REDESIGNING BUSINESS MODELS TO LEVERAGE MEMBERS' PARTICIPATION IN ONLINE COMMUNITIES: THE CASE OF THE FRENCH GAMBLING INDUSTRY

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Redesigning business models to leverage members' participation in online communities: The case of the French gambling industry

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ABSTRACT

With the spread of information and communication technologies, online communities have emerged as new type of key stakeholder for firms. These online gathering spaces provide customers with new ways to interact with companies and their own peers. While online communities are acknowledged as a source of value for their members and host firms, leveraging them remains a challenge for companies, and mean redesigning their business model. Based on a case study of the French gambling industry, we show that through their participation, members of online communities bring new resources and competences, which firms can use to reshape the mechanisms of value creation and capture. We highlight two execution mechanisms for redesigning a business model around online communities and leveraging such communities to enhance firms' performance.

Keywords: *business model, online communities, customers' participation, netnography*

RÉSUMÉ

Les communautés en ligne se sont imposées comme une nouvelle partie prenante centrale pour les entreprises du fait du développement des technologies d'information et de communication. Les clients réunis au sein de ces espaces en ligne bénéficient de nouveaux moyens d'interaction entre eux et avec les entreprises. Si les communautés en ligne sont considérées comme une source de valeur pour les deux parties prenantes, intégrer leur participation reste un défi pour les entreprises et implique le réagencement de leur business model. Grâce à une étude de cas de l'industrie du jeu d'argent en France, nous montrons qu'au travers de leur participation, les membres des communautés en ligne apportent de nouvelles ressources et compétences dont la mobilisation façonne les mécanismes de création et capture de valeur. Cet article révèle deux mécanismes d'exécution grâce auxquels une entreprise réagence son business model autour des communautés en ligne et améliore ainsi sa performance.

Mots-clés : *business model, communautés en ligne, participation des clients, netnographie*

INTRODUCTION

The proliferation of information and communication technologies has led to the emergence of new online spaces for interactions between firms and the demand-side (Dong & Wu, 2015). Today, customers are coming together in online communities ("OCs") to share common interests, and there are as many online communities as there are passions: everything from video games (Burger-Helmchen & Cohendet, 2011) to cosmetic surgery (Langer & Beckman, 2005). These spaces represent a new means of expression, allowing customers to interact more directly with companies as well as with each other. On average, 67% of customers share their experiences online, and 64% expect companies to interact directly with them to address their requests (Salesforce, 2016). Customers' large-scale interconnection in autonomous spaces gives them more power to influence and impose their presence on companies (e.g. Faraj *et al.*, 2015, 2016). New technologies and their appropriation by customers have induced the transformation of many business models (Accenture, 2014), i.e. the logic through which companies create and capture value (Hedman & Kalling, 2003; Zott *et al.*, 2011).

OCs create value for their members, as well as for firms (Barrett *et al.*, 2016; Mein Goh *et al.*, 2016). For members, these spaces constitute a means for collective online interactions, during which they express their identities (Ma & Agarwal, 2007), share content (Faraj *et al.*, 2016), and help each other (Huang *et al.*, 2018). For companies, meanwhile, OCs represent a well of knowledge (Chau & Xu, 2012; Roberts & Grover, 2012), allowing them to adjust their offers and design new products and services (Dong & Wu, 2015; Jeppesen, 2005). The collective and aggregated nature of members' participation reinforces this potential value for both parties, but also requires firms to consider and manage OCs as a new type of stakeholder (Fisher, 2019).

Previous work has shed light on how firms have redesigned their business models around their customers, i.e. how they have reorganized their own activities to integrate customers' participation (Hienerth *et al.*, 2011). Facing the growing importance of OCs in strategic management (Faraj *et al.*, 2015; Fisher, 2019), existing literature has mainly focused on understanding how they create value for members (Barrett *et al.*, 2016) or how they enable firms to get a competitive advantage (Fisher, 2019). However, the way firms reorganize and redesign their business models to enable new forms of value creation and capture is still understudied. Hence, the literature in strategy (Demil *et al.*, 2015; Priem *et al.*, 2018) and information systems (Baird & Raghu, 2015) calls for new insights into the primacy of OCs in business models. Therefore, our research question is: *How do companies redesign their business models around online communities?*

To answer this question, we conducted a qualitative case study of the gambling industry in France. Through interview, netnographic, and documentary data, we studied how the industry leaders, FDJ and PMU[1], adapted to the new gaming practices their customers had adopted through the use of information and communication technologies. Our research reveals two execution mechanisms—"nurturing participation" among customers in OCs and "reaping [their] resources and competences"—that enable companies to redesign their business model to manage and leverage

[1] FDJ stands for *La Française des Jeux*, or "French Game Company"; PMU stands for *Pari Mutuel Urbain*, or "Urban Betting Collective."

the participation of OCs' members (Wagner *et al.*, 2017). In particular, they provide firms with new informational resources and competences, for which we propose a taxonomy (Plé, 2016; Plé *et al.*, 2010). We reveal how the way that members produce, share, and convey information inside OCs represents an opportunity for firms. Through these online spaces, customers are no longer passive users, but actively contribute to value creation and capture (Demil *et al.*, 2015; Priem *et al.*, 2018). Finally, our results offer some insights to practitioners, including some reflections on how OC-centric business models can sometimes be a double-edged sword.

1. THEORETICAL BACKGROUND

1.1. The primacy of customers in business models

The concept of the business model emerged with the first e-businesses (Amit & Zott, 2001), whose performance mechanisms were unknown (Timmers, 1998). Today, practitioners and scholars contemplate business models to understand strategy-making (Pateli & Giaglis, 2004). Increasing attention has been given to this research topic in various fields, such as strategy, entrepreneurship (Maucuer & Renaud, 2019), or information systems (Al-Debei & Avison, 2010; Maucuer *et al.*, 2020). A business model describes how an organization does business (Magretta, 2002). It mediates between "technology development and economic value creation" (Chesbrough & Rosenbloom, 2002, p. 532) and the organization's key components (Hedman & Kalling, 2003): activities (Pateli & Giaglis, 2004), resources and competences (Al-Debei & Avison, 2010), and the value proposition that targets customers (Dubosson-Torbay *et al.*, 2002). In the same vein, we consider the business model as a unit of analysis, and a holistic perspective on how businesses are run (Zott *et al.*, 2011).

In the business model literature, customers are acknowledged as a key stakeholder group (Hedman & Kalling, 2003) whose importance has been accentuated by information and communication technologies (Baird & Raghu, 2015). Thanks to these means of interaction, customers can access much more information, and are the recipients of various value propositions (Teece, 2010). Consequently, the business model approach is oriented toward the demand-side, in order to understand how value can be created for customers (Priem *et al.*, 2018). For instance, the German airline company Lufthansa redesigned its business model using "big data" in order to customize customers' experiences (Chen *et al.*, 2017). In digital businesses, most changes are driven by customers' expectations (Keen & Williams, 2014). Information and communication technologies have intensified interactions between firms and customers (Wenzel *et al.*, 2017; Wirtz *et al.*, 2010), generating new avenues for value co-creation (Füller *et al.*, 2009). For example, Lego redesigned its business model to collaborate with its customers to design and improve its products (Hienerth *et al.*, 2014). These customer-centric business models (Hienerth *et al.*, 2011) leverage customers' participation in the company's activities to co-create value (Plé *et al.*, 2010).

Previous work calls for a better understanding of customers' role in business models (Baird & Raghu, 2015; Demil *et al.*, 2015; Priem *et al.*, 2018). Customers are considered to be resources for collecting valuable information (Di Gangi & Wasko, 2009), provided that the firm's business model enables their participation (Hienerth *et al.*, 2011). Information and communication

technologies also increase interactions between customers (Wirtz *et al.*, 2010). The numerous OCs that have recently emerged in various industries are considered as fully-fledged stakeholders, where information circulates among members (Fisher, 2019; Parmentier & Gandia, 2013). Such exchanges of information are acknowledged as a source of value for both firms and the customers themselves (Aversa *et al.*, 2020). To grasp this opportunity, firms rethink their interactions with customers by shifting from an individual perspective to a collective one (Franke *et al.*, 2008). Thus, bringing OCs into firms' activities entails them redesigning their business models (Baden-Fuller & Haefliger, 2013).

1.2. Channeling value from information produced by OCs

The diffusion of new information and communication technologies has enabled the interconnection of individuals on a large scale (Agarwal *et al.*, 2008). New tools such as social networks and forums (e.g. Susarla *et al.*, 2012) have led to the emergence of a variety of online social spaces, creating new forms of interactions between their users (Faraj *et al.*, 2015). As a result, new technologies enable the emergence of diverse OCs (Bennett & Segerberg, 2012), which are privileged online spaces for the production, exchange, and consumption of information (Susarla *et al.*, 2012; Vaast *et al.*, 2017). An OC is defined as a group of people sharing a common interest whose main objective is collective and individual well-being within a virtual space, mobilizing new information and communication technologies (Ma & Agarwal, 2007; Sproull & Arriaga, 2012). OCs can emerge autonomously (Lakhani & Von Hippel, 2003) or from the initiative of organizations (Wiertz & De Ruyter, 2007), and can be concerned with broad topics such as health (Langer & Beckman, 2005), or linked to specific brands like Lego (Hienerth *et al.*, 2014).

The proliferation of OCs has led to the growing production, by members, of information online (Agarwal *et al.*, 2008). OCs' members both share their own knowledge and assimilate information produced by others (Faraj *et al.*, 2016), and can thus develop their skills by accessing information shared on OCs (Bateman *et al.*, 2011; Butler, 2001; Füller *et al.*, 2009). Since OC members gather around shared interests, belonging to an OC implies sharing knowledge about these interests—even though some members are mainly "lurkers," who passively consume information without generating it (Faraj *et al.*, 2016).

Some interactions within OCs are directly related to a brand or a specific offer (Goh *et al.*, 2013). Brand-specific OCs enable their members to access useful information, generated by peers and sometimes by a sponsor firm, that helps them use specific products and services (Park *et al.*, 2019). For example, users of Apache (Open Office) have organized themselves online to exchange ideas for adapting the software's code (Lakhani & Von Hippel, 2003). As a vehicle for information sharing, OCs are a source of value for their members (Barrett *et al.*, 2016; Lepak *et al.*, 2007; Mein Goh *et al.*, 2016). Table I summarizes the way members participate in OCs, all of which can represent opportunities to be seized by firms.

Members' participation in OCs represents new opportunities for firms, for they bring existing and potential customers together (Chau & Xu, 2012). While information and communication technologies play a crucial role in enabling firms to seize these opportunities (Roberts & Grover, 2012), firms also orient their entire business models toward OCs, in order to channel value from information produced by OCs' members.

Table I: Members' participation in OCs

Members' way of participating	Description	References
Sharing and/or consuming general knowledge on topics related to the OC	Members produce and gain knowledge related to shared interests.	Dong & Wu (2015); Faraj *et al.* (2011, 2016); Plé (2016); Plé *et al.* (2010)
Providing feedback on specific product and services	OCs are a space for sharing ideas for improving existing products or services, or creating new ones	Faraj *et al.* (2016); Goh *et al.* (2013); Jeppesen, (2005); Lakhani & Von Hippel (2003); Plé *et al.* (2010)
Mutual help and support	Interactions inside the OC enable members to access the information they need when they face an issue, whether personal or brand-related	Ma & Agarwal (2007); Mein Goh *et al.* (2016); Plé (2016); Yan *et al.* (2015)

1.3. Toward an OC-centric business model

OC users spontaneously produce and exchange information. The content of their interactions is a source of value for companies, for they go beyond the mere aggregation of individual customer behavior (Fisher, 2019). OCs, thanks to their members' participation, represent a pool of knowledge (Hienerth *et al.*, 2014) that enables companies to better understand their markets (Chau & Xu, 2012). With the information they collect, firms can adjust their offers to customers' preferences and needs (Chau & Xu, 2012; Lepak *et al.*, 2007). Channeling information from OCs also fosters successful innovation (Dong & Wu, 2015). For example, Lego has benefited from the ideas generated by its most passionate customers by allowing them to propose their own models for possible industrial production (Hienerth *et al.*, 2014). Mobilizing the customer experience or tapping into the power of the community enables companies to solve complex problems (Mo *et al.*, 2018) or improve the design of products and services (Chau & Xu, 2012). For instance, the German carmaker Audi has set up a "Virtual Lab" to design the car of the future with the help of its most committed users (Füller, 2010). Through information sharing, OC members become co-producers of offers created upstream of their consumption (Lusch *et al.*, 2016). Through their involvement with OCs, firms can reinforce members' engagement with the firm (Rai & Tang, 2014) and ultimately capture value, given that members spend more than consumers who do not belong to the OC (Goh *et al.*, 2013).

To maximize the value they can channel from information produced by OCs, firms seek to attract a large number of members to these online spaces. Information and communication technologies play a key role in this, for they enable firms to reach out to a larger audience (Füller, 2010; Füller *et al.*, 2009). The existing literature explores the tools used by companies to manage members' participation (e.g. Jeppesen & Frederiksen, 2006; Mo *et al.*, 2018). Through devices such as "toolkits" made available to online communities (e.g. Jeppesen, 2005), companies structure their interactions with members to align their participation with the firm's own objectives (Füller *et al.*, 2007; Huang *et al.*, 2018). For example, the video game publisher Nadeo provided its gaming OC with toolkits to enrich "Trackmania," a motor-racing game, with new circuits and vehicles (Parmentier & Gandia, 2013). However, the study of technical tools is

not enough to understand how companies redesign, integrate, and leverage the information produced by OCs' members (Helfat & Raubitschek, 2018; Plé *et al.*, 2010). Instead, we need to examine how working with OCs might affect a firm's entire business model, unlocking new potential for value creation and capture.

Previous work investigating the redesign of customer-centric business models (e.g. Plé *et al.*, 2010) does not discriminate between different forms of co-creation with users: individual, community, online, and offline. Yet, the collective and aggregated nature of members' participation in OCs makes them a specific type of stakeholder (Fisher, 2019). In terms of OCs specifically, existing research has predominantly focused on the value that is created for, and perceived by members (Barrett *et al.*, 2016), as well as value *in fine* captured by firms through members' engagement (Fisher, 2019). Far less attention has been paid to the underlying mechanisms through which firms redesign their business models to create and capture value using information generated by members' participation (e.g. Parmentier & Gandia, 2013; Susarla *et al.*, 2012). Our research bridges the gap between value creation for members and value capture for firms by exploring the mechanisms involved in designing a business model that puts OCs at its core.

2. METHODS

2.1. Single case study of the French gambling industry

We conducted a single case study (Yin, 2013) of the French gambling industry. Our aim is to develop knowledge (Eisenhardt, 1989) on the design of business models centered around OCs through an empirical approach. The case study enables us to address the question of "how" (Wagner *et al.*, 2017) companies in this industry are redesigning their business models to integrate customer participation through OCs. We study two long-standing and currently leading companies in the industry, FDJ and PMU whose activities have been redesigned in response to information and communication technologies. FDJ and PMU benefited from a monopoly until 2010 and remain the two market leaders. They possess the only networks of bricks-and-mortar stores, and are also two of the main online gambling operators, especially for horseracing betting and sports betting in general (ARJEL, 2019).

In line with Eisenhardt and Graebner's (2007) recommendations for case selection, the gambling industry is relevant to our research for three main reasons. First, customer habits have changed drastically with the development of new technologies. The gambling industry has seen a significant number of autonomous OCs emerge. Bettors have created these online spaces to share forecasts and information about different operators and their offers. OCs have become forums for customer expression and claims (e.g. Figure 1), forcing companies to provide answers. Second, FDJ and PMU—initially traditional, non-digital companies—had to adapt their activities to the development of information and communication technologies, renewing their offers and revising their internal processes to integrate new digital uses. Such changes are characteristic of a business model redesign (Björkdahl & Holmén, 2013). Third, like any mature industry, gambling is a favorable context for business model evolution (Massa & Tucci, 2014). The digital transformation of the sector has been accelerated by the law passed in May 2010 opening up online competition, and particularly the resulting emergence of new competitors on the market. As a result of all these three factors, the French gambling industry provides a

Figure 1: Screenshot from an online forum comparing bet operators (Kuzeo) (netnography, PMU 13.01.19)[2]

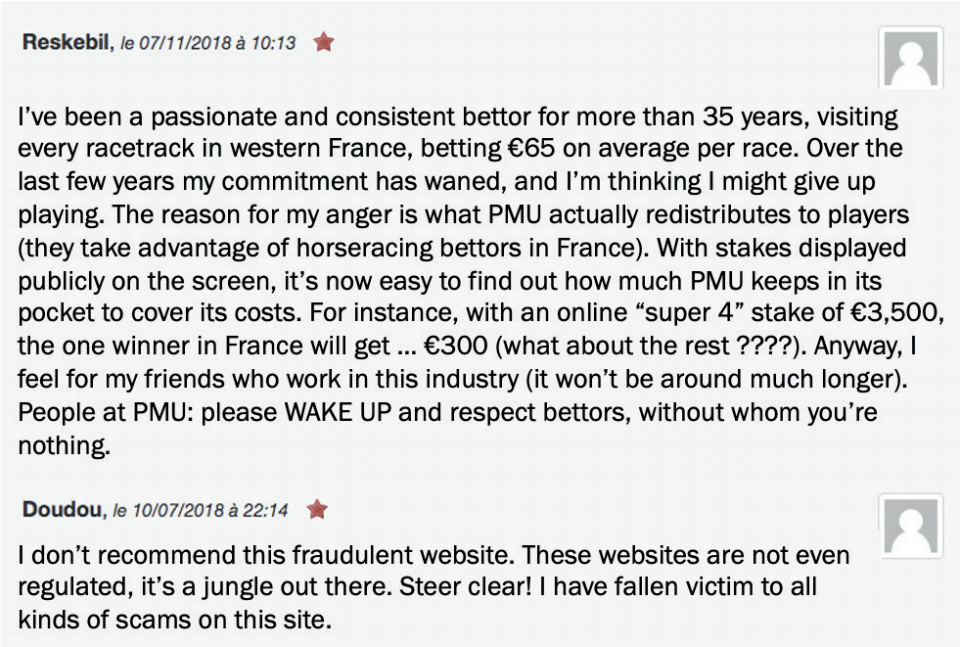
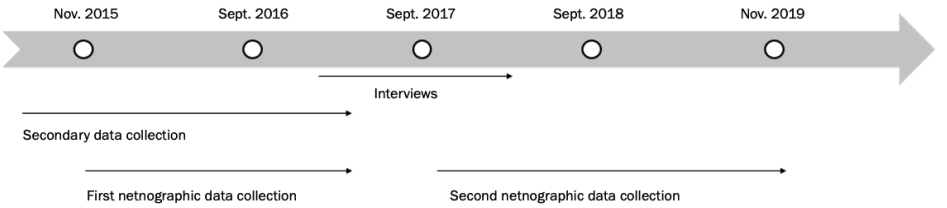


Figure 2: Timeline for data collection



fertile ground for studying the redesign of business models around OCs.

2.2. Collected data

We collected three types of data, which complement each other and enable us to triangulate: interviews, netnographic data (Kozinets, 2002), and secondary data. Combining the different types of data enhance the external validity of our research (Kozinets, 2010). Data were collected between 2015 and 2019 (Figure 2).

First, we collected secondary data such as press articles, speeches, and recorded interviews available online, as well as activity reports from 2010 until 2018 (Table II).

We also conducted 12 semi-structured interviews with actors in charge of OC management. Our interviewees belong to the marketing department (FDJ) as well as the Department of Innovation and Digital Strategy (PMU). We selected interviewees to

[2] All screenshots have been translated from French to English.

Table II: Collected secondary data

Data	Press articles	Videos	Activity reports
Source	Europresse	Youtube.fr	Firms' official websites
FDJ	53	10	9
PMU	46	9	9
Total	99	19	18

Table III: Conducted interviews

Firm	Name	Position	Length (min)
FDJ	Jean	Chief Experience Officer	105
	Agnès	Customer Knowledge Manager	77
	Michelle	Customer Voice project manager	53
	Anne	Digital transformation manager	77
	Pierre	Customer Experience manager	76
	Louis	Lean Startup "evangelist"	71
PMU	Guy	Communication and customer coordination director	45
	Benoit	Social Media Manager	50
	Arthur	Community Manager	60
	Vincent	Community Manager	50
	Claire	Digital transformation project manager	53
	Justine	Digital marketing project manager	42
		Total	759

ensure the representation of all hierarchical levels: top managers, middle managers, and operational workers (Table III).

Finally, we collected netnographic data to refine our understanding of the interactions between our study firms and OCs. For Kozinets (2002), this methodology is a qualitative method that adopts the codes of ethnographic research to study the cultures and communities that are created through the use of new technologies (Kozinets, 2002). Information and communication technologies constitute new channels for interaction, producing new spaces of observation for academics: OCs (e.g. Faraj *et al.*, 2016). Netnography aims at examining interactions that take place online, making it possible to go beyond physical interactions (Kozinets, 2002). As part of our research, we used netnography to observe OCs where customers, who share an interest in gambling (e.g., lotto, sports betting), come together. We studied autonomous communities (e.g. forums) as well as communities created and controlled by the companies studied, i.e. official communities (e.g. websites, social networks) using two types of netnographic data: screenshots and observation notes of online interactions between customers and companies (76 pages).

2.3. Data analysis

The interviews were fully transcribed and all data were coded using CAQDAS Nvivo software. To analyze our data, we conducted

three steps of coding. First, we drew on the conceptual categories of the RCOV business model framework (Demil & Lecocq, 2010) to structure our empirical material: resources and competences mobilized by the company (RC); the value proposition (V), which refers to the targeted customers, and how the company meets some of their needs; and the internal and external organization of the company (O)—i.e., activities carried out and collaborations with stakeholders. The framework reflects our definition of a business model and its theoretical underpinnings. Our choice of framework was motivated by the resource-based approach adopted in RCOV, which illuminates how gambling companies integrate the participation of OC members. As previous studies have demonstrated (e.g. Demil & Lecocq, 2015), the RCOV framework constitutes a relevant dynamic approach for analyzing interactions both between and within the core components of a business model (Plé *et al.*, 2010).

As a second step, we categorized the previously coded units (Miles *et al.*, 2014). This allowed us to refine our understanding of the conceptual categories by identifying several modalities within each one.

Third and finally, by observing different resources and competences collected by companies from OCs, we deepened this salient aspect of the data through a new categorization. Our grid of analysis is shown in Figure 3.

3. RESULTS

Studying members' participation in OCs, our study reveals two execution mechanisms (e.g. Rai & Tang, 2014) deployed by companies from the gambling industry to redesign their business model around these new stakeholders. The first aims at "nurturing participation" within OCs, while the second seeks to "reap resources and competences" possessed by their members.

3.1. Nurturing members' participation in OCs

To encourage participation within online communities, companies from the gambling industry use three approaches: (1) adjusting their own resources and competences related to information and communication technologies; (2) refocusing their activities around online communities; and (3) developing incentives for participation, thus improving value creation for members.

3.1.1. Adjusting firms' resources and competences portfolio

In the gambling industry, customers' use of new information and communication technologies entails firms to adapt, so they can better apprehend new forms of dialog with the demand-side. The more interactions there are between customers within OCs, the stronger their influence on gambling companies. The digitization of users' habits led FDJ and PMU to fear that dissatisfied OC members might tarnish their reputation:

> *Digital technologies give control and power to customers, because if one of them is dissatisfied, they get it off their chest on social networks! For example, we know customers who are bad losers criticizing the company on Twitter or forums. They claim that we "manipulate" them—which is totally wrong, but still dangerous for our reputation. We carefully manage this negative feedback. (Jean, Chief Experience Officer, FDJ)*

In addition, new technologies give customers access to broader information, especially to help them make up their mind about particular products and services. Their volatility and emotional reactivity, as described above, foster competition

Figure 3: Grid of analysis*

First-order codes	Second-order codes	Third-order codes	Illustrative quotes
Value	*Products and services offers*	n/a	"We have diversified our range of gambling products to adapt to the digital world: for example, we have digitized all online scratchcard games because we know that the lottery is the appealing product, but we are trying to introduce bettors to other games too."
	Participation incentives	n/a	"Communities are a tool that creates a great deal of value for customers, because they bring together people who share the same passion."
Organization	*Focusing activities around online communities*	n/a	"For us, it is the digital [division] that is absorbing marketing, which seemed unthinkable a few years ago. There are community spaces with applications, social networks, etc.."
	Improving existing activities	n/a	"The goal is indeed to improve, based on the knowledge that we can develop about our players' needs and purposes, customers' experience, and value creation."
	Creating new activities	n/a	"The acceleration of digital technology means we are faced with a customer who is hyper-volatile, because they are confronted with an offer that is just crazy, so you have to get closer to the customer and make them your resource to make sure you attract and retain them."
Resources & Competences	*Resources and competences owned by firms*	n/a	"The social networks were created on one side of the organization; we arrived later on with the ad hoc community. It took a long time for us to make it clear that we had communities in common with other departments."
	Resources and competences collected from online communities	*Prolonging interaction time*	"In fact, people visit the website to see the results of the draw. And once they're there, they start playing the draw. Then maybe eventually they'll play other games. In any case, they are expected to spend more time playing."
		Market knowledge	"Even if you increasingly have no control over the players, what we're trying to do, for most brands it's to prevent people from giving bad ratings, so we ask them, 'How do you rate our service?' And we try to work with them."
		Behavioral knowledge about members	"We're trying to collect data and use it to understand members' behavior. Gamblers are very social, as we can see in the community—which we usually don't see, because we don't go to physical stores."
		Improving value propositions with content	"Now we invite our top members to create content. For example, one of them does a weekly analysis of the week's big races with a jockey."
		Expertise	"We iterate with them. They say, 'No, that button of yours is shitty,' so we adapt. This creates a lot of value because, first of all, it's fast, it doesn't cost anything and customers know what they want; they have the experience of using the app."
		Relational	"The customers' demands are coupled with an ability to express themselves, to say bad things about online brands. With social networks they can influence many more people than before."
Revenue	*Products and services sales*	n/a	"Partnering with influencers has a strong positive impact: up to 15% more traffic on the [website] and the recruitment of several thousand new members. In the end, there is a 3–5% increase in bets on every [soccer and basketball] game that influencers comment on."
Costs	*Costs of production*	n/a	"Delegating after-sales service to the community makes it possible to meet growing demands without exploding budgets. Since we don't pay the members, the communities have a very low direct human cost for us. In addition, we must also admit that some of our customers are sometimes more expert than us."

Codes appearing in italics in Figure 3 are the result of our categorization emerging from the data.

Table IV: FDJ's and PMU's Digital Channels for Interacting with Online Communities (netnography 15.03.2019)

	Social networks	Mobile apps	Websites
FDJ	5 official Facebook pages 2 official Twitter accounts 3 official Instagram accounts 2 official LinkedIn accounts	3 mobile apps ("FDJ," "*Parions sport en ligne*" ("Sportsbet Online") and "*En point de vente*" ("Sales Point"))	2 websites (FDJ and *Groupe FDJ*)
PMU	3 official Facebook pages 4 official Twitter accounts 3 official Instagram accounts 1 official LinkedIn accounts	4 mobile apps ("*hippique*" ("Horseracing"), "MyPmu," "Sport," and "Poker")	2 websites ("PMU" and *Communauté PMU*)

on the market. Thus, traditional gambling companies, as FDJ and PMU, have been forced to rethink their relationships with their customers:

> *Managing customer relationships is totally new for us. Once, we were alone for years, due to our monopoly—but now customers are fickle because of the broad offer available in the market. Consequently, we have to change to seduce and retain them. (Pierre, Customer Experience Manager, FDJ)*

In this context, FDJ and PMU use information and communication technologies to align with their customers' expectations and develop interactions with OCs. New technologies become essential resources, for they are crucial means for cultivating and optimizing customer relationships. Through digitization, firms adapt to users' consumption habits and can easily interact with them during their everyday lives. Consequently, relationships with customers are no longer limited to the act of buying, and instead extend over a longer period:

> *Teams first process all feedback collected via Facebook and Twitter. We realized that these channels generate new requests, which are different from basic after-sales service or the previous "classic" seller-buyer relationship. For example, members often request information about the release of new products and games. We have to deal with these requests if we don't want unsatisfied customers.* (Guy, Communication and customer coordination director, PMU)

To fulfill the market's expectations over time, companies resort to information and communication technologies. These enable firms to develop digital channels to interact with customers, gathered in OCs (Table IV).

The use of OCs enables firms to reach out to a wider audience of customers aggregated in defined online spaces. Moreover, the shift toward OCs enables them to go beyond mere customer relationship management, and refocus their core activities around this new type of stakeholder.

3.1.2. Refocusing activities toward online communities

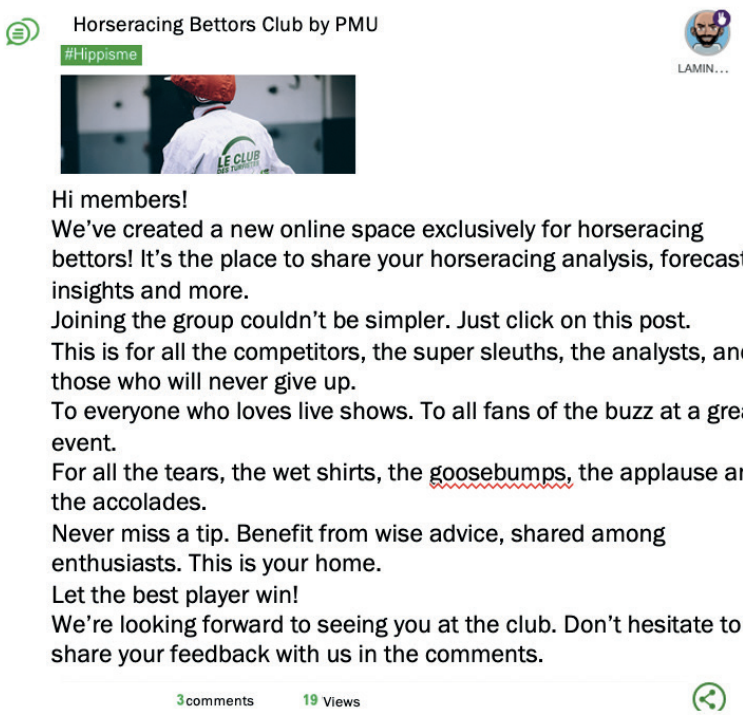
In addition to their adaptation to information and communication technologies, companies from the gambling industry restructured their activities to organize interactions with OCs. To that end, some of the firms' functions were redefined to put customers' feedback center stage in both strategic and operational decisions. For example, at PMU, the information systems and marketing departments merged to form a new division dedicated to "online customer management" (Justine, Digital Marketing Project Manager, PMU). This service is in charge of matching customers' expectations with products and services. A "digital transformation manager" at FDJ explains the reasoning further:

It did not seem possible that our small "Digital Service" could absorb the whole Marketing Department, but this is what has been happening. There are so many things now, such as social networks, mobile apps, etc. Information circulates very quickly and "digital" became more important than marketing, because digital channels give voice to customers. (Anne, digital transformation manager, FDJ)

Companies from the gambling industry also reengineered their processes for collecting and using feedback from customers. Core departments' scopes of action have been redefined, for new processes require more collaboration within the firm. For instance, PMU redesigned its channels of interaction with OCs (e.g., by creating social network accounts) to "split up old territories and foster collaborative work between the innovation, marketing, and sales departments," as explained by Vincent, a community manager. At FDJ, product managers must collaborate with community managers to "be exposed to communities' feedback," since such a "connection with customers" constitutes "a key source of information to align products with [their] expectations" (Jean, Chief Experience Officer, FDJ). In keeping with these evolutionary steps, teams dedicated to customer relationships have been redesigned to focus on managing OCs:

Former customer relationship advisors were retrained and became social media managers. They aim at identifying the main contributors and developing relationships with what we call "Top Members," of the OC, who are our most committed customers. (Benoit, Social Media Manager, PMU)

Figure 4: Screenshot of a message posted by a PMU employee on PMU's official OC (netnography, PMU, 02.11.19)



Beyond merely participating, firms also seek to actively embrace the opportunity OCs provide. As Figure 4 shows, PMU created its own official OC, and directly called for members' participation.

Here, PMU aims at actively soliciting information, depending on its own needs. Companies thus make significant efforts to refocus their activities toward OCs in order to foster members' participation and seize the opportunities they provide.

3.1.3. Fostering participation in OCs

Fostering members' participation in OCs can help companies to improve their value proposition. Offering customers new avenues for direct interactions, both with the firm (Figure 5) and with their peers, enhances customer experience.

By developing their own OCs to interact with customers, FDJ and PMU foster social ties that expand the value proposition beyond lottery and online betting. PMU's management team considers that "the main goal of the [online] community" is to reproduce, online, "the convivial and electric atmosphere of the racetrack, occurring just before the start of the race" (Arthur, Community Manager, PMU). The network of interactions created is a source of value for both OCs' members—allowing them to exchange information—and firms—granting them access to content produced by members.

> *Communities are powerful channels to create value for customers because we enable people who share the same passion to meet and gather in the same delineated online space. For example, within the community there is a group of collectors who have indexed, analyzed, exchanged, and collected our games*

Figure 5: Screenshot from an exchange between FDJ and a bettor on Twitter (netnography, FDJ, 22.11.19)

Figure 6: Interview with a PMU community "Top Member" (i.e. expert member) (netnography, PMU, 09.10.17)

"Carte blanche": one last word for the community?
To be honest with readers, at the end of my Masters I almost did an internship at Paris-Turf group to become a horseracing journalist. In the end, the job was too insecure, so I decided to pursue a career in banking (I'm now a client advisor in a major bank). However, thanks to PMU's online community, I can live my passion to the full! It's amazing for me, a young bettor, to find myself being elevated to the same height of expertise as a famous horseracing journalist! It's a breath of fresh air outside of work!
The community brings us so much friendship, collaboration and support. Long live the community, and thanks to those who created it and manage it!
To view all "Tips & Co" videos, follow this link: http://bit.ly/2InQTNq

for years! It's impressive because they are so committed to the brand, demonstrating that we created a sustainable relationship with these customers. (Agnès, Customer Knowledge Manager, FDJ)

Members produce new content, feeding the community with information on shared interests. For example, thanks to peer-to-peer interactions before and/or after playing games and betting, OCs' members help each other by sharing forecasts or tips related to after-sales service (Figure 6).

FDJ and PMU act upon interactions in the OCs to foster members' participation over time. The information generated creates value for members, encouraging them to engage more in the community. PMU's community managers use "gamification" as a "a carrot for encouraging participation in the community" and easily identify "expert members, who become new important partners" (Arthur, Community Manager, PMU). These incentives lead to the growth of the community, and at the same time encourage members to interact and exchange information:

We designed funny badges appearing near members' names as rewards for their expertise. We aim at "ranking" and honoring them. This enables us to spot the best contributors, but also identifies them to other members, who would seek their advice. We would like Top members to act as mentors for newbies, giving explanations, tips, and tricks. They are very influential in the community. (Benoit, Social Media Manager, PMU)

Thanks to this first execution mechanism aiming at "nurturing participation," FDJ and PMU develop interactions inside the community and foster members' engagement. OCs thus enhance relationships between firms and their (potential) customers, giving them access to a wider range of resources and competences.

3.2. Reaping resources and competences from online communities

Building on their relationships with OCs, gambling companies improve their performance by (1) integrating resources and competences held by OCs' members, (2) improving and creating activities, and (3) enhancing the profit equation.

3.2.1. Identifying resources and competences held by OCs' members

Through their relationships with OCs, gambling companies identify members' resources and competences from which they wish to benefit. Our analysis reveals that FDJ and PMU acquire three informational

Figure 7: Screenshot of a Sportsbet Online forum concerning FDJ (netnography, FDJ, 02.10.2019)

resources and two competences from online communities.

The first informational resource tapped into by FDJ and PMU concerns the quality of existing value propositions and issues encountered by customers. To formulate relevant feedback, OCs' members generate ideas, offer advice, and evaluate businesses (Figure 7).

This feedback enhances the firms' knowledge of customers through a better understanding of their needs and expectations. With the help of members' ideas, companies can improve and develop their value propositions. For example, PMU, after failing to redesign its website, relied mainly on customer feedback to restructure it:

> *We redesigned the website, and then we didn't talk to the customer, and the traffic dropped. Then we decided to completely change our strategy: when we did the new redesign of the site, it was in a hyper-iterative way, with constant customer feedback, thanks to the community. (Guy, Communication and customer coordination director, PMU)*

Second, interactions with OCs allow companies to collect information on players' habits and behavior. This includes players' stories, and the collection of personal data. Tools such as loyalty programs allow firms to automate information collection. These resources contribute to the personalization of the gambling experience, and therefore help to improve it.

> *We now have a better understanding of our customers. Being more aware of their habits, we can make targeted and personalized offers to them, based on their profile, which is much more relevant and much appreciated. (Camille Desgigot, product manager in charge of MyPmu loyalty card, Lesechos.fr, 23.06.2015 press article 12, PMU)*

Third, gambling companies can collect customer-generated content from OCs. Members produce original informational content for their peers as a way to share their knowledge and opinions, and this resource enriches community interactions. This content can be autonomously posted or solicited directly by the firm. For example, PMU relies on its Top Members to share their bets and comment on sports events.

> *We don't force anything, we just make proposals, and then there are people who get caught up in the game because it's their passion and therefore make their own bets. For example, on the Tour de France, we have a Top Member who is passionate about cycling and analyzes each stage. It allows him to share his passion and it gives us exclusive qualitative content—it's a win-win situation for him and the brand. (Benoit, Social Media Manager, PMU)*

Beyond informational resources, FDJ and PMU also tap into competences possessed by OC members. First, members have the ability to convey the relevant information, whether to the firm or their fellow OC members. Through their playing habits and experiences, members of OCs have developed expertise in companies' products and

services, enabling them to select the most suitable information to convey. Exchanges between operational teams and customers thus take place on an "expert-to-expert" level (Benoit, Social Media Manager, PMU), that gambling operators benefit from in two ways. On the one hand, members' expertise is crucial in adjusting the firms' offer to customer expectations. Customers are irreplaceable interlocutors whose expertise cannot be developed internally, due to a ban on employees playing themselves. On the other hand, this expertise is also important for interactions between members. The most expert members guide novices in the discovery of products and services and help them to play. In the PMU community, for example, Top Members (recognizable by a star next to their screen name) frequently respond to dissatisfied customers and try to solve their problems without the company's intervention:

> *We should not hide it: we are very happy, and we encourage Top Members to take new players by the hand and answer their questions online. On certain subjects, we only intervene in 10% of the cases—everything else is settled between members! (Arthur, Community Manager, PMU)*

Second, members of OCs can act upon their informational resources to influence other members, as well as potential customers outside the community. Thus, their second skill is their ability to persuade others, both inside the OC and outside it. Companies can leverage this skill to access new OCs and expand the pool of players. For example, FDJ showcases its e-sport competitions by having them commented by popular influencers such as Ken Bogard, who has more than 66,300 subscribers on YouTube and more than 52,600 Twitter followers (notes, netnography, FDJ, 22.11.19). PMU also works with influencers to boost sports betting and rejuvenate declining offers such as basketball and soccer bets.

> *The role of influential customers has become more important with digital technology, and some even make a professional living out of it. That's why we're trying to attract influencers on Twitter who are bringing their own followers who become members of our community. We've done that for soccer with Philou Sports and for basketball with First Team, two young people who have their own YouTube channels. Thanks to this strategy we have gained thousands of members. (Benoit, Social Media Manager, PMU)*

To collect more of these informational resources and competences, firms need the members of OCs to spend more time online, and the time, that customers spend interacting with gambling operators, has increased thanks to OCs. Through new technology, companies and customers are continuously connected through numerous online spaces such as websites, social networks, and ad hoc communities.

> *Once you create an online customer community, some members will spend a lot of time on it—easily up to three or four hours a day. During this time, they help each other, share their passion, etc. They also consolidate the social bond of the communities, which would not be possible without this personal commitment. (Benoit, Social Media Manager, PMU)*

Through gambling operators' interactions with OCs, customers become contributors of resources and competences. New information and communication technologies thus allow firms to collect and leverage informational resources and competences accessible through these online spaces.

3.2.2. Improving and creating activities

By leveraging the resources and competences collected through interactions with OCs, gambling companies can improve their operations. The management and animation of online communities are naturally

the first to benefit from the involvement of members. Their feedback shapes the evolution of all aspects related to the community management, such as interactions, topics of exchange and moderation rules.

When we exchanged with them [Top Members], they told us, "It's very good to have a community of tips and mutual help, but we need more to enhance our relationship. We need to get things moving: we want to directly exchange with the brand, we want to discuss forecasts, our ways of playing, and on the bargains of the moment." The message was clear, [so] we decided to adapt the community to what they wanted, and we keep listening to them to construct the best online community possible. (Arthur, community manager, PMU)

Core marketing activities directly benefit from the improvement of interactions with OCs in two ways. First, the company deepens its knowledge of its customer portfolio (e.g. interests, consumption habits); second, it broadens this knowledge through the retention of previously unknown one-time players.

For a long time, we had no way of contacting one-time bettors because we didn't have much information about them. So now, for example, we've set up a more comprehensive registration system on Facebook. Thanks to this, we have increased the traceability of customers, by obtaining an email address and sometimes even a phone number. (Arthur, Community Manager, PMU)

Thanks to the information produced by OC members, and a better understanding of demand, operators improve the conception of products and services.

The goal is indeed to improve, thanks to the knowledge that we can develop of the uses and needs of our players, the value proposition by tackling the right issues, solving irritants, meeting needs […] We are adapting by developing some expertise that was rather weak historically, notably the whole area of customer knowledge. It is thanks to the feedback from players that we have developed several value propositions, particularly online, to offer games that are better adapted to what customers want. (Anne, digital transformation manager, FDJ)

While FDJ focused on improving existing activities, PMU went one step further by developing new activities too, thanks to the resources and competences collected from OCs. With the creation of an *ad hoc* community dedicated to sports betting, the operator is working closely with players to build new activities. For example, as a result of the collaboration between a PMU employee, a professional jockey, and ThibaudLst, a Top Member, the "Tips & Co" section offers detailed forecasts on horse races (notes, netnography, PMU, 5.11.19).

Overall, integrating members of OCs allows operators to strengthen their existing activities and develop new ones. Reorienting their business models toward OCs has enabled both FDJ and PMU to ultimately increase their economic performance.

3.2.3. Enhancing performance with OC-centric BM

The development of new information and communication technologies represents an opportunity for the gambling sector. PMU already achieves 10% of its turnover (approximately 1 billion euros) online (Guy, Communication and customer coordination director, PMU); for FDJ, this proportion was 15% in October 2018 (Press release, economie.gouv, 18.10.2019—Press article 8, FDJ). Leveraging the resources and competences collected through interactions with OCs enables gambling companies to increase their margins by both increasing sales and reducing costs.

By redesigning their business models around OCs, gambling operators increase their sales, and thus their revenues. Firstly,

involving customers in the design of products and services leads to value propositions that are more in line with their expectations.

> *We listen to our customers, [and] what they tell us has been observed to make a difference. It wasn't natural at first, but now we always try to integrate their suggestions. (Benoit, Social Media Manager, PMU)*

Secondly, members' sense of belonging to the communities "secures the customer portfolio" (Arthur, Community Manager, PMU), but also helps to extend it. The way experienced members bring life to OCs helps to drive more interactions and directly influences sales volumes:

> *The use of influencers has a strong positive impact: up to 15% traffic increase on the website and the recruitment of several thousand new members. In the end, there is a 3–5% increase in bets on each [soccer] match that influencers comment on. (Benoit, Social Media Manager, PMU)*

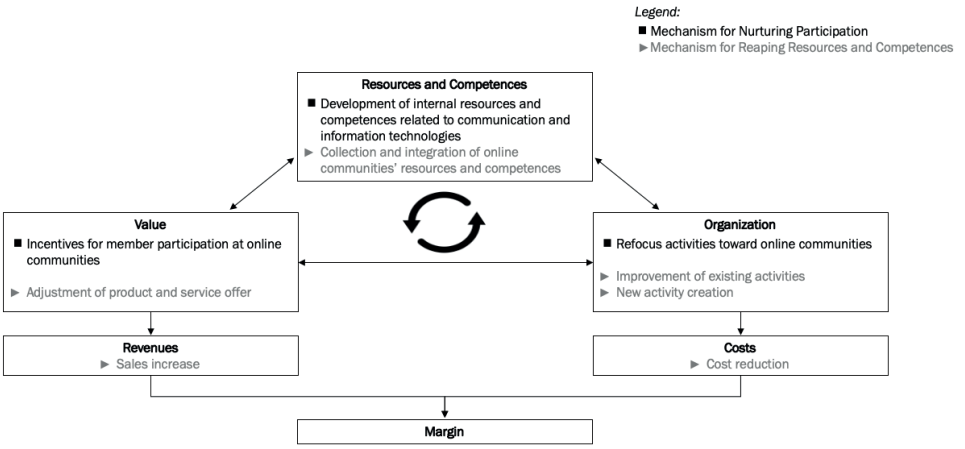
In addition, the participation of OC members allows firms to reduce costs, in two ways. First, a better match between offers and customer expectations avoids costly business failures. FDJ's "Illiko Live" lottery game, which combined a physical scratch card with a digital experience accessed via a QR code scanned with a smartphone, had to be abandoned after 18 months of development:

> *The promise was to bring digital back into customers' experience […] So we did engage in this innovation at great expense and full speed, without talking to our communities. The result: a huge failure! People didn't understand and appreciate the game. It was a disaster! (Jean, Chief Experience Officer, FDJ)*

Second, OC members spontaneously substitute themselves for operators to carry out certain activities. For example, PMU has reduced its after-sales service because it is now largely provided by its ad hoc community:

> *Delegating after-sales service to the community allows us to meet growing demands without pushing our financial limits. Since we don't pay members, the communities have a very low direct human cost for us. In addition, we have to admit that some of our customers are sometimes more expert than us. (Guy, Communication and customer coordination director, PMU)*

Figure 8: Execution Mechanisms For Redesigning Business Model Around Online Communities



The identification of these two mechanisms shows how gambling companies cultivate the participation of OC members to strengthen their revenues and reduce costs, improving overall performance. Figure 8 illustrates these two execution mechanisms.

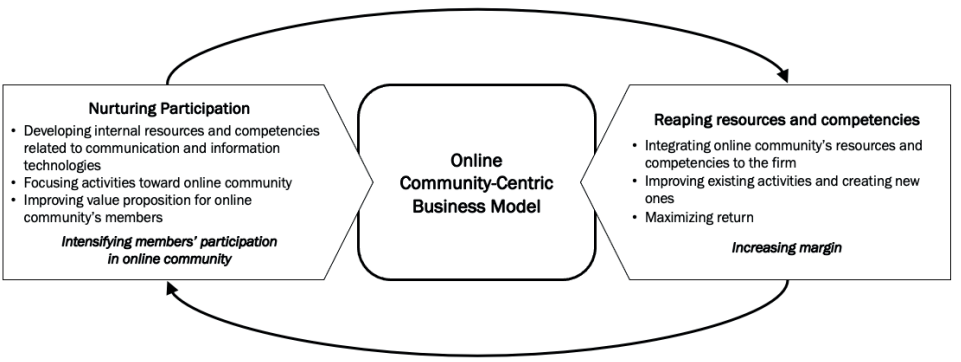
4. DISCUSSION

We began this research by emphasizing the need to consider OCs as an important stakeholder for business model design. Our case study of the French gambling industry highlights the central position of customers and their participation in business models (Baird & Raghu, 2015; Demil *et al.*, 2015). First, we reveal two execution mechanisms that allow a company to redesign its business model around OCs and integrate them into their activities (Plé *et al.*, 2010). Second, our research sheds some light on the resources and competences that firms can channel from OCs. Third, these mechanisms deepen the understanding of complementarities in business models (Amit & Zott, 2001), fostering value creation and capture related to OCs (Barrett *et al.*, 2016; Mein Goh *et al.*, 2016).

This study's first contribution is that it fills the lack of knowledge regarding how firms design OC-centric business models, integrating OCs into their activities (Faraj *et al.*, 2016; Plé *et al.*, 2010). Our study reveals how companies from the gambling industry redesign their business model around OCs thanks to two execution mechanisms (Figure 9). The first one aims at "nurturing participation"—i.e., encouraging members of OCs to participate and thus produce informational resources, as well as competences. To adapt to OCs and collect useful information, firms develop their resource portfolios and competences as they relate to new information and communication technologies. Resorting to such technologies, in turn, triggers the redesign of activities, structures, and processes. This improves the value created for OC members, and thus intensifies their participation. The second mechanism aims at "reaping resources and competences"—i.e., leveraging OCs to improve existing activities or create new ones. Thanks to the OCs' contribution, firms capture more value by increasing revenues and reducing costs.

Firms from the gambling industry renewed their resources and competences for redesigning their business model (e.g. Garreau *et al.*, 2015) around online communities. Firms consider OCs as new, fully-fledged

Figure 9: Execution mechanisms for designing OC-centric business model



stakeholders (Fisher, 2019) and structure interactions with them to channel resources and competences (Barrett *et al.*, 2016). Our study shows how, by adopting information and communication technologies, firms get closer to the demand-side (Bharadwaj *et al.*, 2013). Firms' adjustment of resources and competences is crucial to aligning with their customers' needs and priorities (Setia *et al.*, 2013).

In line with the systemic nature of business models (Hedman & Kalling, 2003), the two execution mechanisms reinforce one another and form a virtuous feedback loop (Casadesus-Masanell & Ricart, 2010). Firms encourage members to participate in OCs and collaborate with them. Through members' participation, companies gather information to refine their understanding of demand (Chau & Xu, 2012) and adjust their value propositions (Lepak *et al.*, 2007) to match their offers with customers' expectations. Having improved their value propositions, firms create more value for members, which encourages their participation and ultimately enhances their engagement toward the firms.

Our paper's second contribution is to develop a better understanding of how OCs' resources and competences are channeled by firms. Thanks to information and communication technologies, customers can now gather in autonomous online spaces, which are potentially out of companies' reach (Faraj & Johnson, 2011). We highlight that in order to cope with this new phenomenon, companies establish privileged interactions with OCs to better understand customer expectations and reduce the uncertainty of their environment (Vitari & Raguseo, 2016). Our research deepens knowledge on customer participation (Plé, 2016) by revealing that customers' aggregation in OCs constitutes a pool of resources and competences that companies can collect and leverage for value creation and capture. While it is well established that resources can be owned by external stakeholders (Plé *et al.*, 2010), our results show that this is also the case for certain competences that are held by OC members (e.g., expertise and power of influence).

We identified three informational resources produced by online communities. First, thanks to new interactions inside these online spaces, firms have easier access to members' feedback on value propositions. Our analysis sheds light upon information produced by OCs (Dong & Wu, 2015). Firms collect ideas, opinions, and feedback from members, and can also use them to directly request members' inputs. In response, customers share their ideas and feedback on existing offers, as well making proposals for new value propositions (Dong & Wu, 2015; Helfat & Raubitschek, 2018). Then, firms can collect more information on (potential) customers' behavior (e.g., personal data), as a result of the proliferating touchpoints with members available inside OCs. With our research, we refine how firms can access behavioral resources to better understand market demands. We distinguish personal data produced by members, from their shared experience. Thanks to these resources, firms can improve their knowledge of customers' behavior and consumption habits (Vitari & Raguseo, 2016). Finally, OC members create online content, both with the firm and sometimes on its behalf. This member-generated content enriches value propositions and creates more value for members, thus benefiting firms. This content resource complements firm's value propositions and generate value for customers, both within the OC and outside it (Faraj *et al.*, 2016; Wiertz & De Ruyter, 2007).

Beside resources, we identified competences held by members inside OCs. Because members are engaged in the OC, they are experts on the interests they share

Table V: Taxonomy of resources and competences collected in OCs

	Resources and competences	Description
Informational resources	Market knowledge	Members provide the firm with feedback on both existing and new offers
	Information on members' behavior	Firms can develop a better understanding of customers' behavior, especially through automated data collection
	Online content	Members produce online content fostering firms' value propositions
Competences	Expertise	OCs enhance word of mouth among customers. While this can be threat to the firm's reputation, it can also be leveraged into an opportunity to attract new customers
	Influence on (potential) customers	Being interconnected through digital means of communication, members can influence members and (potential) customers inside or outside the OC
Required resource	Time for interactions	The time available for interactions within the OC is extended

with their peers. Based on this expertise, customers are able to produce valuable informational resources. This level of expertise can range from highly experienced users, such as Top Members, to absolute novices. Members' creativity and experience of offerings enable each one to provide resources that are consistent with their own uses and expectations. Because customers are familiar with firms' value propositions, they can propose relevant ideas and thus bring valuable resources to firms. Users can be categorized according to their level of expertise in order to target their participation, as in the case of lead users (Hienerth *et al.*, 2014; Von Hippel, 1986). Members can also exert a powerful influence on both existing and potential customers, inside and outside the OC. Within OCs, customers are interconnected on a large scale (Yi & Gong, 2013). This allows each member to influence their peers, or even other individuals outside the OC. This competence can be leveraged by firms to expand their pool of customers.

Lastly, for these resources and competences to be collected, firms need to give members the means to produce a required resource: extended time spent interacting with the organization through the OC. We highlight that information and communication technologies transform interactions with the demand-side, taking them far beyond the mere act of buying a product or a service. These interactions even take place with non-consumers inside the OC (Eiglier & Langeard, 1987; Plé, 2016; Plé *et al.*, 2010). Consequently, members spend more time in the OC, whether or not they are customers. This time spent is a prerequisite to collecting the resources and competences mentioned above. We thus propose a categorization of the resources and competences brought to firms by OCs (Table V).

To ensure the sustainability of their business models centered around OCs, gambling companies must ensure the participation of members over time. To this end, companies have two levers. Firstly, they control the structure of OCs (e.g. use of social networks or ad hoc communities), and thus the interactions that take place inside these spaces (Dong & Wu, 2015).

Second, firms directly influence the socialization mechanisms within OCs that are a source of value for members (Faraj *et al.*, 2015). They act on members' motivations by encouraging them to participate (Jeppesen & Frederiksen, 2006; Mo *et al.*, 2018). Firms' intervention in the construction and life of the community helps to reinforce value creation and encourages members to maintain their participation over time. The sponsor firm disseminates content, proposes forms of privileged interaction with members, and recognizes their expertise (Jeppesen & Frederiksen, 2006; Wiertz & De Ruyter, 2007). They achieve this using tools such as gamification (Huang *et al.*, 2018).

The third contribution of our study pertains "complementarities" as value drivers of business models (Amit & Zott, 2001). We demonstrate how our two execution mechanisms allow new complementarities with OCs to develop. Previous work mainly focused on complementarities among products and services (Amit & Zott, 2001)—e.g. online and offline offers (Liu *et al.*, 2014)—or combinations of activities between partner firms to increase their performance (e.g. Ceccagnoli *et al.*, 2012). Drawing on our empirical findings, we highlight new complementarities in terms of resources and competences between companies and OCs. Firms from the gambling industry "nurture participation" in OCs in order to "reap" members' resources and competences, which they then combine with their own to achieve value creation and capture. For instance, PMU relied on customers' horseracing expertise to create new forecasting services. Such new practices show that complementarities do not only take place between firms, but also with customers, and that such complementarities foster value creation and capture for firms.

Furthermore, we argue that multiple-business model organizations (Snihur & Tarzijan, 2018) that design an OC-centric business model also develop new complementarities across their business models. Our study contributes to a better understanding of the dynamics of what previous research has termed "business model portfolios" (Sabatier *et al.*, 2010) or "configurations" (Aversa *et al.*, 2015). While business model portfolios enable companies to address complementary customer segments (Aversa *et al.*, 2020), we consider that our execution mechanisms could foster synergies between business models. First, as OCs constitute a specific customer segment (Fisher, 2019; Sproull *et al.*, 2007), developing an OC-centric business model would enable firms to properly address it, as our empirical study demonstrates. Then, execution mechanisms generate numerous interactions, fostering strong ties between firms and customers who belong to the community. Such relationships give companies opportunities to experiment and develop new business models—two activities that both require high commitment from external stakeholders, especially customers (Bojovic *et al.*, 2018; Snihur & Wiklund, 2019).

Along these lines, companies can identify new customer segments and their needs by "nurturing participation" in OCs. For example, PMU collected information to help it develop new services for novice horseracing bettors (e.g., proposing events and tips from engaged members to help them along as they place their first bets). New offers of this type can help to set up customer complementarities and synergies between business models (Aversa *et al.*, 2020), because the value propositions can attract new customers who might not belong to the OC. Moreover, as resources and competences are acknowledged as vectors of synergies between business models (Aversa *et al.*, 2017), "reaping resources and

competences" from OCs can enable companies to use them for multiple business models in their portfolio. In the previous example, PMU drew on Top Members' capabilities to design its new products for novice customers (e.g. suggesting training, tips, and tricks to initiate newbies to betting during events). Hence, our study affords new insights into a key question posed in the literature: how business models shape companies' products and services (Rietveld, 2018).

Finally, our work underlines the importance of both informational resources and the contribution of external stakeholders for the redesign of business models. The study of the gambling industry in France shows that through "nurturing participation" of customers and "reaping their resources and competences," managers can detect transformations in the environment—especially changes from the demand-side—and adjust the company's offers and activities accordingly. In other words, the execution mechanisms we reveal support a "fine-tuning process" that drives business model evolution (Demil & Lecocq, 2010, p. 227). This is in line with what Demil and Lecocq (2010) call "dynamic consistency." The highlighted execution mechanisms show that firms can leverage resources and competences possessed by OC members into value creation and capture. Consequently, our study highlights companies' dependence on these exogenous inputs, which firms cannot control by contractual means or mergers and acquisitions (Pfeffer & Salancik, 1978). This raises the question how non-owned resources and competences can be controlled. To address it, firms in the French gambling industry have incentivized members' participation in OCs, in order to safeguard the supply of the resources and competences they need (Hienerth *et al.*, 2011; Plé *et al.*, 2010).

CONCLUSION

The execution mechanisms we reveal suggest guidelines for organizations seeking to address OCs as new stakeholders to benefit from members' participation. Developing customers' engagement through OCs enables firms to collect new resources and competences. This enhances their performance by better aligning their offers with customers' needs (Ogawa & Piller, 2006; Priem *et al.*, 2018; Thomke & Von Hippel, 2002). Consequently, we suggest that methods and workshops aimed at designing value propositions (e.g. Osterwalder *et al.*, 2014) should not focus exclusively on commercialized products and services, but also integrate incentives fostering customers' participation inside OCs.

In addition to our taxonomy of customers' resources and competences, we argue that the traditional approach to "customer relationships" should be revised. New digital interactions, such as managing OCs, should be considered as sources of value, for they enable companies to collect members' inputs (OHern & Rindfleisch, 2015). Our study makes a compelling argument for the evolution of the role played by customers in digital strategy processes (e.g. Blaschke *et al.*, 2019). In this perspective, customers are no longer the preserve of the marketing department, but instead become a crucial stakeholder for other functions of the firm, such as information systems or legal departments. Using information and communication technologies, firms should redesign their activities to increase interactions with customers and foster their participation.

While customers' participation in the firm's activities through OCs is a vector of value (e.g. Parmentier & Gandia, 2013), it also can be a double-edged sword. Our study highlights the risk of dependence on customers' resources and competences.

Securing competences, particularly over time, appears as a crucial challenge for firms, because OCs constitute a more informal form of organizing (Huang *et al.*, 2018; Majchrzak & Malhotra, 2013), i.e. multiple individuals gathering spontaneously. In addition, firms' perpetual alignment with customers' expectations feeds the myth of "customer sovereignty" (Korczynski & Ott, 2004). Crowning customers as sovereigns could generate deviant behaviors and situations that companies would have to manage (Rouquet & Suquet, 2020). For example, perpetrators can direct "griefing" behaviors at other members, their victims (Chesney *et al.*, 2009). Dealing with such deviant behaviors in OCs appears even more important and challenging, for members can influence each other, while the firm itself has little control (Goh *et al.*, 2013). Thus, OCs also hold the potential for profound impacts on firms' online reputation, which could ultimately hinder their performance (Goh *et al.*, 2013; Plé & Lecocq, 2015).

Consequently, firms develop means to tackle this threat, so they can continue to draw on OC participation effectively. First, they embrace the need for suitable new practices of control, such as moderation (Chen *et al.*, 2011) or firm recognition (Jeppesen & Frederiksen, 2006). Second, firms seek to draw a boundary between their own responsibilities and those that are handed over to the community. Firms define the extent of their expertise, identifying areas that cannot be delegated to customers. Thus, customer competences are not the only criterion taken into account when entrusting them with tasks that require the firm's know-how.

Our study suggests several avenues for future research. Through the lens of business models, our work sheds light on how firms adapt to changes brought about by customers' use of information and communication technologies. To deepen our understanding of the manner in which firms adapt, we encourage further research to focus on specific determinants of firms' digitization. Specifically, we believe that further studies should investigate the strategic alignment of firms' information systems (Goodhue & Thompson, 1995) when they turn to OCs. Our findings shed light on additional external factors, beyond competition (Henderson & Venkatraman, 1993), that firms must take into account when adapting their information systems—e.g. expectations from the demand-side. Walsh *et al.*'s (2013) model focusing on practices would be relevant for better understanding how organizations revise their IS while redesigning their business model around OCs and customers.

Previous work highlights the hurdles that companies face when implementing user-centric business models, such as resistance and inertia from employees (Hienerth *et al.*, 2011). Although our data attest to similar phenomena (e.g. tensions between departments), the scope of our study did not allow us to address them. However, our observations do illustrate the collective struggle required to abstract from existing modes of operation (e.g. processes, practices) in order to adopt new ones. Previous studies draw attention to the tensions inherent in the coexistence of multiple business models (e.g. Snihur & Tarzijan, 2018), as well as the role of dominant logic exercised by a pre-existing business model at either the firm level (Laszczuk & Mayer, 2020) or the industry level (Sabatier *et al.*, 2012). Therefore, in future research, we suggest exploring the obstacles represented by a pre-existing business model to the redesign of business models around OCs. Consequently, an interesting avenue for future research lies in how firms can develop a management system for their business model portfolio to overcome such difficulties (Aversa *et al.*, 2017).

Finally, our research highlights how firms can create and capture value through business models oriented around OCs. We show that, with new information and communication technologies, customer participation can be a growth driver for firms (Dong & Wu, 2015; Hienerth *et al.*, 2014). The spread of these strategies throws the distribution of value among firms and customers into question (Bauer *et al.*, 2016). Future research should shed light on the nature of value captured by the demand-side when its resources and competences become a key driver for firms' competitive advantage.

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