

# Launching a Two-Sided Platform: The Role of Platform Enhancers

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**Attention to Two-Sided Markets and digital platforms is growing both from scholars and practitioners due to their ability to rapidly scale up and challenging existing traditional businesses. In the field of technological development, huge attention has been offered to strategic alliances and interfirm collaborations to create standards and dominant designs. This research aims at shedding lights on the opportunities and challenges related to inter-firm collaboration in the development and launch of a two-sided platform. Based on a single case study, this exploratory research highlights the existence and the role of a new group of players: platform enhancers. They are companies that collaborate with the platform provider to develop and launch the two-sided structure. These companies offer many opportunities for the entire system, such as the chance to share the effort to overcome the chicken and egg paradox, as well as to leverage on the traditional benefits of strategic collaborations. Still, this may create new challenges for the platform provider, who needs to design and adequately manage at least three different value propositions (to the first and the second side, plus the enhancers) while increasing the complexity of the system. Theoretical and empirical contributions are discussed, along with limitation and avenues for further research.**

## 1. Introduction

Digital platforms are receiving growing attention and are spreading industry after industry. The dimensions of this phenomenon are easy to be shown, with companies like Uber and Airbnb leading the famous Unicorns' list with their capitalization. Indeed, the platform-based economy is also spreading in established companies, with firms changing their business models to leverage the opportunities of this kind of businesses, such as the chance to rapidly scale up (Libert et al., 2016; Choundary et al., 2016).

From an academic perspective, economic literature is the first that paid attention to this particular kind of business, highlighting the differences with traditional ones (Evans, 2003; Rochet and Tirole, 2006; Rysman, 2009). More recently, management literature has started considering platforms as well, studying their value proposition (e.g., Muzellec et al., 2015), their opportunities in terms of value capturing (e.g., Trabucchi et al., 2017), their role in open innovation and crowd involvement (e.g., Holzman et al., 2014) and so on.

Nevertheless, managing a digital platform goes through many challenges that traditional linear companies do not have to face. Platform owner has to convince two different groups of customers to simultaneously engage each other by joining the platform (Caillaud and Jullien, 2003). It means to reach – fast enough – a critical mass to let the network effects between the two sides (Rochet and Tirole, 2003) flourish. Dealing with these businesses means designing two value propositions instead of one (Muzellec et al., 2015).

All these challenges are particularly relevant in the very first phases of the lifecycle of a platform, when the entire system has to be built and the opportunities are still far from being leveraged.

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This paper aims to dig in this phase taking inspiration from the technological innovation literature. Similar dynamics have been described from a technological perspective for those industries based on network effects that went through standard wars and battles to set a dominant design (Anderson and Tushman, 1990). The answers to those challenges are usually based on collaborative dynamics, creating strategic alliances between firms with a common strategic goal, moving as a consortium. The main benefits are related to risk sharing and a shared investment (Mowery et al., 1998, Hagedoorn et al., 2000). Typical examples in this direction are the Blu-Ray consortium that got together many companies combining technologies, contents and other necessary competencies (Gallagher, 2012).

These strategic collaborations, which are vital for companies working in high-tech industries and facing standard battles, can also be applied in two-sided contexts in order to reduce the magnitude of the traditional challenges faced by these businesses. This paper aims to merge these two theoretical perspectives to highlight how the collaboration between different (established) firms may offer opportunities for the development process of a two-sided platform.

Through a single case study, based on the launch of a digital platform through a coordinated effort of the Italian government and some private collaborative firms, we start exploring the dynamics of inter-firms collaboration when dealing with digital platforms.

The remaining of the paper is structured as follow. Section 2 presents the theoretical background, reviewing first the literature on platforms and two-sided markets and then the role of collaboration in technological innovation. Then, an overview of the research design and the methodological approach to this research are presented. Section 4 presents the case study description and the results emerging from the empirical analysis. Section 5 discusses the results through the theoretical lenses presented in the second section and, finally, Section 6 highlights the contributions and the main limitations of this exploratory study, along with the proposal of some avenues for further researches.

## 2. Theoretical background

### 2.1 Platforms and two-sided markets

The term platform, in the management field, went through a significant path over the years. At the beginning, it was used in new product development to describe those projects that were based on a shared basis (the platform) aiming to create a number of derivative products (e.g., Wheelwright and Clark, 1992; Kogut and Kulatilaka, 1994; Kim and Kogut, 1996; Meyer and Lehnerd, 1997). The main idea was to create a common basis on top of which the firm had the chance to foster innovation in a faster and cheaper way. This has been later defined as “internal platform” (Gawer and Cusumano, 2014). This concept has been later expanded to “external” or “industry-wide platforms”, defined by Gawer and Cusumano (2014, p. 420) as *‘products, services, or technologies developed by one or more firms, and which serve as foundations upon which a larger number of firms can build further complementary innovations and potentially generate network effects’*. In this way, the chance to foster innovation through the platform is open to external players. Other definitions of platforms have been provided over the years. For example, Eisenmann and colleagues (2011) define platforms as a nexus of rules and infrastructure that facilitate interactions among network users. Similarly, the concept of platform has been linked with the concept of industry standard, together with a governance model, that facilitates third party participation (Eisenmann et al., 2011). In this perspective, platforms provide the necessary building blocks that serve as the foundation for complementary products and services (Cusumano and Gawer, 2002; Gawer and Henderson, 2007), creating network effects (Eisenmann et al., 2011). The common feature of these definitions is the property of reconfiguration of platform assets to allow external parties to interact with each other and add value.

In the same years, the concept of two-sided markets gained relevance in the economic literature. It originally referred to those markets where a central platform needs to act as an intermediary to link two or more groups of customers influenced by cross-side network externalities (Rochet and Tirole, 2003; Katz and Shapiro, 1985). Among the most used examples, there are the credit card market (linking cardholders and merchants) or game consoles (linking gamers and developers) along with others (Parker and Van Alstyne, 2005; Rysman, 2009).

The peculiarity of two-sided markets is related to the existence of cross-side network (or indirect) externalities between the two sides. This means that an increase concerning users on one side (e.g., the merchants) leads to an increased utility for the players on the other side (e.g., the cardholders) and vice-versa (Katz and Shapiro, 1985). This peculiar kind of business has been mainly studied for its complex dynamics regarding pricing mechanisms (e.g., Parker and Van Alstyne, 2005; Armstrong, 2006; Rochet and Tirole, 2006).

Over the years, businesses with these peculiarities got attention also from a managerial perspective (Gawer, 2014). In particular, scholars start pointing out opportunities and challenges related to those businesses able to link two different kinds of customers creating cross-side network externalities (e.g., Eisenmann et al., 2006). Indeed, the concept of two-sidedness started being considered a design variable of business activities, moving from the two-sided markets to “two-sided (or even multi-sided) platforms (Hagiu and Wright, 2014).

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In the literature many variables describing the different kinds of platforms have been presented, for example considering the kind of players involved (e.g., consumers or businesses), the kind of transaction enabled between the parties (physical vs. digital) and many others (Tauscher and Laudien, 2018). Moreover, different kinds of relationships existing between the platform provider and the different sides, as well as between the sides have been detailed (Filistrucchi et al., 2014; Trabucchi et al., 2017).

Among the most significant challenges of this kind of businesses, the so-called chicken and egg paradox refers to the difficulties that platform provider faces during the launch phase (Parker et al., 2016). Indeed, for both sides, the system is worthless if the other side is not on board (e.g., Caillaud and Jullien, 2003). Different launch strategies have been implemented and described, managing in different ways the relationship between the two sides and possibly bringing them on board in different moments (e.g., Stummer et al., 2018).

Designing the value proposition is another significant challenge for this kind of companies. Indeed, matchmaking may not be enough to bring and keep on board customers that need specific reasons for joining the platform (Muzellec et al., 2015).

Recently, these businesses have been studied also in relationship of their impact on traditional industries and on the retail market (Hanninen et al., 2017), being considered also a way to re-design existing businesses (Parmentier and Gandia, 2018) or even to let new markets emerge (Inoue and Tsujimoto, 2017).

In the end, it is important to highlight how the economic literature on two-sided markets can still inform research on two-sided platforms. For instance, studies on multihoming showed the possibilities for customers to join simultaneously different platforms (Armstrong, 2006; Armstrong and Wright, 2007). Furthermore, these businesses have often been studied regarding the winner take all dynamics (e.g., Gawer and Cusumano, 2002; Parker and Van Alstyne, 2005; Eisenmann et al., 2006), while recent studies show how multiple platforms may co-exist in the same industry. Cusumano (2010) shows that, as long as there is space for companies to differentiate their platform offerings and consumers can use more than one platform, then it is unlikely for one dominant platform to emerge.

## *2.2 Collaboration (and strategic alliances)*

The importance of collaborative research and development networks for successful innovation is well known (i.e. Allen, 1977; Freeman, 1991; Hargadon and Sutton, 1997). Interfirm collaboration is especially fruitful in high-technology sectors, where it is unlikely that a single organization will possess all the resources and capabilities necessary to develop and implement a significant innovation (Hargadon, 2002). Interfirm collaboration can enable firms to achieve much more than they could achieve individually, since these relationships provide member firms access to a wider range of information and other resources (Rosenkopf and Almeida, 2003; Liebeskind et al., 1996).

These dynamics are particularly interesting where strong pressures to adopt a single dominant design can result in standard battles and winner-take-all markets (Schilling, 2013). As pointed out by Anderson and Tushman (1990), the technology cycle almost invariably exhibits a stage in which the industry selects a dominant design. A single dominant design rather than a variety of technological options in some market emerges. The reasons are manifold. First of all, complex technologies are often more valuable if they are adopted by many users, due to the higher investment used for improve them (Arthur, 1994). Furthermore, there is a learning effect to be considered. If a technology becomes widely adopted, improvements, both in the technology itself and in its applications, can be enabled by the greater knowledge and understanding of the technology itself (i.e., Lapre et al., 2000; Yelle, 1979; Levy, 1965). Finally, complementary assets are developed if the technology is used by more people (Teece, 1998). These reasons lead to a self-reinforcing mechanism that generate the dominance of a technology regardless of its superiority or inferiority to competing ones. In this environment, company's technology is chosen as a dominant design leading it in a good market position. However, if the company supports the wrong technology, it loses the capital, learning and resources invested and may find itself locked out of the market if it is unable to adopt the dominant technology (Schilling, 1998; Suarez, 2004; Katz and Shapiro, 1986).

To overcome this challenge, strategic alliances are sought by companies in order to share costs and risks of technology investments (Mowery et al., 1998, Hagedoorn et al, 2000). Moreover, strategic alliances ensure that companies have access to critical capacity that is not possessed in-house or to fully exploit their own capabilities by leveraging them in another firm's development efforts (Teece, 1986). Companies may create consortiums in order to jointly develop leading-edge technologies, reducing the risk of standards battles (Pisano and Verganti, 2008).

## *2.3 Summary and research question*

One of the most significant challenges of two-sided platforms is the chance to launch the platform correctly. Their intrinsic nature requires to have on board the players on the first and the second side, to enable the transaction that stays at the

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basis of this business structure (Rochet and Tirole, 2003). It is clear how bringing on board one side when the other has not joined the platform yet leads to the creation of a paradox (Caillaud and Jullien, 2003).

Strategic collaboration and alliances between firms have proved to be relevant and useful in facing the creation and the launch of some technology-based products, especially when dealing with standard (Schilling, 1998; Suarez, 2004; Katz and Shapiro, 1986).

This paper aims to join together these two pieces of literature, trying to understand how collaboration and strategic alliances may help in solving peculiar issues of two-sided platform launch. Therefore, the primary aim of this research is to answer the following question: how can strategic alliances enhance the process of creation and launch of a two-sided platform?

### 3. Research design and method

#### 3.1 Research approach and case study selection

Due to the exploratory intend of this research a qualitative approach, based in particular on a single case study, has been considered coherent with the proposed research question.

Through this research approach is possible to develop a holistic and contextualized analysis, highlighting the critical variables of a phenomenon (Eisenhardt & Graebner, 2007). The case study has been conducted through an inductive approach (Siggelkow, 2007). The authors relied both on primary and secondary sources, aiming to triangulate the gathered information (Yin, 2009).

To provide an answer to our research question, we needed a case study, meeting two pre-requisites: (i) being a platform and (ii) being launched through the collaboration of different players.

In particular, the first condition means having two different groups of customers linked through an intermediary platform and the existence of cross-side network externalities between them (Rochet and Tirole; 2003). The second condition is related to the existence of different firms creating the central platform linking the two sides.

The selected case is the Italian Public System for Digital Identity Management (in Italian: Sistema Pubblico di Identità Digitale, SPID), which is a unique authentication system that securely certifies the digital identity of citizens and allow them accessing with a unique set of credentials to all the online services offered by Italian Public Administrations (PAs) and affiliated private firms.

The case is going to be further explained in the next section, but it is relevant to show how it matches the defined pre-requisites. First, it links end-users (which are receiving the digital identity) with service providers (which needs or are searching for end-users with a verified identity), which represent the two sides. They are linked by a central digital platform (SPID), which is created by the Italian government along with many private affiliated companies – as it will be later presented, meeting the second pre-requisite. Furthermore, the two sides are linked by cross-side network externalities: an increase in the number of end-users leads to a higher value of the platform itself for the service providers and vice versa.

#### 3.2 Data gathering and data analysis

The data gathering phase has been based on both primary and secondary sources. Secondary sources have been mainly used to gather information on the case through online sources, to prepare the interviews and to understand how the platform and the service work.

Still, the research is mainly based on primary sources, which gave us the chance to enter in the dynamics of the platform, and to understand the relationships between the different players taking part in the system. For these reasons, three group of players have been considered as relevant respondents in our research:

- *platform provider*: entities working for the government which had an active role in the development and launch of the platform;
- *platform partners*: firms that contribute to the development and launch of the platform, having the role of identity providers;
- *second side players*: service providers offering digital services requiring the identification and authentication of the users.

Table 1 summarizes the different respondents and the number of interviews. Comprehensively, 17 interviews have been accomplished, considering more perspectives from the same players (replication logic), to reduce the respondent bias and increase the reliability of the gathered data.

Kind of players	Actor	Number of interviews and respondent job title
Platform provider	• AgID	2 – Central Authority
	• ICT Consultant for the PA	1 – Consultant
	• Digital Transformation Team	1 – Platform improvement
Platform partners	• Infocert	1 – Manager
	• Poste Italiane	1 - Manager
	• Tim	2 - Manager
Second side player (Service provider)	• Politecnico di Milano	1 – Manager
	• Comune di Milano	2 – Manager
	• INPS	1 – Manager
	• Provincia Autonoma di Trento	1 – Manager
	• Regione Puglia	1 – Manager
	• Regione Toscana	2 – Manager
	• Regione Veneto	1 – Manager

Table 1 - Respondents

The interviews have been based on semi-structured protocols, not to limit the answers and to gather novel insights directly from the respondents. Each interview lasted for about 45 minutes. The main topics addressed during the interviews are the platform and its structure, the role of the different players involved in the system, the critical factors that emerged during the platform design and launch and finally their perspective on the best practices related to the platform diffusion. Regarding the data analysis phase, all the interviews have been transcribed and coded (Saldaña, 2015), the quotes reported in the next sections have been translated in English for those interviewed that have been done in Italian. Given the inductive nature of this paper, the analysis of the gathered data has been done developing categories of information and interconnecting them (Corbin and Strauss, 2008). Finally, the data has been organized in matrixes (Miles and Huberman, 1984), allowing the authors to compare the interviews’ results.

## 4. Results

### 4.1 SPID

SPID is a platform initially conceived and designed in 2014 by AgID, a technical agency of the Italian Presidency of the Council of Ministers, which is responsible for the digital transformation of all Italian PAs. SPID was developed with the following aims. First, to offer citizens the opportunity to maintain only one set of credentials, which can be used with all the online services of Italian PAs and affiliated private firms (initially only in Italy but soon in the whole European Union). Second to remove locally-managed, obsolete and/or insecure authentication services during the provision of online services, incentivizing their development with a particular emphasis on small service providers without digital capabilities. Third, to guarantee, unlike other popular login systems, that every service always receives only the minimum information necessary for its provision.

In other words, SPID is a platform that enables the electronic identification, which is a process in which personal identification data are used in an electronic form to uniquely identify a physical person, a legal person and/or a natural person who represents a legal person.

Through the development and launch of the platform, Italy aims to establish an electronic identification system that has adequate characteristics to enable it to be used outside the Italian territory and through which PAs and private companies can allow access to their services to citizens/businesses through a single digital identity.

### 4.2. The players involved and the delivered service

To reach its aims, the platform involves four different kinds of actors. First, AgID (the Platform Provider, PP) is a supervisory body that manages the entire system and the relationship with the different players. Second, the Identity Providers (IdPs, which are: Aruba Pec, In.Te.S.A., Inforcert, Namirial, Poste Italiane, Register.It, Sielte, TIM), the platform partners who are private entities accredited by AgID that assign unique digital credentials allowing citizens to authenticate and access to online services affiliated to SPID. Third the Service providers (SPs), which are public and private entities providing online services for which it is required to identify and authenticate users through SPID. In the end, end-users, which are citizens having a digital identity made available by an IdP, and using it for accessing online services offered by a SP.

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Identity is issued by Identity Providers, as we said before, private entities accredited by AgID, who, in compliance with the rules issued by the Agency, provide digital identities and manage authentication of users. To obtain a SPID identity, the user must ask the IdP, who, after verifying the applicant's data, issues the digital identity by releasing credentials to the user. Each IdP can choose between different verification methods. The citizen can choose the IdP she prefers.

Although digital identity contains much information about the citizen, SPID responds to the principle of minimum attribution sharing. The IdP provides citizen information only upon explicit consent of the same. A SP may be required to know the name, last name and date of birth of the user to provide its service. The data will be passed by the IdP only if the citizen's explicit consent is given. Otherwise, no information will be provided. SPID can also be used only for verification of credentials, thus providing a "pseudonymity" service. In any case, IdP will be required to treat citizens' information according to high-security standards, according to AgID rules.

The platform allows IdPs to provide various authentication systems by defining, three different security levels. First, the online access to SP services through one-factor authentication, such as the password. Second, the IdPs make available two-factor authentication systems, based on "one-time passwords" or authenticated on an app. Third, the IdPs make available two factor-based authentication systems based on digital certificates whose private keys are stored on devices such as smart cards.

### 4.3 The development and launch of SPID

The birth of SPID is directly linked to the electronic IDentification Authentication and Signature (eIDAS) Regulation - EU Regulation 910/2014 on Digital Identity - which aims to provide a Community-wide regulatory basis for trustee services and media electronic identification of member states.

Starting from this request from the European Commission, AgID started working on the digital platform.

It is crucial highlighting from the very beginning the need to develop a system that requires to take into consideration the standpoints of various parties:

*“During this first stage is essential to define in advance all the steps that will be needed to reach the desired outcome of the project. (...) Even before to shape the network and get all the key actors on board, it is essential to have a clear definition of how the entire ecosystem will be configured; that is about, first of all, defining what kind of services will be provided by the technological solution, and then what kind of private actors will be needed to realize the vision.” (AgID, Manager)*

In this vision, some IdPs have been involved, playing a double role: to enable the creation of the service and to enhance the diffusion of the platform itself. Indeed, a key peculiarity of this digital platform is the need to have (also) a physical infrastructure to verify the identity and then let the service start. Indeed, a number of partners got on board.

This partnership is considered a significant point in the entire project:

*“If you ask me to tell what is the first positive thing that I think about the SPID project, I would tell you that it is the fruitful collaboration and communication that we managed to have and we are still having with AgID. It is what increases the probability of success for such a project, allowing us to understand the actual needs of the PAs allowing them to be closer to what the citizens want” (Poste Italiane, Manager)*

Even if, these collaborations brought to many challenges for the entire system. First of all, regarding profitability for all the parties involved:

*“It is important to see how setting public-private partnerships requires to consider revenues streams for the private side” (AgID, Manager)*

The partnerships had a considerable role in the diffusion of the platform, and are actually among the main reasons that lead to search for IdPs:

*“We did a great management effort to involve big entities [as IdPs], and they can be useful examples to show that the platform can be adopted without any difficulties”. (AgID, Manager)*

Indeed, they played a crucial role in getting end-users on board, since a lot of them are widely diffused on the physical market (e.g., TIM is one of the biggest telecommunication company of the Country, with many physical retail stores or Poste Italiane, which is the Italian mail system).

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On the second side (service providers) the situation is slightly different. First, the government itself asked for many public entities to enter in the platform. Second, also private SPs can join the platform. Even if, this part of the process showed more significant issues:

*“Yes, we are actually doing it [exploiting the availability of services as a diffusion driver]; for example, we involved, or we are going to involve, actors like Paypal, Telepass, and also startups, because our vision is that the user could feel comfortable on the platform, thanks to the tools he use every day”.*  
(Manager, Digital Transformation Team)

*“Citizens today are accustomed to smart services that offer the ability to access a huge variety of contents, characterized by very high qualitative standards. For this reason, Italian PAs alone are not capable, nowadays, to fully satisfy the needs of the final users; so, it is essential to open to the collaboration with the private sector, so that the citizens will adopt the public service because it offers the same standards of the private ones.”* (TIM, Manager)

As pointed out by the IdPs themselves, in particular, due to the delay in getting private service providers on the second side (that would pay for the service):

*“[In such a platform] economic sustainability is the result of the entry of private entities [on the second side], and therefore, the longer the delay in entering them, the longer the risk. Because today IDPs are responsible for the costs of the entire system. Right now, in some ways, we are financially supporting a free public service, rightfully, for the citizens and the PAs. So, it is unbalanced.”* (Infocert, Manager)

*“We are in a stall in which, paradoxically, having more users would only mean having more management costs for us, and it has an overall negative impact on the system's development.”* (Poste Italiane, Manager)

#### 4.4 The numbers of SPID identities

SPID has been officially launched on March 15<sup>th</sup>, 2016, almost two years after the beginning of the project. At May 2018 8 IdPs have issued 2.5 million digital identities (Figure 1). These credentials allow access to more than 5,000 online services offered by more than 4,000 public SPs (SPID is free but mandatory for all Italian PAs and complementary for the private firms that choose to adopt it). On top of that, there are other accessible services offered by private companies, even if there is no publicly available information on the diffusion of SPID among them.

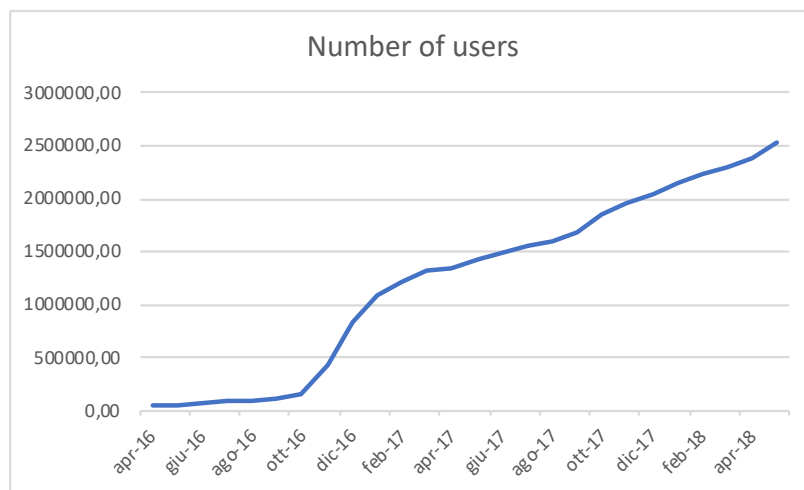


Figure 1 – The diffusion process of SPID concerning End-Users

## 5. Discussion

### 5.1 SPID as a (peculiar) two-sided platform

The analysis of the gathered data let emerge a peculiar model of SPID as a two-sided platform. Figure 1 shows the basic structure of SPID.

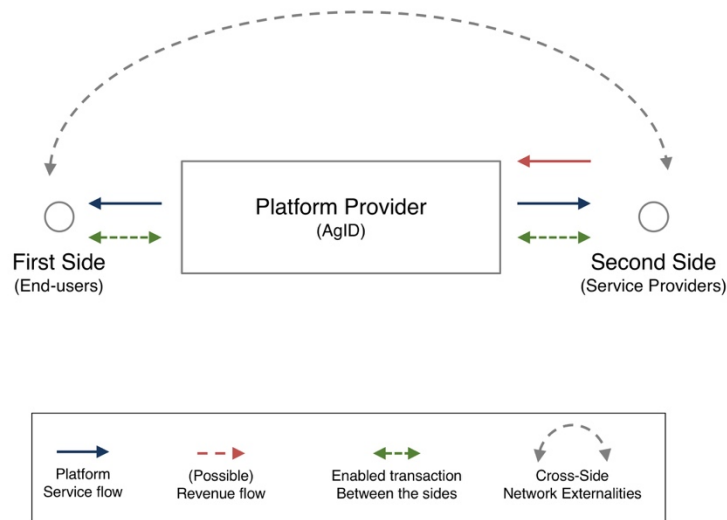


Figure 2 – SPID as a two-sided platform

Indeed, SPID is based on AgID, which acts as the platform provider, linking two different groups of customers. First, the end-users which receive a digital identity by (through) the platform. Second, the service providers, which reach and verify the identity of the end-users through SPID. This is coherent with the basic definition of a two-sided platform (Rochet and Tirole, 2003).

The double (dotted) grey arrow represents the existence of cross-side network externalities between the two sides (Katz and Shaprio, 1985).

The other arrows represent the flows in the system: the green double arrows represent the transaction enabled by the platform provider between the two sides, while the two blue arrows represent the service that the platform is offering for the two sides.

This model is not grasping the complexity of the case analyzed in this research. Indeed, another group of players needs to be involved in the system: the IdPs, or platform partners as previously labeled.

A group of players (working along with the PP offering ancillary services – represented through the orange arrow) join the platform provider to offer the enable the entire system (Figure 3).

Regarding the relationships, it is interesting to see how they are offering service directly to the first side users (the chance to obtain the digital identity) which represents the foundation of the entire system and the enabler for all the other flows in the system.

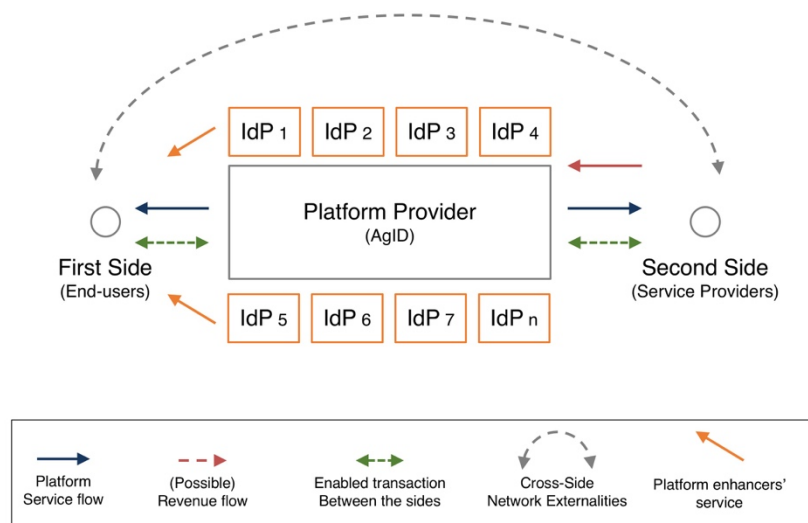


Figure 3 – Platform enhancers in two-sided platforms

At first sight, it may seem that this change in the system – adding a new group of players – they systems move from a two to a multi-sided platform (e.g., Hagiu and Wright, 2014) but this is not leading to that kind of business.

Indeed, in a multi-sided platform, we would have more than two groups of players which are linked – at least in pairs – by cross-side network externalities (Parker et al., 2016), but this is not the case.



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These companies are joining the platform provider in providing the service which is at the heart of the system: to provide a digital identity. They offer a specific part of the service (which is mainly related to the verification process of the identity) to the first side, while collaborating with the PP in launching the entire system.

They are enhancing the development and launching processes of the platform: they are platform enhancers.

### *5.2. The role of IdSPs as platform enhancers: opportunities to be unveiled*

The companies acting as IdPs in the system represent the new group of players which emerge from this research. They collaborate with the focal firm, the PP, enhancing its effort in developing and launching the entire system based on a two-sided platform. Their role is interesting from two different perspectives: concerning the designing process of a two-sided platform and for the interfirm collaboration in creating business ventures.

From a platform perspective, this new kind of players shows a critical role in managing the chicken and egg paradox. Indeed, the traditional literature on two-sided platforms pointed out how getting the two sides on board is one of the most significant challenges for these businesses (Caillaud and Jullien, 2003). Even if many strategies have been pointed out, it still represents one of the most critical success factors for these businesses (Stummer et al., 2018).

Platform enhancers may increase the list of possible strategies to overcome such a paradox, acting on the so-called two-step strategy (Parker et al., 2016), which tries to focus on one side per time in solving the paradox.

Furthermore, having the chance to rely on a network of relations with other businesses, may also enhance the probability to reach a winner-take-all configuration (e.g., Gawer and Cusumano, 2002; Parker and Van Alstyne, 2005; Eisenmann et al., 2006). Indeed, in this peculiar case among the platform enhancer, we can find partners (such as TIM and Poste Italiane) that are extremely diffused on the physical market and can significantly enhance also the diffusion process.

As the literature on the strategic collaborations let emerge, all the traditional benefits are still considerable in this case. Indeed, among the typical reasons why behind the implementation of these strategies, there are the chance to share the development risks along with the chance to share the necessary investments (Teece, 1998; Mowery et al.; 1998, Hagedoorn et al, 2000). Both of them are still valuable, since platform enhancers become a partner of the entire project, even if it is relevant to highlight how their role create some sort of hierarchical dynamic, similar to a consortium configuration (Pisano and Verganti, 2008).

### *5.3 The challenges of managing a new group of players in launching a two-sided platform*

According to our research, the presence of platform enhancers may play a key role in developing and launching a two-sided platform, but important challenges and an increased complexity should still be considered.

First of all, the literature on two-sided platform show us how the design process of the value proposition is somehow peculiar, even if always based on the match-making between two different sides (e.g., Evans and Schmalensee, 2016). Indeed, the two sides have complementary needs and want to be matched by the platform, but they need a good reason for joining the platform, especially when alternatives exist like in this case. A double value proposition needs to be designed in these businesses, to offer a meaningful proposition to both sides (Muzellec et al., 2015), but with platform enhancer, this may not be enough.

Having a third group of players, the PP needs, first of all, to design a good value proposition to bring them on board. If in a traditional consortium (Verganti and Pisano, 2008), there is a clear goal shared between the parties, in this case, the PP is searching a way to leverage the opportunities provided by collaboration asking other partners to get on board. Why should they? Our case shows how their value proposition has been critical, especially at the beginning, since their profits are also linked with the private companies on the second side.

Still, the complexity level of the system needs, somehow, to be managed, since the number of platform enhancers needs to be chosen to compromise the benefits and the complexity to be managed (Pisano and Verganti, 2008).

The design process of the entire system now needs to take into consideration not only the relationship existing between the two sides (based on the externalities) and between the PP and the sides but also the different combinations of the previous players and the platform enhancers. Indeed, one of the most significant challenges emerged during the research, is based on the relationships between the enhancers and the other players (e.g., profitability), meaning that not only a value proposition to them need to be designed, but also the relationships between all the parties involved.

## **6. Conclusion**

From a theoretical perspective, this paper contributes to the growing literature on two-sided platforms offering the concept of platform enhancer. Through the definition of this new group of players - which has the role of supporting the platform provider in developing, launching and offering the services at the basis of the two-sided structure – this research adds a layer of complexity in the variables that describe this kind of businesses. Indeed, building on the classification provided

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by Tauscher and Laudien (2018), also the (existence of) partners of the platform provider should be considered to classify a two-sided platform.

Furthermore, it enlarges previous studies that highlight the need for a double value proposition to create a meaningful platform (Muzellec et al., 2015). Indeed, also this study highlights the need to clearly define a specific value proposition for each group of players involved in the system.

In the end, it is important to highlight how the role of platform enhancers is particularly relevant in solving the chicken and egg paradox (Caillaud and Jullien, 2003; Stummer et al., 2018), increasing the chance to reach a winner-take-all configuration (Gawer and Cusumano, 2002; Parker and Van Alstyne, 2005; Eisenmann et al., 2006).

From a managerial perspective, this research offers insights to managers and entrepreneurs dealing with the creation of a two-sided platform. In particular, it offers the chance to consider the opportunities and the challenges related to the involvement of a different group of players that may enhance the development and the launch of the platform.

Due to its exploratory nature, this research does not aim to be generalizable but to offer insights that may offer new perspectives to the growing body of knowledge of two-sided platforms. Indeed, among the most significant limitations of this research, we need to point out all the constraints of a single case study. The results and the insights are intrinsically based on the case that we observed, further research may search for companies based on similar structures, to validate this research.

Furthermore, it is important to point out the public component of the case under observation, since the platform provider is a public entity. This represents an interesting peculiarity in the literature of two-sided platforms but need to be considered as it may bias some dynamics (e.g., the relationship between the enhancers and the PP). This opens two different avenues for further researches. First the chance to read these relationships from a public management perspective, and second the chance to study similar platforms in a completely private environment.

## References

- Allen, Thomas J. 1984. "Managing the Flow of Technology: Technology Transfer and the Dissemination of Technological Information within the R&D Organization." *MIT Press Books* 1.
- Anderson, Philip and Michael L. Tushman. 1990. "Technological Discontinuities and Dominant Designs: A Cyclical Model of Technological Change." *Administrative Science Quarterly*: 604-633.
- Armstrong, Mark. 2006. "Competition in two-sided Markets." *The Rand Journal of Economics* 37 (3): 668-691.
- Armstrong, M. and J. Wright. 2007. "Two-Sided Markets, Competitive Bottlenecks and Exclusive Contracts." *Economic Theory* 32 (2): 353-380.
- Arthur, W. Brian. 1994. *Increasing Returns and Path Dependence in the Economy* University of michigan Press.
- Caillaud, Bernard and Bruno Jullien. 2003. "Chicken & Egg: Competition among Intermediation Service Providers." *RAND Journal of Economics*: 309-328.
- Choudary, Sangeet Paul, Geoffrey G. Parker, and Marshall W. Van Alstyne. 2016. *Platform Revolution: How Networked Markets are Transforming the Economy and how to make them Work for You* WW Norton & Company.
- Corbin, Julliett and Anselm Strauss. 2008. "Basics of Qualitative Research. 2008." .
- Cusumano, M. and A. Gawer. 2002. "The Elements of Platform Leadership." *MIT Sloan Management Review: MIT's Journal of Management Research and Ideas* 43 (3): 51-58.
- Cusumano, Michael. 2010. "Technology Strategy and Management the Evolution of Platform Thinking." *Communications of the ACM* 53 (1): 32-34.
- Eisenhardt, Kathleen M. and Melissa E. Graebner. 2007. "Theory Building from Cases: Opportunities and Challenges." *Academy of Management Journal* 50 (1): 25-32.
- Eisenmann, T., G. Parker, and M. Van Alstyne. 2011. "Platform Envelopment." *Strategic Management Journal* 32 (12): 1270-1285.
- Eisenmann, T., G. Parker, and M. W. Van Alstyne. 2006. "Strategies for Two-Sided Markets." *Harvard Business Review* 84 (10).
- Evans, David S. 2003. "The Antitrust Economics of Multi-Sided Platform Markets." *Yale Journal on Regulation* 20 (2): 325-381.
- Evans, David S. and Richard Schmalensee. 2016. *Matchmakers: The New Economics of Multisided Platforms* Harvard Business Review Press.
- Freeman, Christopher. 1991. "Networks of Innovators: A Synthesis of Research Issues." *Research Policy* 20 (5): 499-514.
- Gallagher, Scott R. 2012. "The Battle of the Blue Laser DVDs: The Significance of Corporate Strategy in Standards Battles." *Technovation* 32 (2): 90-98.
- Gawer, Annabelle. 2014. "Bridging Differing Perspectives on Technological Platforms: Toward an Integrative Framework." *Research Policy* 43 (7): 1239-1249.
- Gawer, A. and M. A. Cusumano. 2014. "Industry Platforms and Ecosystem Innovation." *Journal of Product Innovation Management* 31 (3): 417-433.

Paper submitted to:

R&D Management Conference 2018 "R&Designing Innovation: Transformational Challenges for Organizations and Society"

June, 30<sup>th</sup> -July, 4<sup>th</sup>, 2018, Milan, Italy

- Gawer, A. and R. Henderson. 2007. "Platform Owner Entry and Innovation in Complementary Markets: Evidence from Intel." *Journal of Economics and Management Strategy* 16 (1): 1-34.
- Hagedoorn, John. 2002. "Inter-Firm R&D Partnerships: An Overview of Major Trends and Patterns since 1960." *Research Policy* 31 (4): 477-492.
- Hagedoorn, John, Albert N. Link, and Nicholas S. Vonortas. 2000. "Research partnerships1." *Research Policy* 29 (4-5): 567-586.
- Hagiu, Andrei and Julian Wright. 2014. "Marketplace Or Reseller?" *Management Science* 61 (1): 184-203.
- Hänninen, M., A. Smedlund, and L. Mitronen. 2017. "Digitalization in Retailing: Multi-Sided Platforms as Drivers of Industry Transformation." *Baltic Journal of Management*. doi:10.1108/BJM-04-2017-0109.
- Hargadon, Andrew and Robert I. Sutton. 1997. "Technology Brokering and Innovation in a Product Development Firm." *Administrative Science Quarterly*: 716-749.
- Holzmann, T., K. Sailer, and B. R. Katzy. 2014. "Matchmaking as Multi-Sided Market for Open Innovation." *Technology Analysis and Strategic Management* 26 (6): 601-615.
- Inoue, Yuki and Masaharu Tsujimoto. 2017. "New Market Development of Platform Ecosystems: A Case Study of the Nintendo Wii." *Technological Forecasting and Social Change*.
- Katz, Michael L. and Carl Shapiro. 1985. "Network Externalities, Competition, and Compatibility." *The American Economic Review* 75 (3): 424-440.
- Kim, D. -J and B. Kogut. 1996. "Technological Platforms and Diversification." *Organization Science* 7 (3): 283-301.
- Kogut, Bruce and Nalin Kulatilaka. 1994. "Options Thinking and Platform Investments: Investing in Opportunity." *California Management Review* 36 (2): 52-71.
- Lapr e, Michael A., Amit Shankar Mukherjee, and Luk N. Van Wassenhove. 2000. "Behind the Learning Curve: Linking Learning Activities to Waste Reduction." *Management Science* 46 (5): 597-611.
- Levy, Ferdinand K. 1965. "Adaptation in the Production Process." *Management Science* 11 (6): B-136-B-154.
- Libert, B., M. Beck, and J. Wind. 2016. *the Network Imperative: How to Survive and Grow in the Age of Digital Business Models* Harvard Business Press Review.
- Liebeskind, Julia Porter, Amalya Lumerman Oliver, Lynne Zucker, and Marilynn Brewer. 1996. "Social Networks, Learning, and Flexibility: Sourcing Scientific Knowledge in New Biotechnology Firms." *Organization Science* 7 (4): 428-443.
- Meyer, Marc H. and Alvin P. Lehnerd. 1997. *The Power of Product Platforms* Simon and Schuster.
- Miles, Matthew B. and A. Michael Huberman. 1984. "Drawing Valid Meaning from Qualitative Data: Toward a Shared Craft." *Educational Researcher* 13 (5): 20-30.
- Mowery, David C., Joanne E. Oxley, and Brian S. Silverman. 1998. "Technological Overlap and Interfirm Cooperation: Implications for the Resource-Based View of the Firm." *Research Policy* 27 (5): 507-523.
- Muzellec, Laurent, S bastien Ronteau, and Mary Lambkin. 2015. "Two-Sided Internet Platforms: A Business Model Lifecycle Perspective." *Industrial Marketing Management* 45: 139-150.
- Parker, G. G. and M. W. Van Alstyne. 2005. "Two-Sided Network Effects: A Theory of Information Product Design." *Management Science* 51 (10): 1494-1504.
- Parmentier, Guy and Romain Gandia. 2017. "Redesigning the Business Model: From One-Sided to Multi-Sided." *Journal of Business Strategy* 38 (2): 52-61.
- Pisano, Gary P. and Roberto Verganti. 2008. "Which Kind of Collaboration is Right for You." *Harvard Business Review* 86 (12): 78-86.
- Rochet, J. -C and J. Tirole. 2003. "Platform Competition in Two-Sided Markets." *Journal of the European Economic Association* 1 (4): 990-1029.
- Rochet, J. -C and J. Tirole. 2006. "Two-Sided Markets: A Progress Report." *RAND Journal of Economics* 37 (3): 645-667.
- Rosenkopf, Lori and Paul Almeida. 2003. "Overcoming Local Search through Alliances and Mobility." *Management Science* 49 (6): 751-766.
- Rysman, Marc. 2009. "The Economics of Two-Sided Markets." *The Journal of Economic Perspectives* 23 (3): 125-143.
- Salda a, Johnny. 2015. *The Coding Manual for Qualitative Researchers* Sage.
- Schilling, Melissa A. 1998. "Technological Lockout: An Integrative Model of the Economic and Strategic Factors Driving Technology Success and Failure." *Academy of Management Review* 23 (2): 267-284.
- Siggelkow, Nicolaj. 2007. "Persuasion with Case Studies." *Academy of Management Journal* 50 (1): 20.
- Stummer, Christian, Dennis Kundisch, and Reinhold Decker. 2018. "Platform Launch Strategies." *Business & Information Systems Engineering*: 1-7.
- Suarez, Fernando F. 2004. "Battles for Technological Dominance: An Integrative Framework." *Research Policy* 33 (2): 271-286.
- T uscher, Karl and Sven M. Laudien. 2018. "Understanding Platform Business Models: A Mixed Methods Study of Marketplaces." *European Management Journal* 36 (3).
- Teece, David J. 1998. "Capturing Value from Knowledge Assets: The New Economy, Markets for Know-how, and Intangible Assets." *California Management Review* 40 (3): 55-79.
- Teece, David J. 1986. "Profiting from Technological Innovation: Implications for Integration, Collaboration, Licensing and Public Policy." *Research Policy* 15 (6): 285-305.

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- Trabucchi, Daniel, Tommaso Buganza, and Elena Pellizzoni. 2017. "Give Away Your Digital Services: Leveraging Big Data to Capture Value " *Research Technology Management* 60 (2): 43-52.
- Wheelwright, Steven C. and Kim B. Clark. 1992. *Creating Project Plans to Focus Product Development* Harvard Business School Pub.
- Yelle, Louis E. 1979. "The Learning Curve: Historical Review and Comprehensive Survey." *Decision Sciences* 10 (2): 302-328.
- Yin, Robert K. 2009. "How to do Better Case Studies." *The SAGE Handbook of Applied Social Research Methods 2*: 254-282.