

Editorial

Open Innovation, Value Creation and Value Capture : An Introduction

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To be successful in open innovation, firms need to craft an effective strategy for both value creation and value capture. However, these two aspects are difficult to combine, and there are important tensions that deserve closer examination. The aim of this special section is to offer original perspectives on key conceptual and empirical research questions related to how open innovation can help organizations to create and capture value, the extent to which there might be a tension between value creation and value capture in open innovation strategies, and how this tension can be effectively dealt with.

1. Background

Much has been written about open innovation since the seminal works of Chesbrough (2003) and Laursen and Salter (2006) (see, e.g., West et al., 2014). However, scholars have mainly focused on value creation and have largely neglected value capture. Innovation, defined as “invention + commercialization” requires both. Moreover, the ability to capture value clearly influences the incentives and effectiveness of value creation. Indeed, understanding both value-in-exchange and value-in-use is essential for a comprehensive understanding of the value created by open innovation (Chesbrough et al., 2018).

The costs and benefits of open innovation

To date, open innovation has been seen, at least implicitly, as exclusively positive for both organizations and society at large. However, although Chesbrough’s work openly and honestly discusses the costs of open innovation, these costs have largely escaped systematic analysis to date, with a few exceptions (Laursen and Salter, 2014; Zobel et al., 2016; 2017; Veer et al., 2017). Examples of these costs deal with knowledge leakage (Alvarez and Barney, 2001) through formal and informal mechanisms (Reuer and Arino, 2006; Colombo and Piva, 2019); value capture without patents (Holgersson and Granstrand, 2021); or co-opetition (Brandenburger and Nalebuff, 2021). The importance of this issue is perhaps best captured by the “no patent, no talk” policy that flourishes in organizations, as emphasized by Alexy et al. (2009). And Helfat and Quinn (2006) also opened up a discussion on this issue by recognizing that open innovation entails the disclosure of key firm-specific internal innovation

resources/activities which may thwart the firm's potential for value capture. The importance of the costs of open innovation becomes even more important when the decision to adopt an open innovation strategy is difficult to reverse. The tension is also epitomized by Arrow's (1962) disclosure problem which stresses that the value of technology decreases in the face of information leakage.

The tension between value creation and value capture is particularly important for small firms and start-ups. These firms generally find it more difficult to protect their proprietary knowledge than larger, incumbent firms, as highlighted in the literature on "swimming with sharks" (e.g., Diestre and Rajagopalan, 2012). Accordingly, the costs associated with the risks of knowledge misappropriation and the related importance of legal and social protection, feature prominently in studies on corporate venture capital and are a key determinant of start-ups' choice of an investor (Katila et al., 2008; Dushnitsky and Shaver, 2009; Hallen et al., 2014; Colombo and Shafi, 2016; Kim et al., 2019).

Open innovation and digital transformation

Another important and timely question is how digitization affects value creation and value capture through open innovation. There is evidence of online crowdsourcing contests (Boudreau and Lakhani, 2009, 2013; Jeppesen and Lakhani, 2010; Boudreau et al., 2011). While these papers mainly address issues related to value creation, there is little research on value capture from crowdsourcing efforts. Exceptions include the work of Afuah and Tucci (2013) and Franke et al. (2014). This question may also be fundamentally related to the firm's ability to effectively manage crowdsourcing campaigns and recruit/incentivize suitable individuals to interact, how to sort and pick among incoming solutions to technological challenges and how partner selection in such a setting may affect the tension between value creation and value capture.

Another aspect is how data analytics can drive or impede innovation. Data from inside and outside an organization can be an invaluable source of innovation. However, organizations need to know how to leverage these resources. Wu et al. (2019), for instance, show that data analytics technology accelerates innovation, but that organizations with decentralized, open organizational structures and decentralized, open innovation processes are better able to benefit from data analytics capabilities. Work has been published on the interplay between digital technologies and open innovation (see e.g., Urbinati et al., 2020). However, organizations still know far too little about how digitization and open innovation are related to each other and may be missing out on innovation potential as a result. Moreover, to benefit from digitization, organizations need to invest in co-inventions such as new management practices and human capital, which entail more information sharing within and between organizations (Brynjolfsson and McElheran, 2016). Despite initial evidence, the relationships between digitization, data-driven decision making and open innovation are still not well understood.

Organizing for open innovation

A general theme that has remained relatively under-researched is how firms engaging in open innovation should optimally organize themselves to manage the tension between value creation and value appropriation. Research in the open innovation stream has highlighted the merits of substantial delegation of authority over innovation decisions, combined with extensive and effective communication within the firm (e.g., Jansen et al., 2005; Foss et al., 2011; Colombo et al., 2013; Foss et al. 2013; Arora et al., 2014). However, the boundary conditions which may influence how firms organize themselves to better create and appropriate knowledge in an open innovation context, have been largely neglected. Accordingly, Colombo et al. (2021, p. 104134-5) argue that “substantial delegation of decision

authority allows employees to leverage their personal information and social links to identify sources of relevant external knowledge and to insource this knowledge. This “one size fits all” approach neglects the possibility that important contingencies may influence which organizational design is best suited to support the firm’s innovation strategy.” They show that the type of knowledge (scientific vs. practical) that firms seek to absorb from the external environment influences the “optimal” organization, with the absorption of scientific (practical) knowledge leading firms to adopt a more decentralized (centralized) organization. There may be other aspects of firms’ organizational design that deserve closer investigation (e.g., the specialization of “gatekeepers”, see e.g., Cavallo et al., 2023), and many other important contingencies related to industry and firm-specific characteristics, like the dynamism of the knowledge environment and the ability of firms’ personnel to screen external knowledge.

Organization- and industry-specific characteristics

The existing literature on open innovation has focused primarily on large for-profit companies operating in high to medium technology industries, although there are some exceptions.¹ However, other types of organizations can also benefit from open innovation, such as small firms and start-ups, firms in traditional industries (e.g., luxury or creative industries), universities, hospitals, government research institutes, non-profit organizations, etc. Even individuals, such as scientists, may benefit from open innovation (Beck et al., 2022). Unfortunately, we have very limited understanding of how these organizations and individuals cope with the challenges of value capture in open innovation processes.

Methodology: Mechanisms and causality

¹ Most of these exceptions relate to the open innovation strategies of small firms (e.g., Lee et al., 2010; Radziwon and Bogers, 2019; Barrett et al., 2021).

Another important aspect about which we still know too little relates to the mechanisms that underpin the relationship between value creation and value capture in open innovation. To the best of our knowledge, the causality of these relationships remains an under-researched issue. In other words, are more open organizations more successful, or is the causality reversed, i.e., more successful organizations can afford to be more open?

Analysing these mechanisms requires data on goals, motives, innovation, and appropriation strategies, and support from the use of innovative data collection and data analysis techniques (web scraping, text/video analysis techniques). Data on knowledge flows between organizations can substantially contribute to this analysis. Patent citations are probably the most popular indicator of such flows, although studies have pointed to significant measurement errors in citation-based metrics (Alcácer & Gittelman, 2006; Criscuolo & Verspagen, 2008; Roach & Cohen 2013; Corsino et al., 2019), which may result in biased estimates of the relationship between patent citations as a measure of inbound open innovation and value capture. By matching survey-based data with patent citation data, Roach & Cohen (2013) found that firms' backward patent citations as a measure of knowledge flows from public research have systematic measurement errors while non-patent references (journals and conference papers) are more reliable for this purpose. The significance of measurement errors in patent citations as a measure of knowledge inflows varies with the type of value capture strategy. Matching patent data with survey data, Corsino et al. (2013) found that, compared to used patents (i.e., patents whose value is captured by their use in a product, service, or process, or by sale, licence, or a new firm), unused patents filed to preempt others' similar inventions (i.e., patents whose value is captured by strategic non-use) are less likely to include citations to prior art, even if such prior art was a relevant source of innovation, which reveals a significant error of omission. Moreover, "strategically non-used"

patents draw on a narrow set of external sources of knowledge (competitors) compared with used patents. This suggests that value capture strategies aimed at aggressively preventing knowledge spillovers may reduce the width of explorative search and sourcing, which may yield negative effects on a firm's future innovative performance (Katila & Ahuja, 2002). However, the causality could also run in the other direction, i.e., the width of explorative search and sourcing determines value capture strategies.

Investigating causal relationships, however, requires well-designed identification strategies, which leverage long panel data sets and/or experimental data. The objective difficulty of collecting these data (e.g., designing a well-crafted field experiment investigating the link between open innovation and firm performance) explains our lack of knowledge in this domain.

2. The articles in this special section

The articles in this special section take a step forward in answering (some of) the research questions outlined in the previous section. They also open up interesting new avenues for future research on value creation and value capture in open innovation.

Laursen and Salter (2023) provide a critical overview of what they consider to be the most important and significant open innovation topics that have been researched since the publication of Chesbrough's (2003) seminal book on the topic. They specifically address three streams of literature: (1) external search strategy and open innovation, (2) absorptive capacity and open innovation, and (3) appropriation and open innovation. They provide a brief overview of the main questions addressed and the key findings before focusing on what remains unresolved under each of the three topics. While the paper is neither an exhaustive overview nor a formal meta-analysis of the contributions on open innovation, it does provide an insight into how open innovation studies have shifted focus over the past two decades and

how different areas of open innovation research have evolved. It also indicates that most studies on open innovation are at the firm level but that a few important papers offer aspects at the individual level (see, e.g., Ter Wall, et al., 2017), contributing to the micro-foundations of open innovation.

Laursen and Salter also offer a list of five areas where they believe more work needs to be done to move open innovation research forward: (1) the establishment of a single standardized, robust, and valid measure of open innovation, (2) greater awareness of the role of organizational design in understanding open innovation and its outcomes (see, e.g., Colombo et al. 2021), (3) more attention to studies that allow causal inference to link open innovation more narrowly to firm outcomes and firm performance, (4) exploring a deeper understanding of the matching of partners and specifically the matching process that takes place in the context of open innovation (see Mindruta, 2013), and (5) more attention to the indirect costs (see, e.g., Felin & Zenger, 2020) of open innovation and the role they play in shaping either the adoption of open innovation strategies by firms or the link between open innovation and performance.

Finally, Laursen and Salter offer their perspectives on the future of open innovation research and specifically suggest good practice considerations for quantitative research in open innovation studies. The aim is to foster a research behavior among open innovation scholars which would raise the bar of their work and allow more open innovation studies to be published in the top outlets. They provide a checklist of seven common mistakes in open innovation research projects. For each common mistake, they offer some advice on good practice and questions to ask before starting the project which will allow researchers to avoid making the seven mistakes. This advice is based on Laursen and Salter's many years of experience as open innovation scholars and as editors at Research Policy.

Sanchez-Cartas (2023) investigates the open innovation strategies of digital platforms. These platforms are an especially interesting context for studying open innovation and the interplay between value creation and value capture. They create a business environment in which independent developers can, more or less freely, offer users products or services that are complementary to the platform's infrastructure. Digital platforms differ in the degree of "openness", i.e., the extent to which they impose restrictions on developers and users in accessing the platform's infrastructure (Chen et al., 2022).

Recently, platform sponsors like Amazon, Google and Meta, have increasingly adopted an open innovation strategy for the provision of new services based on "appropriating the innovations created on their platforms (by independent developers) through acquisitions or imitation" (Sanchez-Cartas, 2023). Of course, to the extent that these practices allow platform sponsors to capture (a greater share of) the value created by independent developers, they are detrimental to the interests of the latter and reduce social welfare, which raises serious concerns among policy makers. Nevertheless, the opportunity to acquire developers and (more or less closely) imitate their innovations changes the incentives of platform sponsors with respect to the degree of "openness" of their platforms, which in turn influences innovation, competition and social welfare in non-obvious ways.

Sanchez-Cartas's work builds on (a simplified version of) the model developed by Parker and Van Alstyne (2018) and compares a monopolistic platform's acquisition and imitation strategies with the status quo, represented by a situation in which the platform sets the degree of openness for independent developers of complementary services and shares with them the revenues generated by their services.

The model shows that the platform always benefits from acquiring developers, but this strategy reduces openness and social welfare. This result confirms the concerns about

the risk of vertical foreclosure created by high concentration in digital platform markets, with negative implications for the introduction of innovation by independent (new) ventures (e.g., Motta, 2023). It also parallels the concerns about the acquisition of new ventures representing (potential or actual) competitors, by dominant platform firms (and other large incumbents) that have been highlighted by the so-called “killer acquisition” literature (e.g., Cunningham et al., 2021; Brutti and Rojas, 2022; Ivaldi et al., 2023).

Conversely, a platform’s imitation of developers’ services tends to increase the level of openness. It may also increase independent developers’ profits, depending on the level of differentiation between the platform’s services and the developers’ services and the resulting degree of competition. If the level of competition is not too high, the platform’s imitation strategy can create a win-win situation, where value creation and value appropriation coexist to the benefit of the entire digital ecosystem and, ultimately, users.

The paper by Corsino and Torrisi (2023) considers open innovation in science (OIS) (Beck et al., 2022) from the perspective of universities. It addresses the question of how universities protect (and exploit) knowledge when engaging in innovation collaboration with firms. The literature has focused on the antecedents, contingencies, and consequences of OIS practices along the process of knowledge creation, transfer, and innovation. For example, this literature has examined the boundary conditions that facilitate or hamper the success of university-industry collaboration, such as the physical, social, organizational, and technological proximity between partners (Johnston, 2022). Corsino and Torrisi’s paper focuses on the allocation of IP rights to academic inventions resulting from university-industry collaborations, a topic that has received rather limited attention in OIS studies, even though universities engaging in OIS are increasingly concerned about the risk of rent expropriation and sometimes aggressively assert their intellectual property (IP) rights (Eisenberg & Cook-

Deegan, 2018; Lemley, 2008). Corsino and Torrissi's paper builds on the mixed results reported by previous studies on the relationship between university-industry collaboration and the allocation of IP rights (Crespi et al., 2010; Lawson, 2013; Schoen & Buenstorf, 2013) and adopts a contingency approach to examine the moderating role of the motivations of academic researchers to engage in inventive projects, a factor not considered in earlier work. The reason for including this contingency is twofold. First, scientists' motivations influence their orientation towards science commercialization (D'Este & Perkmann, 2011; Lam, 2011; Owen-Smith & Powell, 2001). Second, academic inventors are key actors in initiating university-industry collaboration and identifying potential licensees (Thursby & Thursby, 2004). Moreover, their direct engagement in licensing negotiations increases the likelihood of commercialization success (Agrawal, 2006; Wu et al., 2015). Corsino and Torrissi's paper analyses the influence of academic inventors' motivations on the relationship between university-industry collaboration and the allocation of patent rights. It also investigates the role of academic inventors in the licensing of university-owned patents resulting from collaboration with industry partners. The empirical analysis draws on data on research projects leading to patented inventions conducted by scientists affiliated to universities in countries with the institutional ownership regime. They find that the motivations of academic inventors are positively correlated with the ownership and commercialization of academic patents. These motivations also positively moderate the negative relationship between university-industry collaboration and university ownership, which is explained by the greater research freedom allowed by university ownership, a particularly valuable incentive for academic inventors. Moreover, academic inventors' motivations are positively correlated with the licensing of university-owned patents resulting from university-industry collaboration.

Open innovation is not confined to the domain of science and high-tech industries. Two articles in this special section consider traditional industries, and how open innovation practices impact firm success. Di Giacinto et al. (2023) analyse the productivity advantages of Italian firms located within industrial districts and their dynamics over the macro-economic cycle. Industrial districts (Becattini et al., 2009) provide an interesting materialization of the open innovation model in traditional industries, effectively balancing the tension between value creation and value capture. As regards value creation, firms in industrial districts benefit from knowledge-related Marshallian agglomeration economies (Baptista and Swan, 1996; Boix and Galletto, 2009). In their innovation activities, they leverage the localized knowledge spillovers generated by the agglomeration in a limited geographical area of many firms operating in the same industry or in industries along the same value chains (e.g., shoes and shoe production equipment). Geographical agglomeration also favors effective localized social control, which discourages opportunism and reduces transaction costs (Dei Ottati, 1994). In this way, social control alleviates the risks of knowledge misappropriation inherent in the open innovation model, which are magnified in industrial districts by the co-localization of many firms with a high absorptive capacity because of their common industry specialization.

The work of Di Giacinto et al. shows that the advantages of industrial district firms are resilient to economic downturns (with the caveat illustrated below). They were magnified in the period following the double dip recession of 2008-2012, which was characterized by the rise of global value chains and the associated pressure on industrial district firms to innovate their traditional business model (Lorenzen and Mudambi, 2013; Turkina and Van Assche, 2018). This effect is especially strong for medium-sized and large firms.

An interesting piece of evidence highlighted by Di Giacinto et al. (2023) relates to small firms. They find that these firms are the ones that benefit most from the value creation and value appropriation advantages offered by the industrial district open innovation model, as reflected in their productivity advantage compared to similar small firms located in other areas. However, for small firms, the effectiveness of this model, and the associated productivity advantage, appear to have been considerably reduced during the downturn. A possible explanation is that the social sanctions that protect small firms from the risks of knowledge misappropriation, are less effective during a crisis, as the higher risk of failure makes firms more inclined to adopt aggressive short-term competitive strategies to the detriment of long-term collaboration.

Finally, Butticiè et al. (2023) examine new ventures created by designer-entrepreneurs in the high-end fashion industries. What makes creative industries peculiar is that “value creation depends on symbolic value propositions that involve the acceptance and socialization of the product by customers and gatekeepers” (Butticiè et al., 2023). Accordingly, it is fundamental for new ventures to form ties with external parties and involve them in developing their product offer. The paper investigates the strategies that designer-entrepreneurs adopt to create these ties and the contribution that these ties make to facilitating the development of their ventures’ symbolic value proposition. The paper relies on a qualitative methodology based on case studies of nine Italian high-end fashion entrepreneurial ventures. It uses self-collected data from direct observation and interviews with key informants (e.g., ventures’ designer-entrepreneurs).

The authors argue that the new ventures’ symbolic value proposition includes two components: product conspicuousness and product narrative. The first element means that designer-entrepreneurs usually make one of their products the focus of intensive creative

research, with the aim of developing an iconic and original (i.e., not seen elsewhere) product. The second element relates to the message and image that the ventures' product offering conveys to consumers, creating an identity that consumers immediately recognize and value as unique.

The central idea of the paper is that the development of the symbolic value proposition needs the direct involvement of external parties. Network ties to manufacturers, suppliers, tailors, and pattern makers, are essential to access the specialized artisanship that makes ventures' products "conspicuous". The feedback from these actors is also a source of new creative ideas. But network ties are also fundamental to building product narratives. The paper provides nice examples of how new ventures can benefit from "identity spillovers", by joining forces with established firms with strong brands and famous retailers. Extra-industry ties (e.g., with media production companies) may serve the same purpose. In building and nurturing these ties, appropriability concerns play a minor role, because of the mutual trust and even the affinity and affection that the parties develop over time. This is true although product development is project-organized and there is great uncertainty about market reaction to a new product offer. Consequently, new ventures need to preserve flexibility in network tie formation, as "each experiment with product value also entails an experiment with the network ties creating this value" (Butticè et al., 2023).

The authors identify three strategies new ventures adopt to build new ties. First, designer-entrepreneurs can leverage extant ties, such as those with acquaintances and friends of friends. They can also use product exposure, by actively participating in the many fairs and shows that characterize this industry. More interestingly, designer-entrepreneurs may adopt an entrepreneur's exposure strategy based on freelancing. In this way, they can learn about different audiences and markets, and can broadcast their style and identity, by

leveraging the traditional audience of the established fashion brand for which they work as freelancers.

3. Conclusion

The articles in this special section advance our knowledge about open innovation, by investigating the tension between value creation and value appropriation in different settings to which scholars have paid limited attention. In particular, they consider digital platforms and the interplay between the innovation strategies of platforms and those of independent service providers; open innovation in science and the strategies universities adopt to protect (and exploit) knowledge when engaging in innovation collaboration with firms; and open innovation in traditional industries, like high-end fashion industries and industries that represent the core of Italian industrial districts. The article by Laursen and Salter (2023) also sets an interesting research agenda for future work. In this way, we hope that the special section will contribute to enlarging the boundaries of the open innovation debate and inspire new work in this field.

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