotes the shared rights to use resources and/or outputs. However, this characteristic may be modified to match goals of participants in a transaction. For instance, when solvers (generally researchers) propose solutions to seekers (generally multinational companies) on the Innocentive platform, IP rights are transferred from the solver to the seeker and the community in itself does not benefit from the residual value.

Value Creation

The different capabilities of the bazaar are oriented towards creating value through innovation. By promoting distant search –geographically and in terms of knowledge basis- and involving volunteers, these capabilities may produce innovations (or at least improvements of products), increase adoption, and favor better conception or diversity. But quite paradoxically, this distant search produces also a high local adaptation to the needs of participants who are generally both consumers and producers, and to local environmental conditions allowing for instance to produce unique objects in a fab lab or solving unique problems. In this view, bazaar governance helps to handle the heterogeneity of needs and favors the user innovations (von Hippel, 2005) by customizing products. However, because of its main characteristics, transactions governed through bazaar are facing also strong uncertainty in terms of value creation (Demil and Lecocq, 2006). Indeed, if volunteers have incentives to enter in a community, bazaar creates also low incentives intensity and low control on behavior. For instance, core contributors in open source project are few compared to users (Lerner and Tirole, 2002). In a nutshell, volunteers may join a community but then, have few incentives to be particularly active or efficient as in other governance structures. In its pure form, bazaar governance does not encompass mechanisms orienting behavior in a predetermined direction. Thus, if bazaar allows unpredictable evolution (Lessig, 1999) and potentially positive serendipity, a sponsor of a project is also facing strong uncertainty concerning the nature of transactions that will appear and consequently in the value generated through transactions. Moreover, while bazaar may yield huge value creation for customers and/or peers participating to production (as illustrated by the capabilities of bazaar governance), it may also fail to attract participants and/or contributors as it is the case for thousands of open source or crowd sourced projects every year. Thus, this structure of governance should not be idealized as it displays potential pitfalls that a sponsor may encounter.

Discussion

In this paper, we contribute to the analysis of organizational forms and more precisely, to the study of relationships between strategic management and structures. Facing multiple empirical forms of open communities, we develop a theoretical reflection based on the structure of governance shared by these communities. Indeed, the governance structures used by actors give birth to the organized

entities (firms, open communities, partnerships...). Open communities are emerging from the use of bazaar governance.

This paper makes theoretical and managerial contributions.

From a theoretical point of view, several highlights have to be mentioned.

Firstly, we have advanced a framework labeled “capabilities of governance structures”. We argue that each governance structure enables actors to benefit from specific capabilities to attain their strategic goals. To investigate the specific capabilities of bazaar governance, we use a comparative approach to underline the main capabilities of each governance structure. The logic we follow is that all transactions can be managed potentially by any governance structure but that the cost to achieve the goals of actors varies greatly according the structure. Thus, capabilities of a structure refer to its capacity to reach specific strategic goal at the lowest cost.

More specifically, bazaar appears particularly adapted for improving the innovation process at different phases thanks to openness and a total or relative unappropriability of assets or outputs. Based on these characteristics, we identify four main capabilities of bazaar governance: the rapid and large diffusion of a product or technology, the creation and improvement of a product or technology, the increased product diversity and the matching of products and consumer preferences. These capabilities have consequences on the performance related to transactions governed by bazaar. In this paper we have evaluated contribution to performance through the lens of business model approach. Therefore, we have discussed the contribution of bazaar governance to three mechanisms of performance: economizing, value creation and value capture.

Secondly, confronted with the fuzziness of open community in literature (West and Lakhani, 2008) and the variety of its empirical embodiments, we have demonstrated that researchers may develop a fine-grained approach of organizational forms by considering at governance structures at the transaction level. This allows to qualify the essence of open communities and to contrast them with other forms of organization, disentangling various empirical phenomena. Two specific characteristics may be attributed to bazaar governance: openness and total or partial non-appropriability of assets and outputs.

Starting from transaction instead of adopting a holistic view allows to better identify how bazaar is intertwined and combined with other governance structures to organize economic action. First, as we have discussed in this paper, entrepreneurs and organizations may mix structures of governance at the micro level, integrating mechanisms from different structures to manage a given transaction. For instance, to stabilize relationships on a market, actors may develop trust (Bradach and Eccles, 1989). Networks may be highly brokered or largely decentralized (Provan and Kenis, 2007). Hierarchies may introduce mechanisms of prices and incentives on outputs (Adler, 2001). Similarly, bureaucratic mechanisms – such as a mix of authority and democracy- may be introduced into communities to insure a better coordination (O’Mahony and Ferraro, 2007) or incentives such as rewards and

recognition for contributors in an open source software (OSS) community (Lerner and Tirole, 2002). Mixing governance structures should help to increase control and incentives compared to pure bazaar. Second, at the meso level, another source of empirical variety of organizational forms may be found in the possibility to use different structures to govern the same kind of transactions. This phenomenon has been called “plural forms” (Bradach and Eccles, 1989) and refers to actors using for instance in-house channels for distributing products but also franchising in the meantime. Similarly, using bazaar governance to innovate can be envisaged jointly with in-house R&D. Such plural forms are used commonly in open innovation movement (Chesbrough, 2003). Third, at a more macro-level, the agglomeration of numerous transactions of various kinds governed by diverse governance structures creates the general architecture of the organizational form, revealing its complexity. At this organizational level, actors try to develop a business model that constitutes a configuration of economizing, value creation and value capture. To do so, they counterbalance the weaknesses of a given governance structure chosen for a kind of transaction *a* by the adoption of another one for a kind transaction *b*. For instance, IT firms regularly create open communities to realize some tasks (for instance improvement and diffusion of a technological standard) but given the difficulties to capture value through bazaar governance, they adopt market, hierarchy or network to govern other types of transactions they have to operate.

Concerning managerial contributions, the paper illuminates questions related to implementation and performance of open communities.

Firstly, bazaar displays some interesting characteristics, particularly to foster creativity and innovation or to solve unique problems. Most business models based on open communities rely on the high number of participants in the community more than on the search for talented people. Thus, such business models consider ordinary resources –human or not- (Warnier et al., 2013) instead of looking for strategic resources, i.e. rare, inimitable and non substitutable. Building an activity on ordinary resources gives potentially to open communities a high resilience compared to organizations based on a few exceptional assets. In other words, the appearance of more and more business models relying on open communities, calls for a new approach of resources where a mass of ordinary resources that are accessible largely offsets the exclusive property of extraordinary resources (Warnier et al., 2013).

Secondly, in this article we embrace performance through the concept of business model that encompasses the main mechanisms of performance: economizing, value creation and value capture. Compared to other governance structures, bazaar may perform better in terms of economizing and value creation as far as innovation is concerned. Indeed, it offers some important advantages in terms of economizing by decreasing distant search costs and the costs associated with the negotiation and enforcement of contracts. However, it performs poorly in terms of value capture. This could limit the use of this structure to non-profit organizations. However, real transactions are often governed by hybrid or mixed structures as actors are adapting structures to their goals. In the case of bazaar, such an adaptation may consist for instance in introducing prices to obtain certain transactions, in building

hierarchical mechanisms to improve coordination within a community or in allowing partial appropriation of asset and outputs (as in open source). The possibility of mixing forms explains why we believe that bazaar governance will become more and more used by companies as it gains legitimacy and can be mixed with other structures to counterbalance some of its weaknesses.

However, bazaar governance also displays weaknesses because individuals decide ultimately to act or not when facing opportunities for action. Incentives to participate (i.e. contributing through the realization of transactions) to an open community are low. Free riding may be high due to weak selection mechanisms of members and the absence of exit mechanisms (i.e. mechanisms to ensure the exit of free riders). Coordination to orient people towards the same goal is also an issue. These features put any transaction within bazaar governance at risk.

As underlined in the literature, a first condition to insure performance of an open community consists in organizing the modularity of the project. Modularity allows the technical division of labor and refers to the decomposition of a project in smaller components that participants can handle and produce independently of the production of others (Benkler, 2002; Lerner and Tirole, 2002). This modularity is an answer to three challenges occurring in open community: asynchronous participation, cumulative efforts of participants (i.e. the basic possibility for participants to share tasks participating to the same project), diversity in the levels of involvement. The granularity of the modules is crucial for capturing various involvements and motivations. Empirically, this modularity is embodied in the smallest unit of contribution (for example an article in Wikipedia, a minimal financial contribution in a crowdsourcing community or a part of a program in an OSS) and in the variety of potential contributions or transactions that can be led (for example, writing, sharing knowledge, reviewing, testing or simply using).

However, in our view, the main challenge for a community remains to be able to attract and retain members who really contribute to the project. Openness can be viewed as the cornerstone of bazaar governance but most communities fail to attract participants over a long period due to the ‘scarcity of attention’ of actors. Indeed, when information abounds as it is the case with Internet and the opportunities exist to participate in thousands open projects, critical factor becomes attention of volunteers (Simon, 1996). Moreover, multiple memberships of participants make communities particularly vulnerable due to the scarcity of attention and effort which can be allocated to a single project (Xiaoqin et al., 2013). This entails that most communities have a very short life-span and suffer from competition with others. Participation is at the heart of bazaar governance because its potential effects appear only with partial –and even modest- involvement of many participants. Moreover, as argued convincingly by Benkler (1999), with enough participants in an open community free riding disappears as a concern for participants. A solution for a sponsor may be to generate rapidly positive network externalities to initiate the community (Farrell and Saloner, 1986). This can be reached for instance by offering a private knowledge such as in the case of Linux or the access to facilities as observed for fab labs. This first step sends a positive signal about the potential advantages that participants may obtain and eventually on the longevity of the project. This creates

positive expectations. Of course, this couldn't be enough to insure attractiveness. Due to competition between multiple projects, the intrinsic quality of the projects and the relevance for potential members play also an important role. In other words, proposing the thousandth project of open source operating system has a weak probability to attract participants. Another solution to reduce uncertainty on transactions is to accept and eventually encourage the emergence in the community of a professional broker providing services such as insurance and maintenance of an electronic platform, identifying main contributions and best contributors, and granting visibility to the community in order to attract more participants. Red Hat or Kickstarter are examples of companies playing this role facilitating transactions and reducing uncertainty within a community. We think that studying the structuration process of open communities through the action of one or several firms or NGOs constitutes an interesting avenue of research to understand the intertwined organizational forms involved in the management of open communities.

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