Leveraging Ambidexterity in a Digital Platform Ecosystem: Insights from a Complementor's Perspective

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Abstract

This case study explores ambidextrous practices of a complementor firm within a Microsoft-owned digital platform ecosystem (DPE). We draw on organizational ambidexterity and social mechanisms as lenses to analyze how a complementor deals with paradoxical practices of exploration and exploitation in the context of a DPE. By identifying deep structures and surface structures and their related social mechanisms we shed light on the role of ambidextrous complementors in a DPE. Our analysis implies that the identified social mechanisms illustrate how the complementor creates new ideas with other DPE actors to nurture capability development (exploration) and how these ideas are transformed into practice (exploitation). In addition, our findings imply that the complementor's support of a platform contributes to an increased commitment to the platform owner.

Keywords: Organizational Ambidexterity, Digital Platform Ecosystem, Complementor, Social Mechanisms

1. Introduction

An important source of information to establish a digital business strategy is based on the exchange of knowledge between digital platforms actors (Bharadwaj et al. 2013). Research on digital platform ecosystems (DPE) and corresponding technologies have received significant attention in literature (Panico & Cennamo (2022), specifically topics such as network effects and value creation and capturing (Cennamo & Santaló 2019). Academic literature reveals that complementors in DPEs are mainly addressed from the platform-owner perspective (Boudreau 2012, Tiwana et al. 2010). Recently, Hein et al. (2020) stressed the importance for more research on the role of complementors as little is known about how they can influence value-creating mechanisms (Selander et al. 2013).

Complementors represent external actors that join the DPE and create complementary products, often called complements, that can be used by platform users. For example, if an electric car manufacturer like Tesla (platform owner) wants to manufacture a new model that supports new features, a software company (complementor) may develop new applications to support drivers (platform users). Examples in the software industry are companies like IBM and ServiceNow (platform owners) who offer add-on solutions (developed by complementors) on their platforms that can be applied by end users (platform users).

Complementors in a DPE may explore emerging technologies provided by technology suppliers while exploiting existing technologies at the same time (Senyo et al. 2016). Importantly, complementors face two essential challenges. First, they must develop complements (complementary services / products) that contribute to the platform core. Hence, complementors sustain client relationships that are needed to explore new ideas and foster capability development (Cenamor 2021). Second, they need to leverage and ensure the quality of existing complements. This corresponds to exploiting existing products and services (Hein et al. 2020). If a complementor is unaware of how to balance exploitation and exploration, this may hinder their role within the DPE.

These challenges correspond to the concept of organizational ambidexterity (OA) in which a complementor must balance both exploration and exploitation (Gibson & Birkinshaw 2004, Gupta et al. 2006). The emergence of OA can be described as a process encompassing a series of individual and collective practices and events unfolding over time in a specific organizational context (Avgerou 2013, Gross 2009). Although most organizational ambidexterity research focuses on the firms' organizational level (O'Reilly & Tushman 2013), a less analyzed path for firms to develop ambidexterity is the engagement in collaboration with external actors (Kauppila 2010). This line of research suggests that firms can efficiently acquire and generate new knowledge and capabilities by establishing ties across organizational boundaries (Lavie & Rosenkopf 2006). It has been shown that "interorganizational coordination is achieved through social mechanisms, that are, governance mechanisms based on social relationships and networks" (Capaldo 2014, p. 687]. This corresponds to the role of a complementor in a DPE as complementors must engage in practices that contribute not only to exploitation but also to exploration.

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Social mechanisms may provide insights on how a macro-level pattern (organizational level) can initiate events at micro-level. DPE literature reveals limited guidelines on how to provide directions for exploitation and exploration of new technologies (i.e., complements) (Korpela et al. 2017). As more research is needed to better understand interorganizational ambidexterity in the context of DPEs, the aim of this research is to study how complementors deal with organizational ambidexterity (i.e., balance exploitation and exploitation), based on the following research questions:

RQ 1: How do complementors within a digital platform ecosystem shape their interactions?

RQ 2: What are the social mechanisms for sustaining organizational ambidexterity?

To answer these research questions, we adopted organizational ambidexterity and social mechanisms as theoretical lenses and conducted an empirical study (single case study) on an information technology (IT) service provider in their role as complementor in a DPE. The contribution of this study is twofold. First, as the role of a complementor is under-researched, our study contributes to partially filling this gap by shedding light on complementors work processes and interactions in a DPE. Second, by addressing social mechanisms, the multi-layered nature of complementor practices is made more explicit. A complementor that focus on either exploration or exploitation, in the long run is not sustainable.

2. Theoretical Development

2.1. Digital Platform Ecosystems

Platform owners, such as SAP and Microsoft, interact with autonomous complementors, in which the latter create solutions that are complementary to the platform core (Hein et al. 2020, Tiwana 2015. A digital platform ecosystem represents a system that comprises a platform owner that implements technical, business, and social mechanisms to facilitate value creation on a digital platform between the platform owner and autonomous complementors (Hein et al. 2020. Literature shows that the degree of complementors' autonomy may vary between high and low autonomy (Ye & Kankanhalli 2018).

Complementors with high autonomy are perceived as loosely coupled to a digital platform and contribute to the variety and number of complements (Boudreau 2012). As such, they create strategic partnerships that strengthen the core focal-value proposition (Danneels 2003). Complementors with low autonomy are perceived as tightly coupled to a digital platform, in which both the platform owner and the complementor are mutually dependent (Hein et al. 2020). The key role of a complementor is to develop complementary or ancillary offerings that contribute to the value of the

DPE (Cusumano & Gawer 2002). For example, developing apps for a platform represents a shared resource for distribution to the actors on the platform (Karhu et al. 2018).

Research suggests that complementors should focus on products that the platform leader is not likely to offer and as such, contribute to innovating the platform (Cusumano & Gawer 2002). This platform characteristic, called *generativity*, is defined as the "overall capacity to produce unprompted changes driven by large, varied, and uncoordinated audiences" (Hein et al. 2020, p.89). Complementors that focus on exploring new opportunities often use mechanisms, such as sensing and seizing through a business model design. These mechanisms correspond to complementors' dynamic capabilities to respond to technological developments (Adner 2006). In parallel, complementors must ensure the expected quality of existing services, which correspond to exploiting existing products and services. This corresponds to the concept of organizational ambidexterity that can be achieved though intra- and inter-organizational relationships.

2.2. Organizational Ambidexterity through Intra- and Inter-organizational Relationships

Defined as simultaneous actions undertaken by firms to address two heterogeneous situations simultaneously, to explore and exploit, organizational ambidexterity (OA) represents the ability of an organization to compete in markets where efficiency and incremental improvement are valued and to also compete in markets where flexibility and experimentation are needed (Jansen et al. 2009). Exploration is linked to activities for creating and discovering new opportunities (Kauppila 2010), while exploitation is described as creating current operational quality by leveraging existing organizational resources (Tushman & O'Reilly 1996).

OA researchers examined different approaches to attaining ambidexterity. The two main recommendations are: (1) to split the explorative and exploitative activities of the organization into separate organizational units (structural ambidexterity), and (2) to create an organizational context that will empower individuals to make decisions about how they will balance their time between exploitative and explorative tasks (contextual ambidexterity). The relevance of ambidexterity in the context of ecosystems for interorganizational relationships is emphasized by Haghshenas & Østerlie (2020) who found that ecosystem actors not only explored for new opportunities in entering the DPE, but they also sought strategies to exploit and further strengthen their existing capabilities and position within the ecosystem.

It has been suggested that in an interorganizational relationship (IOR) context, organizational structures

may be configured in different ways (Albers et al. 2016). IOR scholars have studied interorganizational relationships from two main perspectives: 1) interdependency; and 2) iterative. The interdependency perspective adopts a linear study of the IOR collaborative process (Loebbecke et al. 2016) and researchers in this line of thought are preoccupied by the analysis of resources and contingencies (De Haes & Van Grembergen 2005) or collaborative structures (Albers et al. 2016). These studies have one commonality: they do not clearly identify the mechanisms that underlie the emerging processes of collaboration, and they focus on surface structures (Pentland 1999).

Drawing on Pentland's (1999) illustration of narrative data, we define *surface structures* in the context of a DPE as a set of organizational decisions and processes that enable exchanges between ecosystem actors. We conjecture that surface structures contain two main components: a) the digital platform which comprises different IT-artefacts that are commonly used for business purposes; b) an inter-but also an intraorganizational shared vision about the required mechanisms to collaborate (Haghshenas & Østerlie 2020). Using the ambidexterity lens, we can describe these structures as organizational *exploration structures*.

The iterative perspective emphasizes the analysis of the interorganizational collaboration process by paying a particular attention to the challenges associated with the processes of sharing knowledge between partners and power allocation (Prasad & Green 2016). Heracleous & Barret (2001) described these organizational structures as *deep structures* and defined them as "continually recurring processes and patterns that underlie and guide surface, observable events and actions" (p.758). Using the ambidexterity lens in a DPE context, we conjecture that deep structures will impact exploitation practices and affect the contextualized efforts during an interorganizational collaborative process. In this context, *exploitation* is about organizational daily practices, core beliefs, efficiency, control, and certainty. We argue that both complementary levels of structures, surface and deep, are required to enable the organizational ambidexterity process.

2.3. Social Mechanisms

In research taking on an OA perspective, the resulting description of a process that encompasses a series of individual and collective practices and events will tell a rich story by explaining how influential factors interact, how they collectively lead to future actions, and what restrains them. In the context of networks or alliances, social mechanisms can be distinguished by relational mechanisms, such as interpersonal relationships and reciprocity, and structural mechanisms, for example economic actors

for reciprocity (Capaldo 2014). Research reveals various types of network-based interorganizational arrangements that illustrated the positive affect of social mechanisms on the willingness of network (i.e., ecosystem) partners to share knowledge and information (Krishnan et al. 2006).

In the context of our study, successful organizational ambidexterity is ensured by a continuous adjustment between the explorative and the exploitative structures, through knowledge sharing and interaction practices. We adopt the view that sees social mechanisms as being processes composed of actions, events (Goh et al. 2011), and "chains or aggregations of actors confronting problem situations and mobilizing more or less habitual responses" (Gross 2009, p. 368). We surmise that social mechanisms may explain processes that enable the exchange of information between ecosystem partners (surface structures) while supporting the exchange of knowledge sharing (e.g., deep structures). Therefore, to explore knowledge sharing and interaction practices in a digital platform ecosystem, we adopt Gross' (2009) suggestion to use social mechanisms and apply them in the context of OA. In doing so, we may identify causal relationships between 'surface' and 'deep' structures during the process of exploration and exploitation.

3. Research method

Due to the complex nature of the role of complementors in DPEs, we decided to adopt an exploratory, case study-based approach. In the settings of a DPE, collaborating organizations are best analyzed in a process of theorization that focuses on how decisions and actions at different levels of analysis shape each other (Langley et al. 2013). In this vein, we adopted a qualitative research approach by using a single-case study method. This methodology is suitable because it underlines the social construction as well as it shows how our theorization operates in a particular context (Eisenhardt & Graebner 2007). We followed Eisenhardt's (1989) recommendations and anchored our problem definition and preliminary construct specification in extant literature, and we constructed our data collection instruments based on this literature, following an abductive logic (inference to an explanation). This was done by following a process analysis approach (Gross 2009).

3.1. Research setting and Data collection

To select a complementor, we used two main criteria. First, we focus on a complementor that has no conflicting role as platform owner. In other words, the complementor does not own a technical platform that is used to establish technical relationships with multiple complementors. Second, we made a

distinction about the degree of autonomy of a complementor as we focused on a high degree of autonomy. In doing so, we were able to identify emerging OA dimensions and mechanisms implemented by a complementor as part of a DPE to support the two organizational structures (surface and deep). By selecting an IT service provider, XRM Vision, the two criteria outlined above were met. Founded in 2002, XRM Vision[1] is a sixty-employee Customer Relationship Management (CRM) consulting firm specialized in the design and implementation of Microsoft Dynamics 365 CRM solutions based on Microsoft Power Platform (MPP) technologies.

A two-phased approach was used in which we collected primary and secondary data based on an interview protocol. We began by collecting publicly available data (website information and whitepapers) related to the DPE, which helped us understand the core relationships within the ecosystem. In the second phase, we conducted interviews that were semi-structured and based on a protocol (Table 1) designed to contribute to the consistency and reliability of the results. In addition, direct observations in the form of field notes were drafted during the interviews. In all, seven (7) in-depth interviews were conducted with various XRM Vision representatives. All interviewees were selected based on their involvement in establishing OA dimensions and mechanisms. The interviews were held between September 2021 and February 2022 and lasted between 30 and 90 minutes. They were recorded and subsequently transcribed. In addition, two of the authors had the chance to observe and participate to one of the XRM Vision off-site event with all the employees.

Table 1. Structure of the interview protocol and participants

Categories	Themes	Interviewees
Background of interviewee	Role, length of employment in the organization	1. Felix, CEO, VP Innovation
Company strategy	Strategy implementation, business models	2. Martin, VP Operations
Exploration vs. Exploitation dilemma	Intra-organizational relationships, culture	3. Alain, Director Customer Relationship (DCR)
Relationship with the ecosystem complementors	Interorganizational practices to collaborate to develop exploration	4. Valerie, IP Manager (IPM)
Relationship with the platform owner	Practices for generativity	5. Kim, Senior Architect (SA) 6. David, Senior Architect (SA)

3.2. Data analysis

We used an abductive analytical approach – a continuous process carried throughout all phases of the research process (Van Maanen et al. 2007). It infers the best explanation not only from the data analysis but also from the relevant iterations between theory and data. Our analysis was done at two levels. Exploration and exploitation practices and mechanisms embedded within the organization were analyzed to discover how different partnerships were enabled in creating ambidexterity and how different processes triggered a firm-level ambidexterity.

Next, organization-level analysis was conducted to find out how XRM Vision managed its ambidexterity between multiple DPE-based partnerships. We analyzed the data in systematic steps to ensure that the process was consistent and replicable. First, we studied context-related information from a broader organizational complementor perspective. The aim was to create a basic understanding of what type of services are provided by XRM Vision and how they are aligned with other complementors in the platform ecosystem. Second, we conducted a thorough analysis of interview transcripts, verifying the data as needed via follow-up telephone calls and e-mails.

By triangulating the interview transcripts with supplementary documents (e.g., factsheets, field notes), we were also able to triangulate sources. This allowed us to validate the steps included in the research process and improve the internal validity of the expert interviews. All interview data were subject to cross-examination by two researchers, and any errors were corrected, resulting in additional triangulation of the available data. Based on the coding process, we were able to create insight in relevant mechanisms. Finally, we draw conclusions on what type of mechanisms were used by XRM Vision to handle paradoxical demands of exploitation and exploration.

4. Findings

4.1 XRM Vision and Microsoft Power Platform Ecosystem

In 2019 the company entered in a partnership with Microsoft and started to use the new Microsoft Power Platform (MPP) toolkit to develop and sell business solutions. Like most IT service providers, XRM Vision is faced with important management challenges, sometimes conflicting, such as which growth strategies to pursue while simultaneously increasing process efficiency, how to encourage its

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[1] https://xrmvision.com/en/

employees to identify business opportunities while fostering operational excellence expected by its clients within the MPP ecosystem.

XRM Vision acts as a complementor in this ecosystem with Microsoft representing the platform owner. MPP is a group of products offered by Microsoft to develop and build complex business solutions and automate business processes. XRM Vision uses MPP-based Dynamics 365 (a cloud-based set of business applications) to combine components of CRM with productivity applications (power apps) and artificial intelligence tools to provide integration solutions to its clients. With the MPP providing a unified approach to building data driven solutions, Microsoft introduced the concept of Industry Solution Accelerators. Accelerators are industry focused base components that provide Microsoft partners, such as XRM Vision, a means to build solutions that are based on industry standards (best practices) supported by Microsoft. XRM Vision was able to extend the MPP with several accelerators targeting specific industry domains, such as local insurance brokers and Canadian manufacturing industry.

4.2 Accepting the paradox of jointly engaging in exploitation and exploration

Our findings show that the Vice Presidents (VPs) responsible for Innovation and Operations have developed over the years a paradox mindset that enabled them to shy away from the traditional conflictual characterization of exploration and exploitation and developed new ways by which both activities could coexist daily. They form a dynamic and complementary dyad that is nevertheless characterized by constructive frictions. On the one side of this dyad, the VP Innovation has a role of a team builder, because people will rally around him to work with him. He permanently works in an innovation and experimentation mode, which places him as an idea generator. On the other side, the VP Operations works in a monitoring and control mode looking for stability in an exploitation approach. His role is to deliver quality services and provide revenue for the company.

"I am a mediator, an enabler. I try to get people to collaborate, to propose new ways of doing things. On the other hand, Martin is an operator who seeks stability, minimize risks and costs." (Felix, CEO)

"I say to myself 'Let him try the idea and I will make my suggestions to him as we go along'. We are two very strong personalities with complementary expertise and visions, which allows us to reach consensus" (Martin, VP Operations).

XRM Vision operates in a business context characterized by continuous change which directly shapes its processes, culture, and mindset. Thus, to succeed in in their dynamic business environment, XRM Vision must continually find the right balance between exploration and exploitation.

4.3 Intraorganizational relationships and deep structures

Several social mechanisms have been deployed by XRM Vision to enable the flow of information, to capitalize on the diversity of profiles, and to generate new business opportunities and ideas. First, *Innovation islands* has been set up to create synergies at the operations level at XRM Vision. To do this, temporary teams were formed with employees from the same trade (e.g., architects, analysts, developers, etc.). Management asked them to meet once a week to identify *"pain points" (Kim, Senior Architect)*, i.e., problems or opportunities for improvement related to operations, such as delivery methods, training, etc.

Second, *Internal Hackathons (Hack-in-a-day)* were organized in which employees were invited to participate to identify opportunities for improvement of the MPP tools. The objective was to develop power apps that would be useful to XRM Vision in relation to real-life problem situations identified by its employees during their project implementations at their clients.

"Hack-in-a-day is one way to expose yourself. We are creating a new way of doing things. This is our approach to corporate hackathon" (Felix, CEO).

Third, *Lunch-&-Learn & Tip-&-Tricks* sessions are held since 2019. All employees are invited to attend one-hour monthly presentations (*Tip-&-Tricks*) of a given topic related to XRM Vision's activities and organized by employees to provide an opportunity to share information, generate discussions, and stimulate creativity. The idea behind 'Tips-&-Tricks' was to share in five minutes what an employee has recently learned.

"These are 'wake-up calls', so instead of spending an hour on a specific subject which may not be of interest to everyone, like in 'Lunch-&- Learn', we have a one-hour meeting, where we address 12 subjects instead of one" (Martin, VP Operations).

Data analysis shows that XRM Vision's management has two missions: to minimize delivery risks and to make XRM Vision a world-class consulting firm in terms of operational excellence. We found evidence of three deep structures that facilitate the exchanges between the employees of the company.

Intraorganizational collaboration. XRM Vision promotes a culture of sharing, and the employees sell this perspective to their clients.

"Our rates are roughly 25-30% higher than all other CRM consultant rates in Quebec. Why do we aim to sell projects that have managed to survive? Because we sell this synergy, we sell this collaboration" (Alain, DCR).

XRM Vision employees have participated in several annual two/three-day off-site events. In addition to promoting organizational learning and information sharing, this event helps develop a better

team spirit, encourage employee involvement to identify new opportunities.

Social connectivity. Management tries to always find ways of connecting their employees to share opinions, ideas. It's a team building exercise. And it helps identifying ways to improve XRM Vision's operations.

"When I go to conferences, I bring few employees with me to generate discussion topics with them. For example, we ended up to a conference in Austin where they usually organize a hackathon, and we were working and playing with it, because I told them, 'I'll take you there, but you must do the hackathon'" (Felix, CEO).

Transparency. The employees have a monthly "town hall meeting" with the whole company. For three hours Felix would talk about financial results and about project successes but also about failures.

"He's very transparent. He'll say, 'we lost this sale opportunity and it meant that seven people had no work for a month'" (Valerie, IPM).

4.4 Interorganizational relationships and surface structures

In the context of a DPE we found four categories of surface structures that enable the exchange between ecosystem actors, namely: a) platform-core relationships; b) most valuable professional relationship; c) ecosystem partner relationships; and d) platform user relationships. By studying these four categories we identified how XRM Vision explores new opportunities to further strengthen their capabilities and position in the DPE.

Platform-core relationships. We found evidence that XRM Vision established a profound relationship with the platform-core owner, which corresponds to Microsoft specifically. Based on the interview data we found that Microsoft's Power Platform comprise of a set of solutions that are adapted from a technology perspective regularly. To explore new opportunities XRM Vision is closely aligned with Microsoft by means of partner meetings in which they are informed about new functionalities (releases). In doing so, XRM Vision gains access to relevant technological opportunities. By attending partner meetings and information sessions and studying state-of-the-art whitepapers released by Microsoft, XRM Vision can explore new ideas that ultimately may result in new products and/or services.

"When Microsoft's Power Platform arrived, we (XRM Vision) had to rethink our practices to foster innovation. To do so, business developers and architects attended several conferences organized by Microsoft on the Power Platform. By discussing the opportunities that the Power Platform offers, we were able to really understand its possibilities and develop new solutions for our clients" (Felix, CEO).

To encourage an outside-in view when attending Microsoft conferences XRM Vision decided that employees would opt for an 'Airbnb' type of sleeping arrangements rather than hotel rooms. This is intended to create a community spirit, develop interpersonal relationships, and enable moments of discussion. In addition to conferences, XRM Vision encourages its employees to attend various trainings as well as to discuss ideas with clients and ecosystem partners. The goal behind these initiatives is for XRM Vision employees to be exposed to what is happening outside the organization, and to bring new knowledge, ideas, and practices back in-house. After reviewing the transcripts, we found that XRM Vision insights on new Microsoft's Power Platform features created the ability to faster develop new business opportunities. For example, the firm was able to develop new applications, automate certain tasks and visualize data for clients.

Valuable Professional (MVP) relationship. The interviewees revealed that XRM Vision recognized the full potential of Microsoft's Power Platform in developing products and services to clients. To underpin their skills and expertise in the context of the Power Platform XRM Vision decided that one of their solution architects (Eric Sauvé) should obtain Microsoft's nomination of Most Valuable Professional (MVP). The MVP Award is a global program of recognized Microsoft technology experts and community leaders who actively support technical communities through unique, innovative, and consistent knowledge sharing. The idea for XRM Vision to have an expert (solution architect) in the Microsoft Power Platform technologies was to promote, both externally and internally, the expertise of XRM Vision and the affordances of the Power Platform. Eric is now recognized as an expert within the Power Platform community as well as by clients and partners. This allows him to provide presentations at external partner events and develop promotional presentations for XRM Vision products and services.

"The goal to have an MVP was to create a significant presence on social media, easier access to Microsoft knowledgebase, to specialized and private events, and a privileged access to a vast network of partners but also competitors" (Martin, VP Operations).

Platform client relationships. To strengthen the relationships with platform users XRM Vision organized several events to train platform clients in building applications (power apps) on their own. XRM Vision labelled these events as 'app-in-a-day' to illustrate the opportunities and the convenience of using the Power Platform. XRM Vision's 'app-in-a-day' event allowed them to reach out to platform users and reveal its services and expertise. However, these initiatives were viewed both positively and negatively.

On the one hand, XRM Vision's operations managers consider such initiatives to be a waste of

time and money. On the other hand, business development employees perceived them as a mechanism to raise awareness of the platform's possibilities as well as identify and give visibility to new practices and new business opportunities.

"We (XRM Vision) organized about twenty events open to all platform users called "app-in-a-day" in which we trained approximately 300-400 people on the Power Platform" (Martin, VP Operations).

Platform generativity. The interviews show that XRM Vision established ecosystem partner relationships specifically to achieve two goals: develop new applications based on the MPP toolkit and gauge the degree of test user acceptance of these new applications. To achieve both goals, XRM Vision organized global as well as customized hackathons. By organizing global hackathons XRM Vision was able to develop new applications by means of an innovative way of working. During the hackathons they had the opportunity to co-create new power apps and achieve new insights and knowledge in how these applications may create value to both the ecosystem partners (complementors) and the platform core owner (Microsoft). By organizing global hackathons, they also experienced that some ecosystem partners were also their competitors in the context of other client relationships. However, XRM Vision and their ecosystem competition noticed that co-creating new applications was beneficial for all ecosystem partners as each party was not able to develop these applications on their own.

"We organized a global hackathon to showcase the MPP and XRM Vision's expertise. During this hackathon, some of the platform users were direct competitors and co-developed knowledge about the MPP within the digital platform ecosystem" (Alain, DCR).

The interview data showed that the value of organizing hackathons with ecosystem partners was important for XRM Vision to develop a strong ecosystem around the MPP to understand the possibilities and opportunities offered by the technology. XRM Vision also organized hackathons for specific ecosystem partners. As an example, when an ecosystem partner asked XRM Vision how to replace legacy platforms, such as Lotus Notes or SharePoint, XRM Vision organized workshops that linked XRM Vision and Microsoft sales team with employees from the ecosystem partner organization. During these workshops, a case study in the context of that specific ecosystem partner was prepared for a more customized ecosystem partners hackathon. Thus, ecosystem partner's employees developed a real-life working application themselves in one day based on the MPP toolkit.

Based on the knowledge accumulated during these events, XRM Vision had the opportunity to start developing Industry Solutions Accelerators. Hence, XRM Vision can continually contributes to the MPP, and as such, create complements to the platform-core (Microsoft). Since most of the MPP solutions that XRM Vision uses are migrated and integrated back into the MPP, they contribute to the platform core owner and consequently to the digital platform ecosystem.

"An accelerator represents a series of MPP-based configurations that encapsulate best practices in a specific industry and enable to meet a specific business need" (Felix, CEO).

In sum, we have identified a nuanced, dual-layered repertoire of deep and surface structures and their attached mechanisms. Table 2 summarizes our data analysis findings.

Table 2. Structures and Mechanisms at XRM Vision

Structure types		Social Mechanisms
Deep	Intraorganizational collaboration	*Innovation islands*
	Social connectivity	*Internal Hackathons: Lunch-&-Learn & Tip-&-Tricks*
	Transparency	*Townhall meetings*
Surface	Platform-core relationships	*Platform partner meetings; MS conferences*
	MVP relationship	*Promote XRM Vision expertise to the rest of the MPP*
	Platform client relationships	*App-in-a-day events*
	Platform generativity	*Global hackathons*

5. Discussion

Even if exploitation and exploration are depicted as two opposing forces and can be conceptualized as the two ends of a continuum, they are paradoxically interrelated in a natural cycle. Indeed, innovations, opportunities generated through exploration could evolve into exploitation while the income, the slack resources generated by exploitation could enable exploration.

Nevertheless, as these twin requirements compete for limited organizational resources, organizations must make decisions and take organizational actions to try to reconcile these conflicting pressures to maintain a balance between these two forces.

5.1. Deep structures

Deep structures represent processes and practices that result from social and relational capabilities via recursive mechanisms of collaboration and knowledge

sharing (Van de Ven & Poole 1995). These structures enclose "a set of routines based on product technologies, process technologies, or broader business innovations as well as managerial activities" (Maritan & Brush 2003, p. 945) at different levels of interactions and managerial actions. We found evidence of a strong orientation towards continually improving the quality of the MPP-based services. We discovered ambidextrous leadership and strong cross-team collaborative relationships.

Based on an all-embracing philosophy and well-nurtured culture of employee-empowerment, the two VPs have fostered a repertoire of social mechanisms (internal hackathons, lunch-&-learn, tip-&-tricks) that facilitated causal relationships between 'deep' and 'surface' structures during a process of exploration-for-exploration (Vieru et al. 2021). These instantiations of an ambidextrous work design enacted an innovation culture through the design of structures, policies, and practices. Our interpretation of the social mechanisms related to deep structures in this context suggests an evolutionary mode of change wherein the variation, selection, and retention of the outcomes of the intra-organizational collaboration were done through linear mechanisms (Van de Ven & Poole 1995).

5.2. Surface structures

Our data analysis suggests that the complementor established various social mechanisms that foster innovation. As XRM Vision organized multiple events they strengthened their relationships with ecosystem partners and as such, created trust to develop and share knowledge. This relates to social interaction ties (ecosystem ties) that are used as channels for information and resource flows (Tsai & Ghoshal 1998). This is also consistent with the findings of Capaldo (2007, 2014) who found that interpersonal relationships, trust, and reciprocity play a major role in interorganizational processes. We argue that strengthening the ecosystem ties between complementors and the platform owner positively impacts innovation. Our study shows that a focus on implementing structural mechanisms in a DPE specifically (e.g., open access, microculture) contribute to increased innovation lead times of the complementor under study. Literature reveals that social mechanisms in the context of surface structures positively relate to knowledge sharing and the quality of knowledge shared by ecosystem partners (Capaldo 2007). Our findings on structural social mechanisms show that knowledge-intensive learnings between a complementor and other DPE actors contribute to developing innovative solutions. We conjecture those social mechanisms that correspond to surface structures strengthen the position of a complementor within the market and as such, increase the likelihood of their survival in a DPE.

5.3 Causal relationships between deep and surface structures

Our data analysis implies that the paradox mindset of managing OA by the complementor was the trigger for the implementation of deep and surface structures. By applying social mechanomes that relate to the complementor, XRM Vision was able to explore new ideas that resulted in an effective development of novel accelerators within short lead times. The social mechanisms fostered the complementor's innovation processes as the exchange amongst ecosystem actors initiated internal patterns (e.g., events, actions) to develop new products. This finding extends Heracleous & Barret's (2001) perspective that focuses only on deep structures within interorganizational relationships. However, context matters. This implies that a complex phenomenon as OA analyzed in the context of a DPE is perceived as an emerging process, through a sequence of temporal events and actions. The latter is consistent with Gross (2009) who argues that social mechanisms explain intermediate events.

To summarize, social mechanisms as applied by a complementor provide insights in innovation driven processes while bridging the gap between different levels of analysis (micro and macro level) (Hedström & Swedberg 1998). This provides a two-folded causal explanation identifying the processes underlying exploration and exploitation in the context of a DPE, which is consistent with Avgerou (2013).

6. Conclusion, limitations, and future research

The aim of our research has been to study how complementors deal with organizational ambidexterity (i.e., balance exploitation and exploitation) in the context of a DPE. The identified social mechanisms have revealed how a complementor creates and discusses new ideas with other DPE actors to foster capability development (exploration) and consequently, transform these ideas into practice (exploitation). Our findings show that the complementor's support of a platform contributes to an increased commitment to the platform owner. This partially answers a research proposition advanced in a conceptual paper by Cenamor (2021), which states that the "bi-lateral dependency between a complementor and a platform owner becomes more significant as the platform ecosystem matures" (p. 338). More specifically, this corresponds to the development of accelerators by the complementor in our study. Our study contributes to IS literature in several ways. First, as most OA research in the context of a DPE focuses on the platform owner, our research addresses the role of a complementor and analyzes its approach to achieve OA in collaboration with external actors (Kauppila 2010). Second, by identifying deep

structures and surface structures and their related social mechanisms we extend our understanding of the role of complementors and as such, the added value that is created for the DPE.

Third, our findings have direct managerial implications for IT service providers acting as complementors in a DPE. We recommend that senior management must develop a cohesive social structure and a balanced approach to overcome challenges of jointly engaging in exploitation and exploration.

Because our research is based on a single case involving only the role of a complementor, the generalizability of the results is limited. This case study identifies various avenues that require further research. Future studies should analyze multiple actors in a DPE to identify causal relationships amongst ecosystem partners and subsequently create a holistic view of the organizational ambidexterity impacts.

We also recommend more in-depth research about the social interaction ties between DPE actors. Insights may shed some light on the norm of reciprocity when actors focus on ecosystem innovations and interdependencies between mechanisms that support deep structures and surface structures as their outcome may differ. Moreover, we suggest examining the shared vision and shared language between complementors in a DPE by applying a social capital lens. This may create insights about individuals' knowledge sharing as part of a DPE.

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8. References

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