Managing openness with multisided platforms

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Citation : Guy Parmentier. Managing openness with multisided platforms in *The creative capabilities of open organizations*, editor Emilie Ruiz, ISTE Editions/Wiley

Abstract

This chapter examines how multi-sided platforms exploit organisational boundary management to stimulate creative capabilities. Through the prism of Santos and Eisenhardt's strategic objectives (efficiency, power, competence, identity), the author analyses the dialectical necessity between openness and closure. While openness to user communities allows for the outsourcing of innovation and maximises network effects, it requires rigorous control. The platform acts as a hybrid structure: it opens up the creation of content and services to capture value, while closing off the technological core and regulating governance through interfaces and evaluation systems. Although this model is a powerful lever for sustaining innovation, the author concludes that there is a major ethical and strategic limitation: lock-in and algorithmic profiling. By locking users into predictable behaviours to maximise retention, platforms paradoxically risk stifling the exploratory creativity they seek to promote.

Keywords: plateform, multisided, creative capabilities, network effects

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In the past twenty years, digital technologies have transformed our society, our economy and our everyday lives. Translating a complicated text from English to French, tracking an online order with your cell phone or even renting your apartment out to a stranger have become commonplace actions. Digital technologies have thus played a decisive role in the emergence of numerous innovation. Leading companies such as Amazon, Google, Netflix and Airbnb have redefined the economic landscape and transformed our relationship with time, space and information. The industrial world is also experiencing significant transformations with the development of connected objects and Big Data resulting in the arrival of what we call Industry 4.0, changing business practices, work habits and corporate culture.

These technologies have also encouraged the emergence of multisided platforms, complex digital environments that are at the heart of the business models of digital leaders including Google, Blablacar or Airbnb. Multisided platforms rely on digital technologies to connect complementary users who add value to each other. These platforms can open up the limits of an organization to collect new ideas, get users to contribute to the production of services or even take on partners in the development of innovation. Platforms are thus a strong tool for openness which, thanks to the creativity of users and partners, can contribute to an organization's creative capabilities. Openness is also one of the mechanisms that help platforms to function and develop. Corporate boundaries, design processes and production must be opened up to benefit from the input of contributors on all sides accommodated by these platforms. Openness is therefore at the heart of how multisided platforms function. This is why, to understand the contribution of multisided platforms to the creative capabilities of organizations, we will address their working principle, the role of openness and the consequences of openness on creativity in this chapter.

1.1. MULTISIDED PLATFORMS

A platform is a digital socio-technical environment that enables services, exchanges and transactions. Before the arrival of digital technologies, platforms already existed as a physical place, a place that integrates tools to provide a service to one or more categories of users. For example, a store can be seen as a sales platform, where, thanks to shelves, advisors and cash registers, is able to offer a range of products to potential buyers. A nightclub is also a sort of dating platform, in the sense that its music, drinks and a dance floor help to bring people together.

Likewise, the term logistics platform is also used to describe the place where orders are received, stored and sent. Not all of these platforms need digital technologies to work, even if these technologies have significantly transformed them, with the use of robots in warehouses for assembly and shipping of orders, for instance. Among the many forms of platforms that exist, however, digital technologies have facilitated the emergence of a new type, the multisided platform, found at the heart of many companies developing digital services. A multisided platform is a digital socio-technical environment wherein products and services are provided to complementary groups of users who bring each other value (Hagiu 2014; Parmentier and Gandia 2017, 2022). Such a platform delivers a service and facilitates interactions and transactions between groups of users. The side represents a group of users with similar needs, activities and sometimes behaviors.

The multisided platform incorporates technological, economic and social dimensions. From a technological point of view, the platform is a modular system of technological components (Internet, servers, algorithms and AI, cell phones, connected objects, WiFi, etc.) and interfaces that enable network effects, economies of scale and facilitate innovation (Gawer 2014). Digital technologies have facilitated the emergence of such platforms through their accessibility,

networking capabilities, and low cost of content replication. From an economic point of view, multisided platforms stem from the idea of two-sided markets, that is, markets that interact through a platform. For example, the bank card service is supported by a platform that links together the banking market with commercial markets. When the platform connects several different markets, it's a multisided platform. Two configurations of a multisided platform exist, one that connects groups of complementary users on a single market and one that connects complementary users in several markets (Parmentier and Gandia 2016). For example, the Airbnb service brings together travelers and renters in the tourism market, while the bank card connects buyers and sellers to their banks in numerous markets. A multisided platform also possesses a social dimension, since it organizes and regulates the relationships between users from different sides according to the platform's objectives, norms and values.

However, what fundamentally characterizes these platforms are network effects. Network effects are a type of network externality. An externality is present when the activity of one economic agent influences the activity of another without actually having any direct economic interaction. For example, when a beekeeper installs his hives next to an arboriculturist, he positively influences the latter's economic activity, as his bees will probably have a positive effect on fruit production. No transaction has taken place between the beekeeper and the arboriculturist, and yet the former has a positive impact on the latter's economic activity.

In contrast, if a polluting industry settles next to an arboriculturist, his fruit production may suffer. Network effects happen when this externality acts via a network. This is especially the case when the value of a technology or offer depends on the number of users. For example, in a telephone network, the more network users there are, the more interesting the network will become, given the user will potentially be able to contact more people. The network effect is direct when a group of users acts directly on the same group of users (mass effect, effect of reputation, effect of learning). In this case, the more service users there are, the more visible and reassuring the service is, and the more information there is available to facilitate the use of the service. It is indirect when one group of users acts on another group of users, typically in the case of the Google service, where the number and quality of data left by users determine the value of the service for advertisers (complementarity of offers, effect of reputation, effect of learning, etc.). They can be crossed when user groups influence one another, as in the case of a matchmaking service like Leboncoin, where the number and behavior of the providers and customers reciprocally determine the value of the service. We can find these network effects at the heart of multisided platforms.

1.2. STRATEGY OF OPENNESS

The phenomenon of open innovation has shown that companies that open their boundaries with relationships to other organizations, suppliers and users, gain valuable ideas, knowledge and technologies (Chesbrough 2006). This process of openness is one of the routines that constitute an organization's creative capabilities, as it continually generates new ideas that revitalize the knowledge, ways of thinking and ideas of an organization's members (Parmentier 2023). This approach to open innovation was initially centered on the physical environment of the company. The arrival of digital technologies has created new possibilities for openness with platforms, applications and ecosystems (Parker and Van Alstyne 2018). The collaborative economy clearly illustrates this phenomenon of digital openness, where the aim is to develop open collaborative platforms to encourage innovation and network externalities between users (Acquier et al. 2017).

Openness is linked to the notion of boundaries, that is to say, the division between the organization and its environment. For an organization, boundaries are established according to four strategic objectives: efficiency, power, competence and identity (Santos and Eisenhardt 2005). According to the desired goal, the organization marks out transactions (efficiency), establishes its sphere of influence (power), and develops and protects its knowledge (competence), culture and identity

(identity). Boundary making uses internal and external operations to achieve strategic goals (efficiency, power, competence and identity). Opening the border therefore means letting knowledge, ideas, resources and people in or out, in order to o act in the processes of designing and producing the organization's offerings..

To maximize efficiency, the organization asks itself whether to internalize or outsource activities, depending on transaction costs. The lower the transaction costs and the more the activity is based on shared resources and skills that can be imitated by specialized companies, the more the organization outsources these types of activities, which is a form of openness. For example, Airbnb outsources the supply of accommodation, which is a shared resource, at time underused by the accommodation owners. Transaction costs via the multisided platform are considerably lower than building and managing your own accommodation. In another example, Nadeo, the producer of the game Trackmania, has access to a significant creative force corresponding to over a hundred full-time in-house graphic designers by outsourcing the creation of racing tracks to the player.

To maximize its power over the environment, that is, to control the value network and the market, the more the presence of external players in the environment limits its performance, the more an organization resorts to horizontal and/or vertical integration, which is a form of closure in this case. For example, Uber relies on external drivers across the world to rapidly expand and become the global leader in cab services. It is easier to connect freelancers via a platform than to recruit 100,000 cab drivers around the world. Likewise, despite its financial strength, Apple would struggle to recruit the developers needed to create the 1.8 million applications on the App Store (Caminade et al. 2002). The iPhone/App Store platform has enabled the company to rise up the ranks very quickly and acquire significant market power.

Depending on the durability, scarcity and difficulty of creating new knowledge in a strategic field, an organization may decide to internalize (close) or externalize (open) the creation of knowledge in order to maximize its skills. In the Trackmania game, the racing tracks created by gamers exceed the creative possibilities of the producer's own graphic designers. The diversity of the gamers, and for some the intensive use of the game, have led gamers to imagine circuits and game modes that the in-house teams, despite their skills, would not have been able to think of. The gaming platform thus provides complementary skills to in-house teams, in terms of quality and quantity, even if a large part of the gamers' production is weakly creative and uninteresting. Equally, it is unlikely that Apple could have imagined all the applications created by external developers. As well as being connected to a powerful development force, the platform also provides access to a wide variety of new applications.

To preserve its identity, a company may have to control the integration of external content, knowledge and people into its design and production processes (closure). For example, the Ridygo platform, which provides a real-time carpooling service, also has social goals. For instance, this service is available at no cost in order to help people seeking to enter the workforce. Invoicing and the distribution of value between the sides and the platform manager are aligned with this social objective. In this case, the way in which the service is opened (i.e., the way in which travel providers are drawn in) partly depends on Ridygo's values. Similarly, Apple exercises strict control over applications to make sure that they meet quality standards and do not spread discriminatory or sexual content.

To innovate, companies open up their innovation processes to external users with conversation activities with users to better understand new uses and emerging needs, knowledge sharing activities to identify problems and find solutions, and sometimes co-creation activities to develop a product and service (Parmentier and Mangematin 2014). To innovate with users, the products and services themselves are opened up with tools for creating new content and features, or by facilitating the possibility of shifting the product towards other uses. Openness at product level also involves observing customers' uses and creations. Unplanned uses and atypical creations often

illustrate emerging needs and expectations, which can be at the origin of a major evolution in the product, and sometimes even an innovation. Communities of users are also open devices for innovating when they develop relationships with production companies to participate in innovation processes or develop existing products and services (Parmentier 2015). In these communities, openness sometimes concerns elements of identity, with the sharing of distinctive signs between companies and users (visuals, name, website), common values (with a community manifesto, aligned with the company's values), and the sharing of monetary value when the company gives back part of this value to users (Parmentier and Mangematin 2014).

Acting as a space for technological and social interaction between several groups of players, the multisided platform is also an instrument of openness for innovating in accordance with an organization's strategic objectives. A multisided platform marks out interactions and transactions between players, defines the possibilities of action for groups of users, organizes network effects, spreads the organization's image, and organizes the creation, sharing and storage of knowledge. To keep manufacturing costs under control, a platform gives access and control to external resources that are less expensive or inaccessible with conventional transaction methods. To develop market power, a platform determines the action options available to various user groups and encourages increase in volume. To develop rare, costly or inaccessible skills, a platform enables the creation of knowledge and sets the limit between skills acquired internally and those acquired by user groups. To preserve identity, a platform ensures consistency between the platform's activities, its identity and its values (Gandia and Parmentier 2020a). By mobilizing these types of openness, to innovate, a platform can thus accommodate user communities on each side, open up the design of the platform (technological openness), open up the production of the service (content openness) and even open up its identity and value production to share with users (identity openness).

1.3. CONTROL TOOLS AND MECHANISMS

Being made up of an assembly of technological components and interfaces, multisided platforms integrate functions and tools that control openness to capture resources, content, knowledge and ideas, and to innovate.

The opening up of the boundary, with efficiency as the objective, is carried out with tools used to put content online (articles, graphic content, putting objects up for sale or exchange, renting physical space, offering multiple services), which enable external suppliers to put themselves in contact with users. Few examples of multisided platforms that open up the platform itself to technological development exist. When this is the case, it is through APIs that external developers can add features, such as Facebook's external applications or open-source developments. Apple doesn't directly open up iPhone technology, but it does offer application development possibilities by providing a development kit. These tools are mainly targeted for providers, because whether in terms of content or functionality, the challenge is to provide a service rich in content and possibilities to attract users and thereby encourage network effects. The high number of suppliers and the quality of the objects and services they provide create value for customers. The high number of customers and the quality of their demands (in terms of payment and behavior) create value for suppliers. Tools are adapted to each user category. For example, on Airbnb, the tools for proposing accommodations and tourist attractions are adapted to the specificities of these two types of service. On the demand side, the platforms provide tools to facilitate access to the service and searches for content and services, and to secure transactions.

With regard to power, platforms delegate part of the control of content to suppliers and customers. The direct evaluation of customers facilitates volume growth and gives them some control over decision-making. For example, on Airbnb, travelers' ratings and comments have a strong influence on the choice of accommodation. On this platform, evaluation is two-way, as it also aims to secure the occupancy of an accommodation for the renter. Similarly, Google implicitly delegates control of

advertisement quality to web users, because if ads are not clicked on frequently, they decline in the order of appearance. The opening of the boundary of power also sometimes concerns governance when it comes to involving stakeholders in the management of the platform.

In the social economy, this practice is rather common. For example, Open Food France, which offers a service platform for developing short food distribution circuits, includes members in the choice of technological developments and specifically in the choice of business model. In this case, tools for participation in governance, such as forum discussions and online voting, are also used to manage the identity boundary in accordance with the platform's values and social aims. Likewise, tools such as online user charters, content charters and platform values are but a few of the tools used to manage openness in line with the platform's identity. Certain platforms establish a virtual currency to regulate transactions: this is an instrument of efficiency but also of power, since the platform can influence the distribution of this currency, or the exchange rate with a real currency. Virtual currency also takes on a symbolic dimension when it comes to rewarding and highlighting the best contributors.

The boundary of skills is simultaneously managed by tools for creating profiles, posting them online and assessing them. Creating online profiles also makes it possible to draw on the skills of users, whether on a technical level, as with the App Store platform, which draws on the skills of developers; on a content level, with the Trackmania game, which draws on the skills of racing track creators and race managers; or on a service level, with Airbnb, which draws on the skills of tourism attraction creators of renters and experienced contractors. Ratings also play an important role in a multisided platform, as they help to identify the best contributors from a wide range of services and content. Discussion forums, FAQs and wikis are also competency management tools in the sense that they enable platform users to help each other and store knowledge. Competency management has a direct effect on network effects, as it enables the quality of contributions to be managed, thereby attracting other users.

1.4. EFFECT ON USER AND COMPANY CREATIVITY

Openness, with the introduction of specific tools and mechanisms, allows companies to create value with users in an open innovation dynamic. Network effects act as a catalyst for this value creation, as the more value is created, the more the platform attracts new users who will in turn create value. By encouraging interaction, idea generation and knowledge creation, multisided platforms become open innovation ecosystems for both the company and its users. Certain characteristics, tools and functions of multisided platforms directly impact the creativity of users and the harnessing of this creativity by the platform manager, thus supporting open creative capability.

Innovation toolkits are an easy to use collection of tools that permit users to create new products (von Hippel 2001). The simplest can be used to create content or customize existing products, such as Nike's shoe configurators, and the most elaborate can be used to create new products, as is the case on the Lego Ideas site or the Trackmania game. When a multisided platform includes this type of toolkit, it encourages the creation of creative content and, at times, innovation. For example, in the Trackmania game, the toolkit enables players to build their own car racing circuits and organize an online race based on their creations. The game's toolbox, by being easy to use, by providing examples of creation, by putting creators into contact, drives users to build creative circuits, and increases the value of the game for all categories of players.

The managers have access to fun, creative and innovative tracks to organize races, competitors have access to tracks that enable them to organize intense, exciting races, and designers are rewarded by the use of their tracks and the positive feedback they receive on their creations. The game's producer, Nadeo, thus benefits from gamers’ creativity to co-produce a game that has a high value for gamers. By observing the creations and conversations on the forums, the game's developers feed off ideas for new game modes and features. Here, the Trackmania game with its forums is seen as a

multisided platform that brings together complementary categories of gamers and is one of the components of Nadeo's creative capabilities.

Within multisided platforms, one particular category of users has an active role in the creation of content, services and products: lead user (von Hippel 1986). By using innovation toolkits, these users create new content, functionalities, products and services that respond to the needs of other users (Prügl and Schreier 2006). In the Trackmania game, lead users have an active role in the creation of new game modes and functionalities (Parmentier and Gandia 2013). For example, Benz (player nickname) launched Trackmania's first competitive league. The first version of the game didn't include competitive features. Benz felt that this was missing in the game and used his competitive skills as a former gamer of Unreal (a competitive fighting game) to design the competition rules and develop the presentation and registration page. In this way, he fulfilled the underlying expectations of other gamers, creating added value for the game.

Subsequently, the Trackmania producer added a competitor ranking system to the game. Following this logic, Tom developed a circuit exchange site, a feature that was absent from the first version of the game. In so doing, Tom met the underlying desire of designers who wanted to share tracks and new game modes. This feature was later added to new versions of the game. Many other lead users have developed valuable innovations for the Trackmania game, satisfying gamers' expectations and attracting new gamers, thus promoting the network effects of this gaming platform. Trackmania's lead users have thus contributed to developing the creative capabilities of the game's producer thanks to their actions and creations.

Other elements also promote player creativity in a multisided platform. Modularization is both a source of product and service innovation (Fixson 2005) and business model innovation (Gandia and Parmentier 2020b). This modularization is at the heart of the multisided platforms of leading digital economy platforms like Apple, Google and Microsoft (Gandia and Parmentier 2020b). The modularization of the product and service mix of multisided platforms, and the tools adapted to each type of user, encourage creativity. Indeed, on the Apple platform, each user has their own phone screen, and the applications and organization of these applications vary according to the way the phone is used. This modularization pushes users to invent their own uses, by tapping into the huge supply of applications developed by third parties. As for developers, the tools are modular enough to open up a space of development freedom that favors innovation. Likewise, on Airbnb we find a big variety of accommodation options. The offer is made up of independent blocks, types of accommodation, related services, minimum duration and presentation methods that leave a wide margin for creating an atypical accommodation experience. These include yurts, tree houses, a low-carbon house, a beach bungalow and an old spaceship. Modularization thereby brings diversity to the platform's offers, increasing value creation, attracting new users and encouraging network effects.

The openness of governance also encourages user creativity and innovation in these platforms. On the Open Food France platform, the openness of governance, technology and content through the establishment of hubs, which bring together producers, cooperatives, wholesalers, restaurateurs and consumers, according to the principle of shared governance, supports societal innovation (producer/consumer networks), service innovation (network management and product sales service) and technological innovation (management application). At Ridygo, openness of governance allows users to participate in the platform's ongoing evolution (Gandia and Parmentier 2020a).

In short, the opening up of a multisided platform effects user creativity when it opens up its design and production processes, provides creative tools, attracts lead users, modularizes its offers and even grants access to part of the platform's governance. However, openness in itself is not enough to develop creativity on these platforms. In platforms, this mechanism is often paired with other mechanisms. Indeed, researchs on online user communities, which use platforms, show that the

mechanisms of connection, motivation, integration and structuring have an effect on the creativity of users (Parmentier and Gandia 2013; Parmentier 2015).

Multisided platforms intrinsically put the organization in contact with the platform's users. Nevertheless, the platform automates the relationship with the user, which can depersonalize the relationship and, over time, reduce the motivation to create new content and services. The platform's owner must therefore always maintain a connection, and make it as personalized as possible. Moreover, for creation to actually happen, the organization's aims must be clear, and even directed towards creativity. For example, Nadeo regularly reminds circuit designers of their essential role in developing a fun and interesting game that is constantly evolving. Furthermore, if ideas and contributions are not incorporated into the product, the creators risk losing motivation and may stop creating. For example, if Apple refused a large portion of developments, few developers would take the risk of proposing new applications. It also seems necessary to structure profiles, tools and creative possibilities according to the profiles of users. For example, in Trackmania, the possibilities and tools are different depending on whether the user wants to create tracks, put his race online or manage a race team. This structure encourages the creativity of different types of users.

Overall, an open multisided platform can be a tool to develop an organization's creative capabilities. A capability is inherently reproducible and sustainable. When the platform supplies the organization with ideas, concepts, content and services, it does so continuously. The generation, selection and even development of valuable ideas are supported by the platform. This capacity is thus sustainable, provided that the platform responds to users' expectations, and they mutually give each other value.

1.5. CONCLUSION

In unpredictable and rapidly evolving markets, platforms are a way of managing boundaries to control strategic, value-creating resources. With a multisided platform, closing down technology and opening up content creation provides a space of freedom within a completely controlled technological framework (Parmentier and Gandia 2016). This way, by opening up content and a part of governance, the company outsources a creation of value that is easier to control with specific tools such as toolkits (Parmentier and Gandia 2013), or more simply with content creation and service proposal interfaces. Inside the platform, this openness favors network effects to the extent that the more quality content and services are created, the more the platform will attract new users. The quality of content and services is therefore an important aspect in this type of openness.

In this sense, by opening up a part of governance via evaluation tools, in giving a power of sanction (negative evaluation) or reward (positive evaluation), users assume a part of quality control. Quality also means making wikis, videos, tutorials, FAQs, templates and questions/answers available to make it easier for users to learn the tools and rules they need to know to produce content or services designed to meet users’ expectations. Finally, the wealth of shared content, the presence of lead users and the possibilities of creative tools open up a space for generating ideas and, for the most equipped platforms, for directly producing these ideas in the service offer. The openness of technology, particularly through the open source approach, is achieved when managers have limited resources or are met with difficulties accessing development skills.

Multisided platforms don't all use methods of openness. These platforms more often outsource the creation of content and services, but maintain strong control over the platform's technology to monitor transactions and avoid behavior that could create negative outsourcing. Partial openness is a way of avoiding opportunistic behavior that is destructive to value found in open innovation (Chesbrough 2006).

In addition, the openness of these platforms encourages users to get locked in. The gaining of capital in the form of virtual currencies, the acquired reputation and the learning achieved lead to the emergence of high costs to switching to other platforms. While this lock-in is a strategic advantage, it nevertheless raises ethical issues. Indeed, this lock-in limits users' freedom, since it reduces the

possibilities for change. Furthermore, with digital technologies, a platform also has the possibility of using artificial intelligence technologies paired with Big Data to predict behavior and anticipate desires. This what we see, for example, with large sales platforms that offer products related to past consultation and purchase behavior. In our supposedly modern societies, the individual is constantly reinventing himself, and is not exclusively defined by his past. Lock-in and the prediction of behavior therefore limit the possibilities for change and the exploration of new modes of living and thinking. They incite users to stay on the platform and reinforce past behaviors. On platforms like these, the reaffirmation of the same ways of thinking is liable to reduce users' creativity, thereby limiting the creative capability that arises from an open, multisided platform.

Network effects are also at the heart of multisided platforms. They enable the value created to be shared between different sides, and they promote rapid platform growth after a critical user level has been surpassed. The various types of openness (efficiency, power, competence and identity) and their different modalities (content, technologies and governance) act on network effects, as they enable additional value to be created via the creations and developments of the users on one or more sides. Openness is therefore an interesting strategy to hit the critical threshold of users from which network effects become fully active.

Managing openness with a multisided platform thus directly impacts the creative capabilities of organizations. However, researchs on crowdsourcing platforms have demonstrated the difficulty of integrating users' ideas and knowledge into the design processes of organizations. Despite the collection of valuable ideas for organizations via these platforms, they often lack capacities of absorption. Thus, it is necessary to establish internal coordination and socialization actions as well as the outsourcing of integration mechanisms in order to develop absorption capacities for user ideas (Ruiz et al. 2020). In the end, the absence of absorption capacities may undermine the effect of openness on creative capabilities. By directly integrating users' creations into the service offering via creation tools, the modularity of the service offer and interaction tools, a multisided platform avoids the challenge of developing absorption capacities outside the platform. Absorption capacities are supported by platform features. The identification of ideas and knowledge of values, their assimilation and the transformation of service are directly established in the platform. In this way, by mobilizing the creativity and intelligence of users via openness in a multisided platform, an organization can simultaneously develop its absorption and creative capabilities.

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