

VALUE CAPTURE IN OPEN INNOVATION SYSTEMS: A LONGITUDINAL ANALYSIS OF RADICAL CIRCLES

Abstract

Despite the wealth of research on open innovation, the mechanisms through which value can be captured from open and collaborative innovation activities remain largely underexplored. In this paper we address this issue by unearthing the anatomy of value capture processes in open innovation systems. With this aim, we conduct a detailed qualitative and longitudinal case analysis of the collaborative value capture processes in which three radical circles (i.e. Slow Food, Memphis, and Free Software Foundation) have been involved during their life-cycle. The discussion of our case studies suggests that firms collaborating with these three radical circles captured value by leveraging on specific assets: reputational, organizational, intellectual and human, and technological assets. Drawing on these insights, the paper offers several contributions for open innovation research and suggests interesting avenues for future inquiry into this topic.

Keywords: radical circle; value capture; open innovation; longitudinal case study

1. INTRODUCTION

Over the last decade open innovation has attracted increased attention from both scholars and practitioners (Bogers et al. 2017; Chesbrough 2003; Randhawa, Wilden, and Hohberger 2016). Extant research on open innovation has almost exclusively focused on collaborative value creation processes (Boudreau and Lakhani 2009; Von Hippel 2005; West and Bogers 2014), and provided evidence that firms can create value along the innovation process by interacting with external actors in an open way. Furthermore, recent research has extensively studied the mechanisms underlying the engagement of large communities of solvers to foster innovation and reduce R&D costs (e.g. Hienerth and Lettl 2011). These studies build on a common premise, i.e. the largest the number of ideas, perspectives, and innovation inputs, the highest the opportunity to generate value through innovation (Laursen and Salter 2006; Salter et al. 2015).

However, as value creation and value capture processes in innovation are closely intertwined, and are both key ingredients of a successful collaboration for innovation (Bowman and Ambrosini 2000; Lepak et al. 2007), more research is needed on the mechanisms through which value can be captured from open innovation activities. Understanding these mechanisms may reveal why some firms enthusiastically engage in open innovation processes seeing huge value creation potential in this practice, but fail to capture value from these collaborations. By way of example, Juicero, the \$270 million juice machine firm, has failed to develop technological assets beyond its machine squeezing contents out of bags. As a result, the firm has failed to gain profits from its open innovation collaborations and never recovered from its financial setback. Similar fate has happened to Doppler Labs, which has not developed reputational assets that could lead its open wireless Here One earbuds to compete with Apple's AirPods and Google's Pixel Buds. Moreover, scholars have recently begun to call into question

the assumption that large numbers of ideas have positive impact on innovation and have highlighted the complexities linked with capturing value from them (Birkinshaw 2017).

To address these gaps, the aim of the present paper is to unearth the anatomy of collaborative value capture processes in open innovation systems where firms interact with radical circles. Following research on collaborative circles (Farrell 2001), we define a radical circle as “a small group of individuals who connect voluntarily and tightly collaborate outside the formal organizational schemes (i.e. a *circle*), to develop an unauthorized (forbidden) radically-new interpretation (i.e. a *radical circle*)” (Verganti 2009; Verganti and Shani 2016).

Along their life-cycle, radical circles often enter collaborative innovation processes with several firms through which the radically new visions created by the radical circles are embedded in new products, services, and business models. This open innovation process is a value capture process that allows both the radical circle and the firms with which it collaborates to capture value from the innovative visions and concepts created in the earlier stages of the life-cycle of the radical circle. In this paper, we aim to provide a detailed qualitative and longitudinal analysis of the anatomy of this collaborative value capture process, by focusing on the open innovation systems in which three paradigmatic examples of radical circles (i.e. Slow Food, Memphis, and Free Software Foundation) have been involved during their life-cycle.

The paper is organized as follows. Section 2 reviews extant open innovation research, focusing on value creation and value capture processes. Section 3 introduces radical circles as actors increasingly involved in open innovation systems. Section 4 and 5 provide a detailed account of the longitudinal case study analysis of the three radical circles. In doing so, we provide an overview of their birth and evolution and describe the collaborative innovation processes they have activated along their life cycle. Section 6 presents the value capture mechanisms that have been unearthed from our case studies. Finally, section 7 concludes the

paper by discussing theoretical and managerial implications and suggesting avenues for future inquiry into this topic.

2. VALUE CREATION AND VALUE CAPTURE IN OPEN INNOVATION PROCESSES

Over the last decade, open innovation has attracted increased attention from both scholars and practitioners (Bogers et al. 2017; Chesbrough 2003; Randhawa, Wilden, and Hohberger 2016; West and Bogers 2014). Prior literature reviews show an exceptional interest into the antecedents, anatomy and consequences of open innovation processes (Huizingh 2011; Randhawa, Wilden, and Hohberger 2016; West and Bogers 2017). Two key aspects of these processes deserve particular attention, i.e. value creation and value capture mechanisms (Chesbrough and Appleyard 2007). Value creation mechanisms are those underlying the creation of new knowledge along an open innovation process (Chesbrough and Appleyard 2007). Value capture mechanisms, instead, attain to the distribution and exploitation of the knowledge created (Chesbrough and Rosenbloom 2002), thereby resulting in complementary nexus to value creation mechanisms.

Prior research has traditionally focused on value creation and has offered astounding insights into how firms can create value along the innovation process by interacting with outside actors in an open way (Balca et al. 2014; West and Bogers 2014). Notwithstanding the valuable contributions of these studies, our understanding of open innovation processes remains limited. In particular, prior research has neglected the importance of value capture process in open innovation (West and Bogers 2014). Notably, some scholars advocate that a comprehensive understanding of open innovation requires a balanced consideration of both value creation and value capture (Chesbrough and Appleyard 2007). To unearth the anatomy of value capture processes in open innovation systems, this paper distills what has been written on value creation and value capture in open innovation research hereafter.

2.1 Value creation

Open innovation research has traditionally examined how firms create value through the establishment of open collaborative initiatives (Chesbrough 2003). Collaborative initiatives, such as alliances, cooperation, and joint ventures, are indeed powerful tools for value creation, particularly when they are originated within open innovation networks, ecosystems or platforms (e.g. Amit and Zott 2012). Moreover, firms do create value by interacting with other external actors of the innovation processes (West and Bogers 2014). In this section, we review the literature that has analyzed collaborative value creation processes between firms and the following external actors of the innovation process: 1) creative individuals; 2) innovation communities; 3) public research organizations such as universities; 4) clients; 5) suppliers; 6) competitors; and 7) firms from other industries.

A first set of studies has widely acknowledged that creative individuals, such as users, play a significant value-creating role along an open innovation process (Bosch-Sijtsema and Bosch 2015; von Hippel 2005). Users directly contribute ideas and content that ameliorate the quality and variety of firms' products (Chesbrough and Appleyard 2007; Salter et al. 2015), enhances efficiency and effectiveness of innovation activities (Alexy et al. 2013) and activate beneficial network effects (Arthur 1994).

A second set of studies has recognized that collaborative communities are important sources of value creation for firm's open innovation processes (Balka et al. 2014; Boudreau and Lakhani 2009). Collaborative communities are informal social networks in which individuals exchange their knowledge, innovative thoughts and artifacts about a mutual topic or field of interest (Hienerth and Lettl 2011). The classic example is Linux Foundation, which involves a wide variety of software developers interested in contributing to the development of the open-source software. Open innovation research shows that several ideas and designs developed by

collaborative communities are commercially attractive and can be easily integrated in the open innovation process (Jensen et al. 2014).

A third set of studies has recognized the importance of interacting with public research organizations such as universities (Sherwood and Covin 2008). Open innovation literature argues that universities are particularly valuable for assessing technological knowledge and innovation activities (Gesing et al. 2015; Laursen and Salter 2004) as they help firms to improve their ideas along the innovation process (Tsinopoulos et al. 2017).

A fourth set of studies has scrutinized the interactions between firms and their clients. Clients are a rich source of value creation in the open innovation process (Lauritzen 2017). They contribute to co-create value, especially as early adopters of new products (Fratini et al. 2014). Moreover, clients play many influential roles in the dissemination of innovations (Widén 2017).

Fifth, the interaction with suppliers has also been pointed out as an important source of value creation for open innovation processes (Aylen 2010). The interaction with suppliers usually improves the firm's innovation performance, particularly in the absence of industry-level knowledge (Bodas Freitas and Fontana 2017).

Sixth, the literature has found that collaborations between firms and their competitors (i.e. cooperation) are a valuable source of value creation for open innovation processes (Ritala and Hurmelinna-Laukkanen 2009). These collaborations are unequivocally advantageous in the launch phase of radical and incremental innovation (Bounken et al. 2017), particularly in markets with high levels of uncertainty and complexity (Gnyawali and Park 2011).

Last but not least, literature has pointed to the importance of cross-industry innovation (Enkel and Bader 2016) as value creation source for open innovation processes (Bogers et al. 2017). Open innovation research suggests that firms from different sectors provide well-tested

technologies and novel ideas that can enhance product development processes (Gassmann and Zeschky 2008).

From the above discussion we can conclude that the well-established research on open innovation value creation processes points to the importance of firms' interactions with several key external actors of the innovation process (creative individuals, innovation communities, universities, clients, suppliers, competitors, and firms from other industries) to create value in an open way.

2.2 Value capture

The proliferating research on open innovation has focused almost exclusively on the value creation effects of collaborative processes, and it has failed to account for the importance of value capture mechanisms so far (West and Bogers 2014). Scholars have acknowledged that firms can collaborate for innovation with multiple actors in various open ways (Chesbrough 2003), but only recently have they considered how firms can capture the gains that are created along these open innovation processes. How can firms capture value in open innovation processes?

The innovation literature has traditionally identified several mechanisms that allow firms to capture value from their innovation efforts (Teece 1986). However, recent research on open innovation has shown that some control mechanisms are not applicable to open innovation processes. In parallel, research has found that some others, such as patents, trademarks or copyright protection, although applicable to open innovation processes, are not the most profitable ways to capture value when innovation processes become open (Teece 2010).

As a net result, our understanding of how firms can capture value in open innovation processes still remains limited (West and Bogers 2014). Indeed, open innovation literature has

barely explored in-depth how firms capture value in open innovation processes (Huizingh 2011).

In this section, we review the embryonic research on collaborative value capture processes and point out that this research has suggested that two mechanisms (internal assets and competencies, business models and platforms) may allow firms to capture value from their collaborative innovation processes.

The first mechanism suggested by current research relates to firms' ability to arrange, cultivate, and combine their internal assets and competencies enabling value capture in open collaborative innovation processes (Appleyard and Chesbrough 2017; Dollinger 1995). According to the Resource-Based Theory (Dollinger 1995) six types of assets might enable firms to capture value in an open way: 1) *physical assets*, such as the tangible property uses in production and administration including the organization's plant and equipment, its location, and the amenities available at that location; 2) *reputational assets*, such as the perceptions of the organization held by people in its environment; 3) *organizational assets*, such as the organization's structure, routines, history, and formal reporting, information-generation and decision-making, and its formal or informal planning systems; 4) *financial assets*, such as the organization's borrowing capacity, its ability to raise new equity, and the amount of cash generated by internal operations; 5) *intellectual and human assets*, such as knowledge, training, vision, values, beliefs and experience of the individual members of the organization; and 6) *technological assets*, such as labs, research and development facilities, licenses, and patents. However, to our knowledge, research has failed to explore how and why firms can leverage on these assets to capture value from their open collaborative innovation processes. Similarly, Appleyard and Chesbrough (2017) have suggested that two types of competencies might enable firms to capture value in an open way: 1) *technology prowess competency*, conceived as the firm's ability to apply its knowledge stock to open innovation initiatives (Appleyard et al.

2008), and 2) *organizational support competency*, defined as the firm's ability to develop organizational support for the open innovation initiative (Herzog 2011). Beyond these definitions, scant research has investigated how and why these competencies enable firms to capture value from their open collaborative innovation processes.

The other mechanism analysed by extant research refers to the design and the implementation of new business models (Massa et al. 2017) and the creation of platforms (Boudreau 2010). Some studies emphasized that business models are necessary tools for capturing value from open innovation (Chesbrough 2007; Teece 2010). Teece (2010), for instance, shows that without a well-designed and implemented business model, innovators fail to capture value from open innovation efforts. Thus, in order to capture value from open innovation, firms might develop and implement business models that yield value propositions that captivate customers and accomplish favorable cost and risk structures. Another essential element of capturing value through business models regards the architecture of revenues. Indeed, several scholars argue that the design and the implementation of feasible architectures for revenues might be critical for value capture (Chesbrough and Rosenbloom 2002; Foss and Saebi 2017; Teece 2010). Some other studies, that have scrutinized open innovation value capture processes, point to the importance of the creation of platforms. Platforms are stable nexus connecting the technical development of interchangeable, complementary products of firms' innovation process (Boudreau 2010). Such innovative knots, which can be categorized along various dimensions (e.g. Gawer and Cusumano 2014; Visnjic et al. 2016), might be ideal mechanisms for capturing value in an open way. Accordingly, recent research shows that open platforms can be used as vehicles to optimize levels of involvement and creative effort in multiple interactions with high-performing creative individuals (Hofstetter et al. 2017). Thus, a major question that jumps out from this insight is how to capture value through open platforms in a strategic fashion. In this vein, Cennamo and Santalo (2013) have empirically

addressed this issue in U.S. video game industry and found that firms miss the target when they execute with equal intensity multiple strategies designed for enhancing growth in the platform ecosystems of applications and content.

From the above discussion we can draw the conclusion that the embryonic research on open innovation value capture processes suggests that two key mechanisms (internal assets and competencies, business models and platforms) may allow firms to capture value in an open way.

3. THE INVOLVEMENT OF RADICAL CIRCLES IN OPEN INNOVATION PROCESSES

When the willingness to change extends beyond finding new solutions to existing problems, but aspires to develop new visions, the innovation of meaning paradigm can provide precious insights (Verganti 2009 and 2017). Innovation of meaning entails discovering and implementing a different reason, a different why, which underlie the use of a new product, service or business model (Dell’Era and Verganti 2007 and 2011; Verganti 2009). In other words, this type of innovation concerns a novel vision that redefines the problems worth addressing and takes innovation to a higher level - not only a new “how” but especially a new “why” - proposing a new reason why people use things (Verganti 2017).

Research shows that innovation of meaning requires collaborating with external networks to expose firms to different views and perspectives (Brode et al. 2014; Dell’Era and Verganti 2010; Verganti and Dell’Era 2014). Rather than considering an innovation that improves an existing value parameter, innovation of meaning implies the redefinition of the value itself. In this case, innovation reframes the concept of a product, modifies “what is good and what is bad”, and increases the number of creative options, significantly challenging convergence in a new shared direction (Verganti 2017). Hence, an interest in exploring alternative routes, such

as the case when innovation comes from collaboration in small groups of individuals who think different from any larger community surrounding them. In the case of innovation of meaning external actors play a critical role of ‘interpreters’, belonging to either the world of cultural production (e.g. sociologists, anthropologists, or artists) or the world of technology (e.g. retailers, suppliers of technology, designers, or users).

Small group of radical individuals represent very powerful interpreters that firms increasingly involve in collaborative processes aimed at discovering new visions (Altuna et al. 2017; Verganti 2009; Verganti and Shani 2016). In contrast to innovation communities and inspired by earlier research on democratic dialogue (Gustavsen 1992) and collaborative circles (Farrell 2001), Verganti (2009) argues that behind many radically new visions is a radical circle: “a small group of individuals who connect voluntarily and tightly collaborate outside the formal organizational schemes (i.e. a “circle”), to develop an unauthorized (forbidden) radical vision (i.e. a “radical” circle)”. Tightly collaborating in such a closely knit primary group, outside formal organizational schemes or what is conventional, individuals facilitate and promote each other’s creativity and innovation, coevolving and emerging with a radical vision (Verganti 2017).

The founders of Impressionism (Frederic Bazille, Claude Monet, August Renoir and Alfred Sisley) are an inspiring example of radical circle. Between 1860 and 1870 the artistic discourse was dominated by the Académie des Beaux-Arts, a state-sponsored agency whose mission was to nurture the arts and judging what was good work, and what was not. And “what was good” in that moment was mostly classicism, with its mythological subjects. The Impressionists faced harsh opposition from the conventional art community in France. In this context, Monet, Renoir, Sisley and Bazille came to know each other as students in a studio in Paris, with an ambition to become painters. They shared a sense of alienation from the artistic establishment and liked to explore more realistic painting (Verganti 2017).

Some of the most intriguing decisions in history have derived from a heterodox interpretation and envisioning in a small group, with implications for value-creation and innovation (Verganti and Oberg 2013). Embracing activities in such a small group, the outcomes of integrated envisioning, ideation, and collaboration encourage the group to collectively devise a new vision that radically differs from the pre-existing one, with potential to reshape the interpretation of what is meaningful in an industry and its market (Altuna et al. 2017; Verganti and Shani 2016).

Existing research on radical circles emphasizes their role as external actors in helping firms create value by identifying radically new visions for products, services and business models (Altuna et al. 2017; Verganti 2009; Verganti and Shani 2016). Radical circles are interpreted as useful actors for activating collaborative value creation processes, but there has not been any attempt - to the best knowledge of the authors - to study the mechanisms through which firms can collaborate with radical circles to capture value from the radically new visions they help create, and embed them into new products, services and business models that are developed and sold on the market.

Understanding the mechanisms through which firms capture value from the collaboration with radical circles would be very important from a practical point of view and will contribute as well to existing open innovation research, which has largely overlooked value capture processes and their interconnection with value creation mechanisms. Addressing this topic would require to adopt a longitudinal perspective, to study how radical circles and their relationships with firms evolve over time and result in the creation of radically new visions and in capturing value from these visions by embedding them in new products and services. This is what this paper aims to do, by focusing on three radical circles, i.e. Slow Food, Memphis and Free Software Foundation.

4. METHODOLOGY

Given the aim of the paper and our conceptual starting points, we used an inductive, exploratory approach in our empirical analysis. This approach is recognized to be an appropriate method to build new theoretical interpretations to address existing problems (Lee, Mitchell, and Sablinski 1999). In particular, we adopted the approach for theory building suggested by Eisenhardt's (1989) as well as the guidelines proposed by Yin (2003) and Klein and Myers (1999). These studies helped us to explore and build theory from three longitudinal case studies (i.e., Slow Food, Memphis and Free Software Foundation). Case studies allow investigating complex phenomena, embedded in their context, to collect detailed and rich data and are longitudinal in nature (Easton 1998; Yin 2003). By drawing on these three longitudinal case studies, the paper aims to examine the collaborative processes through which three radical circles interacted with several firms to create and capture value from radical new visions embedded in products and services.

4.1 Theoretical sampling

The selection of the three cases relies on the basic principles of theoretical sampling (Mason 2002; Pettigrew 1990). A handful of important reasons have driven us to study Slow Food, Memphis and Free Software Foundation. First, Slow Food, Memphis and Free Software Foundation are paradigmatic examples of radical circles which have deeply influenced, through active involvement in collaborative innovation processes, the development of industries such as food (Slow Food), industrial design and furniture (Memphis), and software development (Free Software Foundation). This points to the existence of relevant value capture processes through which the visions created in these radical circles have been embedded in new product and services, which have shaped entire industries.

Second, we selected the three radical circles because of data access. In particular, three of the authors have had a long research collaboration with key informants involved in the activities of these radical circles, and this was a key factor to enable data access. The existence of significant amounts of information provides a unique opportunity to dig deeper in the understanding of collaborative value capture mechanisms. The rich body of collected data allows us to use the three radical circles as embedded units of analysis. This, in turn, helps us to explore in-depth the collaborative value capture processes that Slow Food, Memphis and Free Software Foundation have activated over the years and that - in the first phase of the analysis where the unit was the radical circle - have emerged as more relevant to understand how the vision of the radical circle has been transferred to the market.

Third, the selection of the three cases relies on the combination of ongoing research activities and theoretical interest (Dubois and Gadde 2002; Siggelkow 2007). The innovation process in which the three radical circles have been involved is being studied as part of a broader research project aimed at studying the role that radical circles have in enabling the generation of radically new visions (Altuna et al. 2017; Dell’Era et al. forthcoming; Verganti 2009; Verganti and Shani 2016).

4.2 Data collection

The data collection process lasted about four years, from 2014 until 2017. The data collection methods relied on multiple sources in order to exploit the synergistic effects of triangulation (Eisenhardt 1989; Jick 1979), thus increasing the robustness of our analysis and overcoming the limits of separate sources (Yin 2003). In particular, primary data were initially used to build the case studies. Three of the authors have conducted a first wave of face-to-face interviews with several key informants of our cases studies. The interviews were conducted in the period from March 2014 to July 2014 and ranged between one and two hours. The interviews were tape recorded and transcribed. Interviewees were assured about the confidentiality and

anonymity of responses to encourage accurate disclosure of information. After, secondary data sources were used. In particular, web interviews, speeches, books and various web sources were diffusely analyzed in order to increase the robustness of the empirical results. Actually, the existence of significant amounts of secondary data helped us to explore in-depth the collaborative value capture processes that Slow Food, Memphis and Free Software Foundation have activated over the years. As a result, we used the three radical circles as embedded unit of analysis and we conducted a second wave of face-to-face interviews from February 2016 to March 2016 (see Table 1). This time the interviews have been mainly conducted with key informants of some of the organizations that, according to previous data collected, emerged as more relevant. This provided a unique opportunity to dig deeper in the understanding of collaborative value capture mechanisms.

[Insert Table 1 about here]

4.3 Data analysis

The data analysis, which was undertaken jointly by the authors, was based on a comparison of the three cases and our current understanding of open innovation value creation and value capture processes (Eisenhardt and Graebner 2007), plus a critical cross-case comparison (Miles and Huberman 1984). In order to analyze the rich body of collected data, the authors adopted an inductive and iterative process (Miles and Huberman 1984; Strauss and Corbin 1998), thereby building and refining theory from the case study data (Eisenhardt 1989).

5. THE BIRTH AND THE EVOLUTION OF THE RADICAL CIRCLES

This section provides a brief overview of the birth and evolution of the three radical circles on which this paper builds and describes the collaborative innovation processes they have entered with several of organizations over time.

5.1 Slow Food

Slow Food is a worldwide organization whose aim is to protect food biodiversity, build links between producers and consumers, and raise awareness of some of the most pressing topics that affect food system. Its history began in the 70s in a little town of Piedmont called Bra, from the vision of three young friends, Carlo Petrini, Azio Citi and Giovanni Rinaldi, who shared social, political and cultural ideals, and stands for the defense of the Slow Food. Since its beginnings, Slow Food has grown into a global movement involving millions of people in over 150 countries. On 10th December 1989 at the Theatre Opera Comique in Paris, Slow Food organized an event with 400 associates from 18 different countries and thirty simultaneous conferences all over the world. Over the years Slow Food has collaborated with a considerable number of public research organizations coming from a variety of different fields including intellectual, politic and artistic fields and has organized a huge number of international initiatives to raise the awareness of the movement. These initiatives range from community activities organized by local *convivia* to larger projects, campaigns and events coordinated by Slow Food national offices and international headquarters.

“Each of Slow Food members around the world are part of a convivium that brings the Slow Food philosophy to life through the events and activities they organize in their communities. Promoting farmers' markets or supporting local and international campaigns, passionate people from several fields come together and share the joys of a quality food” (Carlo Petrini, Founder of Slow Food).

In 2005, Carlo Petrini and the journalist Carlo Bogliotti wrote a book, titled “Good, clean and fair”, which became soon the concise slogan of Slow Food.

“With the concept of ‘good, clean and fair’ we have gathered several questions already discussed by others. For example, some associations are focused on the valorisation of ethical products and other realities on the sustainability, but nobody is able to consider every factor. We had the successful intuition to debate about a food for everybody that should not destroy the planet” (Alberto Arossa, Communication Officer at Slow Food).

In the following years established distribution leaders such as Coop and Barilla, but also new entrants such as Eataly and Grom, were significantly influenced by the new vision created and diffused by Slow Food.

5.2 Memphis

Memphis was a Milan-based group of young designers (Martine Bedin, Aldo Cibic, Michele De Lucchi, Nathalie Du Pasquier, Barbara Radice, George Sowden, Matteo Thun, and Marco Zanini) led by the experienced architect Ettore Sottsass, that initiated in 1980 the Postmodern design – in clear contrast to the Modern movement. Memphis believed in the need to subtract the function from the frame, recognizing its variability and complexity. Their proposal took the form of a new aesthetic closer to emotion and centred on the object itself, which became emotional and artistic before commercial and functional. In 1981, Memphis found interests in Ernesto Gismondi, President of Artemide, a leading Italian firm operating in the lighting industry.

“The inauguration, on September 1981, was wonderful, all the road in Corso Europa in Milan was full, even the police came, there were more than 2000 young people, who had stopped all traffic to see this phenomenon. My friends were reluctant about Memphis. They thought this new design was going to kill Artemide identity, but I knew what I was going to do.”(Ernesto Gismondi, President of Artemide).

In the same period some members of the group, such as Ettore Sottsass, Aldo Cibic, Matteo Thun, Marco Zanini and Marco Marabelli, established Sottsass Associates carrying out architecture, graphic design, and firm image projects for several customers all over the world, operating in different industries such as consumer electronics, publishing, furniture, lighting, and banking. Over the years Sottsass Associates organized a great number of shows for important museums in various countries and evidence of its success can be summarized in Cibic's words.

“Architecture was the most important part of the experience of Sottsass Associates in those years. Sottsass has been successful in attracting a lot of friends, who were thinking and feeling the same thing in the same time. And this was the enormous energy derived from Memphis. Memphis, after two years, was a word, present in the dictionary, in American slang” (Aldo Cibic, Member of Memphis).

After an intensive period of collaboration, Ettore Sottsass left the group in 1985, and the group dissolved in 1988. The members collaborated with several leading firms such as Alessi, Artemide, Olivetti and Swatch for the realization of new products, some of which continue to enjoy great success because they extended beyond mere performance of a function and redefined the meaning of the object itself.

5.3 Free software foundation

Free Software Foundation is a not-for-profit organization, founded in 1985 in California, with a worldwide mission to promote computer user freedom and to defend the rights of all free software users. Since its beginnings, Free Software foundation created an incredible amount of potential value for other organizations. The open source initiative launched by Free Software Foundation allowed the free distribution including source code for communities of users. The open initiative provided benefits for community of users as they can modify and redistribute the derived work under the same terms as the license of the original software. Moreover, communities of database distributors considered seriously the quality of open source and consequently they were stupefied about Linux performances.

In the period 1998-2000 Steven Ballmer, President of Microsoft, decided to issue some source codes after he read open source documents written by Free Software Foundation.

“Something was changing. The journals talked only about open source. I was really astonished. [...] I thought that Steven Ballmer was crazy to believe that even Microsoft read my open source papers” (Larry Augustin, Member of Free Software Foundation).

In 1997 a key member of the group, Eric Raymond, presented the essay “*The Cathedral and The Bazaar: Musings on Linux and Open Source by an Accidental*” at Linux Kongress. The essay, which was also published as part of the book in 1999 and became soon a precious source to drive firms in using an open source, acknowledges the free software as high-quality software. The software was indeed open and decentralized with external people solicitations.

“I agree with practical advantages of open source movement but I subscribe to the free movement because the freedom to collaborate with others should be most important for the quality of our life that having a powerful software” (Eric Raymond, Member of Free Software Foundation).

Several firms such as Red Hat or Netscape were significantly influenced by the essay.

6. CAPTURING VALUE IN COLLABORATIVE INNOVATION PROCESSES WITH RADICAL CIRCLES

As mentioned earlier, the rich body of collected data allowed us to use the three radical circles as embedded units of analysis. This, in turn, helped us to explore in-depth the collaborative value capture processes that Slow Food, Memphis and Free Software Foundation have activated over the years and that have emerged as more relevant to understand how the vision of the radical circle has been transferred to the market. More specifically, as regards Slow Food, we studied the collaboration with Coop for the Presidia project, and the collaboration with Barilla to draw up the Milan Protocol, which led to the development of the project Safety 4 Food. As regards Memphis, we examined the collaboration between Olivetti Synthesis and two members of the circle (Sottsass and De Lucchi), and the collaboration between the Swiss firm SMH Swatch and a former member of Memphis, Matteo Thun, who served as art director from 1990 to 1993. Finally, as regards Free Software Foundation, we analysed the collaboration with Red Hat (an innovative operative system developed in the nineties), and the Mozilla project (an initiative developed in collaboration with Eric Raymond, a supporter of the Open Source Initiative). We provide a description of the six collaborations in Table 2.

[Insert Table 2 about here]

The analysis of these collaborations is particularly useful for the purpose of the study because they are relevant examples of open innovative projects initiated by firms inspired by the new visions of the radical circles and willing to capture value from them. The analysis of these collaborations allowed us to explore the mechanisms through which firms collaborate with radical circles to capture value from the radically new visions they contribute to create, and embed them into new products, services and business models that are commercialized in the market.

By drawing on a comparison of the similarities and the differences among the cases and our current understanding of open innovation value creation and value capture processes (Eisenhardt and Graebner 2007; Miles and Huberman 1984), we found that the collaboration with radical circles was extremely beneficial for the firms involved in the open innovation processes. Indeed, we discovered that the collaboration with the radical circles enabled the firms to capture value through the development of their internal assets (Dollinger 1995).

6.1 Reputational assets

According to Dollinger's Resource-Based Theory (Dollinger, 1995) reputational assets are the perceptions of the organization held by people in its environment. In 1994, Red Hat was suffering from a lack of recognition compared to the more visible and popular Linux distributions such as Caldera, Slackware, SUSE, and Yggdrasil.

After interacting with Free Software Foundation, Linux' founder Bob Young has realized that the main concern was to impose order and control on the chaotic process by which improvements to Linux were developed and captured. The Linux' 800 different packages were compiled, maintained and updated independently by different teams of people. Thus, after interacting with some members of Free Software Foundation, Red Hat has figured out that a

key element for developing Red Hat's reputational assets was to attract people of the open-source environment and produce an open source code.

“Richard Stallman, Alan Cox, Donal Becker patiently explained me why source code and a license to modify it is so important” (Robert Young, founder of Red Hat).

In 1999 Red Hat has proposed an open software source code and binary accessible, editable and freely distributable. Red Hat has launched an operating system platform in which customers had the possibility to participate in software development and to take control over the software. Red Hat was selling users the possibility to solve their problems in the use of the software associated to the platform.

“We sold people the way to solve their problems... Customers are like your kids, they say they 'need' ice-cream, but that's what they want; what they really need is spinach. You need to understand the customers' needs better than they do” (Robert Young, founder of Red Hat).

Another key element was to guide the development of new software within the community and to become the catalyst in communities of customers, contributors, and partners creating better technology in an open source way. Finally, Red Hat has offered professional quality assurance. Indeed, in order to further improve the support service to offer to its clients, in 1999 Red Hat acquired Cygnus Solutions, specialized in providing commercial support for free software, co-founded by Michael Tiemann, a previous member of Free Software Foundation.

By leveraging on these reputational assets, Red Hat has captured value through the interaction with Free Software Foundation. Indeed, in 2000 Linux had captured 25 per cent of the server operating system market, and Red Hat held over 50 per cent of the global market for Linux systems.

6.2 Organizational assets

Organizational assets are an organization's structure, routines, history, and formal reporting, information-generation and decision-making, and its formal or informal planning systems. In 2000, Coop Italia was divided into two structures: a structure dedicated to purchasing and another dedicated to the products branded Coop, operating through two channels, supermarkets (stores with a size up to 3000 m²) and hypermarkets (stores larger than 3000 m²). The division into two channels, Super and Hyper, was due to the different types of consumption. The supermarket was regarded as a neighbourhood structure, offering fresh products for frequent shopping. The hypermarket was conceived as a structure for periodic refuelling shopping, pointing to the convenience and a greater variety in the assortment.

The main concern of Coop Italia in those years was to emphasize the connection of the supermarkets with the territory as a differentiating element of the channel in relation to hypermarkets. After collaborating with Slow Food through Coop –Presidia Project (see table 2), Coop realized that the development of organizational assets was a possibility to design a channel-repositioning plan for the supermarkets. Thus, in 2001 Coop started to proposing, through the supermarket channel, also typical products with small production volumes, discontinuous assortment and whose production protocols allowed small areas for raw materials supply and transformation. Additionally, in order to ensure a constant focus on the management of these products, the Channel Management established a dedicated category manager inside the channel with specific tasks: 1) liaising with the Cooperatives of the network; 2) managing the relations with Slow Food; 3) coordinating the internal team in coop Italia for purchasing and quality control; 4) ensuring the coordination of merchandising, and 5) guarantying a constant cross category approach among the various sectors (grocery - wine - perishable). As a result, Coop had the opportunity to realize its ambition:

“Make the supermarket channel an important interlocutor, more reliable than others, a champion of the local gastronomy, culture and traditions linked to the territory by offering small producers an opportunity to continue their activities and helping them to preserve that

small but important part of the traditional and typical Italian production otherwise doomed to extinction” (Carlo Barbieri, Typical Products Project Manager, Coop Italia).

The development of these organizational assets has also lead Coop to present two promotional initiatives in its supermarkets. The first initiative (2001 – 2002) was “Le vie consolari: in viaggio tra i sapori d’Italia” which proposed typical products of the regions crossed by the ancient Roman consular roads. The second initiative (2003 – 2004) was “Le origini del gusto”, proposing typical products whose origins was linked to specific period of ancient Italian history (e.g. roman empire, middle age, arab domination).

“Talking only about typical products was no longer enough to catch even the goal of differentiation, we also wanted to talk about producers” (Carlo Barbieri, Typical Products Project Manager, Coop Italia).

By leveraging on these organizational assets, Coop has captured value through its collaboration with Slow Food. Indeed, the profitability of its supermarket channel increased by one point and a half in just four years (2001-2004). In the years 2003-2004, for the promotional initiative “Le origini del gusto”, forty-three Presidia products were offered to the public through 125 Coop points of sale with sales worth approximately 1,5 million € (not counting the sales of wines offered in combination with products), obtained in just 56 days of promotion.

6.3 Intellectual and human assets

Intellectual and human assets include knowledge, training, vision, values, beliefs and experience of the individual members of the organization (Dollinger, 1995). In Barilla, the development of the Safety 4 Food Project was regarded as an opportunity to explore new areas of knowledge, to be leader in innovation in accordance with those values which Barilla claims are inspiring and characterizing behaviours of its people: passion, courage, intellectual curiosity, trust and integrity.

“We knew there was need for different skills: scientific expertise for the procurement phase, in-depth skills in manufacturing and the technologies of production, deep competencies in

logistics and environmental impact” (Giorgio Beltrami, Director for Quality and Food Safety Global Governance of Barilla)

The collaboration with Slow Food has also led Barilla to pay more attention on providing value to customers and making them aware in their purchasing. Barilla has started to give more information to people about its products and supply chains. This insight was very clear during a debate organized by the newspaper La Stampa in 2014. During the discussion Guido Barilla, president of Barilla Group, emphasized indeed the importance to give information to people about products supply chains.

“We have to begin to give people more information on what is a quality food and what means to produce it. What are the supply chains, how the different foods are made and what are the costs of quality” (Guido Barilla, president of Barilla Group).

In order to effectively provide consumers the ability to trace the entire chain of production for the ingredients in their food, Barilla worked with Cisco, NTT DATA, and Penelope S.p.A. to implement a new technology platform called Safety for Food (S4F) powered by the software ValueGo. This initiative dealt with counterfeiting in the food supply chain and giving consumers greater transparency and traceability of their food:

"Through this innovative initiative, we aim to not only provide greater transparency and safety in the supply chain, but to also give consumers a greater connection to their food. By following the story of the specific batch of Barilla pasta or sauce they are enjoying, consumers can better correlate the food with the culture of the area in which it was born. As a family-owned firm making quality Italian food for almost 140 years, it fills us with great pride to share that culture with our customers" (Giorgio Beltrami, Quality, Food Safety and Regulatory Global Director of Barilla).

Olivetti had developed great knowledge on ergonomics and key members of the Olivetti management team were very interested in ergonomic problems associated with the development of office machines. Accordingly, Olivetti had formed a collaboration with the Clinica del Lavoro Devoto, at the University of Milan. The interest and expertise on these issues grew to the point that in 1968 the firm decided to create its own ergonomic research

center, and to work in close collaboration with the design office. These intellectual and human assets were essential to ensure that Olivetti Synthesis was able to capture value from its ergonomic products. Additionally, by interacting with several members of Memphis, such as De Lucchi and Sottsass, Olivetti Synthesis conducted a thorough search on his furniture items, trying to valorise the importance of people inside the organization.

"Achieving the highest innovation, always putting people at the center" (Adriano Olivetti, founder of Olivetti).

Indeed, the "Icarus Series", designed by Ettore Sottsass and Michele De Lucchi in 1981, was epitomized by wide use of plastic materials and high degree of modularity of different furnishing solutions. In the Icarus Series the idea was to bring people permanently at the centre of the space in which they work, setting around them a personalized, comfortable, almost domestic environment.

"In Icarus through the round shape of edges, the use of moulded metal, the thickness, smooth and soft colours, we tried to transmit the idea of a new comfort in the office workspace because we feel that office workspace evolution, to be a real progress synonymous, must be an evolution aim to reach a better relation between man and environment" (Massimo De Lucchi, member of Memphis).

By leveraging on these assets, Olivetti Synthesis has captured value through its collaboration with Memphis. The Icarus Series was the biggest commercial success of Olivetti Synthesis. In 1983 the firm became the leading Italian firm in the furniture industry with the most extensive sales network in the industry with over 800 dealers. After ten years its turnover increased by about 90%. Key elements of intellectual and human assets result also into the knowledge, training and experience of the people working in Swatch.

"Without the considerable experience of the ASUG firm (forerunner of SMH) the managements of Neuchatel, Bienne and Grenchen, their many employees and their infrastructure and resources that were made available, the swatch success story could not have been written. Without the selfless and total commitment to this project of colleagues with many different

talents- in development, production and marketing, and their ability to calmly consider the various problems that arose, Swatch would not now be such a strong, dynamic brand. Today thanks to the combined efforts of all at SMH, Swatch is more than just a watch” (Nicholas G. Hayek, Chief Executive Officer of SMH/Swatch).

By leveraging on these intellectual and human assets Swatch has captured value through its collaboration with Memphis. In 1992, almost ten years later the launch, the firm had sold 100 million Swatches. In 1993, SMH generated revenues for 3 billion Swiss francs and profits for 400 million of Swiss francs. The Swatch Group, in the Fortune 500 list of 1994, was ranked 232nd for revenue and 22nd in profit percentage to sales (Verganti 2009).

6.4 Technological assets

Technological assets include labs, research and development facilities, licenses, and patents (Dollinger, 1995). In 1996 Netscape’s web browser, Netscape Navigator, was not free to the general public. Moreover, Netscape faced increasing criticism for the bugs in its products. Netscape recognized that the main concern was to develop technological assets.

After collaborating with Eric Raymond, a key member of Free Software Foundation, Netscape has moved from a traditional mode of software development to an open bazaar model. Eric Raymond has indeed offered valuable suggestions on how to interact with the freeware community and how to run a development project in bazaar mode. Its influence on the business model of Netscape emerges from the message that Eric Raymond sent to Jim Barksdale on January 27, 1998:

“I was very gratified to hear last week that my paper, ‘The cathedral and the Bazar’, helped Netscape decide to distribute Navigator in source and try to move to a bazaar development model” (Eric Raymond, Member of Free Software Foundation).

Furthermore, in 1998 Netscape has made its Netscape communicator client software available for free licensing on the internet. Raymond offered its experience on the terms and implications of the various commonly used freeware licenses.

“On 4th February 1998 I flew out to Silicon Valley at Netscape's invitation for a day-long strategy conference with some of their top executives and technical people. We designed Netscape's source-release strategy and license together” (Eric Raymond, Member of Free Software Foundation).

In the same period Netscape has created a special web site, known as Mozilla.org, where the source code could be downloaded and contributors to the code could post their enhancements, take part in the news group discussions, and obtain and share communicator related information with others in the Internet community. “Mozilla” was the open source creature born of Netscape’s freeing its technology. When Netscape released source code at the end of March 1998, the immediate response was impressive - nearly 200.000 downloads of the code within two weeks. Immediately, users were impressed with Mozilla's speed, stability and features, such as tabbed browsing, pop-up blocking and custom skins.

By leveraging on these technological assets, Netscape has captured value through its collaboration with Free Software Foundation. Indeed, Netscape increased from a 2% market share in 2002 to more than 5% with its open-source browser offerings. In 2008 Firefox (the evolution of Mozilla Browser) has valiantly clawed back to nearly 20% market share worldwide, with 29% in Europe and more than 40% in countries like Finland and Poland.

7. DISCUSSION AND CONCLUSIONS

Prior research has traditionally focused on value creation and has offered astounding insights about how firms can create value along the innovation process by interacting with outside actors in an open way (Balka et al. 2014; West and Bogers 2014). Notwithstanding the valuable contributions of these studies, prior research has neglected the importance of value capture process in open innovation (West and Bogers 2014). Notably, some scholars advocate that a comprehensive understanding of open innovation requires a balanced consideration of both value creation and value capture (Chesbrough and Appleyard 2007). To unearth the anatomy of value capture processes in open innovation systems, this paper aimed to examine

collaborative value capture processes in open innovation systems where firms interact with radical circles. More specifically, this paper conducted a longitudinal case study analysis of three representative radical circles – i.e., Slow Food, Memphis, and Free Software Foundation.

The primary and secondary information collected led us to offer a noteworthy analysis of the origins and the evolution of the three radical circles over time. More importantly, we had the opportunity to examine for each radical circle two collaborative processes with other organizations and anatomize the value capture mechanisms. The analysis of these collaborations was particularly useful for the purpose of the paper because they are significant examples of open innovative projects realized by business organizations influenced by the radical circles. Moreover, the analysis of these collaborations allowed us to explore the mechanisms through which firms collaborate with radical circles to capture value from the radically new visions they help create, and embed them into new products, services and business models that are developed and sold on the market. A comparison of the similarities and the differences among the cases and our current understanding of open innovation value creation and value capture processes (Eisenhardt and Graebner 2007; Miles and Huberman 1984) enabled us to extrapolate what mechanisms led these firms to capture value through the collaboration with the radical circles. In particular, we discovered that through the collaboration with the radical circles these firms developed specific assets to capture value: reputational assets (Red Hat); organizational assets (Coop –Presidia Project); intellectual and human assets (Barilla Safety 4 Food, Olivetti Synthesis –Icarus Project, and Swatch); and technological assets (Netscape-Mozilla project). Figure 1 summarizes the four assets along the six open collaborative projects.

[Insert Figure 1 about here]

Taken together, the findings also suggest that in open innovation capture processes some assets (such as physical assets and financial assets) are not conducive to value capture, thereby advancing the Resource-Based view put forward by Dollinger (1995).

7.1 Theoretical contributions

The paper provides three main contributions to open innovation research. First, it focuses on a relevant, although under-researched, actor which is increasingly involved in collaborative innovation processes, i.e. radical circles (Verganti 2009; Verganti and Shani 2016). Existing research has focused on open innovation systems where firms interact with creative individuals (e.g. von Hippel 2005), innovation communities (e.g. Boudreau and Lakhani 2009), universities (e.g. Laursen and Salter 2004), clients (e.g. Lauritzen 2017), suppliers (e.g. Aylen 2010), competitors (e.g. Ritala and Hurmelinna-Laukkanen 2009), and firms from other industries (e.g. Enkel and Gassmann 2010). No attention has been paid to understand the unique challenges and complexities involved in collaborating with hybrid organizations such as radical circles. Indeed, radical circles can be seen as entities characterized as hybrid forms of organizations (Williamson 1991), with specific sets of incentives between market and hierarchy. Thus, this paper adds value to open innovation research by unveiling the collaborative value capture processes in open innovation systems where firms interact with hybrid organizations such as radical circles.

Second, the paper sheds light on value capture mechanisms in open collaborative innovation processes (Huinzigh 2011; West and Bogers 2014), whereas existing open innovation research has mostly looked into value creation mechanisms (Boudreau and Lakhani 2009; Von Hippel 2005). Accordingly, the paper enriches the embryonic research on value capture processes by suggesting specific mechanisms (i.e., reputational, organizational, intellectual and human, and technological assets) that lead firms to capture value when they collaborate with radical circles. This aspect is particularly relevant in the open innovation processes that involve collaboration between firms and radical circles, as the latter are established with the aim to create radically new visions, ideas, and interpretations which can potentially create enormous value for clients, but are not structured to capture value from these value creation processes. A germane feature

of the relevance of this insight relates to firms' ability to arrange, cultivate and combine their internal assets and competencies to capture value in open collaborative innovation processes (Appleyard and Chesbrough 2017; Dollinger 1995). Accordingly, the paper contributes to current research on value capture processes by empirically corroborating the relevance of some of the value capture mechanisms suggested by Dollinger (1995). More precisely, our case studies suggest the relevance of reputational, organizational, intellectual and human, and technological assets for value capture processes. At the same time, the paper disconfirms the importance of other mechanisms proposed by other studies (e.g., Appleyard and Chesbrough 2017).

Third, the paper examines open innovation processes from a longitudinal perspective (Appleyard and Chesbrough 2017), which represents a relevant departure from the most common static and cross-sectional standpoint adopted in existing open innovation research. This longitudinal analysis allows us to provide a rich description of the evolutions of these entities from the perspectives of both value creation and value capture. A key insight of the paper is that radical circles have created value with some of the possible external sources of the innovation process (West and Bogers 2014). Moreover, this longitudinal analysis offers valuable insights for business model innovation scholars (Chesbrough 2010; Teece 2010). Indeed, through the longitudinal analysis of the radical circles we see the maturation of business models that stem from a community of specialized hobbyists and turn into a platform for the creation of new products and services.

7.2 Managerial implications

This paper has also interesting implications and insights for practice. First, results suggest that firms need to be aware of how they capture value from open collaborative processes. Capturing value is indeed the ultimate goal for those who innovate, and quite likely the greatest challenge they face, especially in an open innovation era. Second, the results suggest that in open

collaborative processes with radical circles firm might face this challenge by developing certain internal assets (i.e. reputational assets, organizational assets, intellectual and human assets, and technological assets). This implies, for example, that firms' managers willing to capture value through open collaborative processes with radical circles ought to understand that the development of these assets is of paramount importance. Third, results suggest that in order to develop these assets and capture value through open collaborative processes with radical circles an interpretative approach is needed. In particular, firms need to carefully understand the new vision proposed by radical circle. More importantly, firms need to be open to give room for debates, which is a necessary condition for reinterpreting. Thus, a managerial implication would be to rethink some of the practices to allow external and internal debates to happen in a firm. This is particularly relevant especially when firms are looking for new visions instead of solving specific problems.

7.3 Limitations and future research

Despite its contributions, the paper has some limitations, some of which also represent opportunities for future research. First, the findings inform future theoretical and empirical studies regarding value capture mechanisms in open innovation systems, but they cannot be generalized to populations of firms or markets (Yin 2003). Consequently, future studies might further support the findings by extending the empirical analysis to cases in other markets and industries.

Second, alternative qualitative approaches could also be relevant in order to build theory from inductive research. This implies that future studies might validate the theory developed in the paper by using alternative research designs.

Third, other cases might complement and build upon the findings of this paper by exploring the eventual role of financial assets and physical assets (Dollinger 1995).

Last but not least, in the paper we analysed the mechanisms through which firms capture value from open collaborative processes with radical circles. Future studies might unveil what competences a firm must possess to attract some members of the radical circles. This, in turn, might provide key insights for envisioning value capture processes (Appleyard and Chesbrough 2017).

REFERENCES

- Alexy, O., G. George, and A. J. Salter. 2013. "Cui bono? The selective revealing of knowledge and its implications for innovative activity". *Academy of Management Review* 38(2): 270–291.
- Altuna, N., C. Dell’Era, P. Landoni, and R. Verganti. 2017. "Developing radically new meanings through the collaboration with radical circles: Slow Food as a platform for envisioning innovative meanings". *European Journal of Innovation Management* 20(2): 269–290.
- Amit, R. and C. Zott. 2012. "Creating value through business model innovation". *MIT Sloan Management Review*, 53(3), 41–49.
- Appleyard, M. M. and H. W. Chesbrough. 2017. "The dynamics of open strategy: from adoption to reversion". *Long Range Planning* 50(3): 310–321.
- Appleyard, M. M., C.Y. Wang, J.A. Liddle, and J. Carruthers. 2008. "The innovator’s non-dilemma: the case of next-generation lithography". *Managerial and Decision Economics: MDE* 29 (5): 407–423.
- Arthur, W. B. 1994. *Increasing returns and path dependence in the economy*. Ann. Arbor: University of Michigan Press.
- Aylen, J. 2010. "Open versus closed innovation: development of the wide strip mill for steel in the United States during the 1920s". *R&D Management* 40(1): 67–80.
- Balka, K., C. Raasch, and C. Herstatt. 2014. "The effect of selective openness on value creation in user innovation communities". *Journal of Product Innovation Management* 31(2): 392–407.
- Birkinshaw, J., T. C. Ambos, and C. Bouquet. 2017. "Boundary spanning activities of corporate HQ executives insights from a longitudinal study." *Journal of Management Studies* 54 (4): 422–454.

- Bodas Freitas, I. M. and R. Fontana. 2017. "Formalized Problem-Solving Practices and the Effects of Collaboration with Suppliers on a Firm's Product Innovation Performance". *Journal of Product Innovation Management* DOI: 10.1111/jpim.12432.
- Bogers, M., A. K. Zobel, A. Afuah, E. Almirall, S. Brunswicker, L. Dahlander, L. Frederiksen, A. Gawer, M. Gruber, S. Haefliger, J. Hagedoorn, D. Hilgers, K. Laursen, M. G. Magnusson, A. Majchrzak, I. P. McCarthy, K. M. Moeslein, S. Nambisan, F. T. Piller, A. Radziwon, C. Rossi-Lamastra, J. Sims, and A. L. J. Ter Wal. 2017. "The open innovation research landscape: established perspectives and emerging themes across different levels of analysis". *Industry and Innovation* 24(1): 8–40.
- Bosch-Sijtsema, P. and J. Bosch. 2015. "User Involvement throughout the Innovation Process in High-Tech Industries". *Journal of Product Innovation Management* 32(5): 793–807.
- Boudreau, K. 2010. "Open platform strategies and innovation: Granting access vs. devolving control". *Management Science* 56(10): 1849–1872.
- Boudreau, K. and K. Lakhani. 2009. "How to manage outside innovation". *MIT Sloan Management Review* 50(4): 69–75.
- Bouncken, R. B., V. Fredrich, P. Ritala, and S. Kraus. 2017. "Coopetition in new product development alliances: advantages and tensions for incremental and radical innovation". *British Journal of Management* DOI: 10.1111/1467-8551.12213.
- Bowman, C. and V. Ambrosini. 2000. "Value creation versus value capture: towards a coherent definition of value in strategy". *British Journal of Management* 11(1): 1–15.
- Brode L., C. Dell'Era, and R. Verganti. 2014. "The contributions of interpreters to the development of radical innovations of meanings: the role of "pioneering projects" in the sustainable buildings industry". *R&D Management* 44(1): 1–17.
- Cennamo, C. and J. Santalo. 2013. "Platform competition: Strategic trade-offs in platform markets". *Strategic Management Journal* 34(11): 1331–1350.
- Chesbrough, H. 2003. *Open innovation: the new imperative for creating and profiting from technology*. Boston, USA: Harvard Business School Press.
- Chesbrough, H. 2007. "Business model innovation: it's not just about technology anymore". *Strategy & Leadership* 35(6): 12–17.
- Chesbrough, H. 2010. "Business model innovation: opportunities and barriers". *Long Range Planning* 43(2): 354–363.
- Chesbrough, H. and M. M. Appleyard. 2007. "Open innovation and strategy". *California Management Review* 50(1): 57–76.

- Chesbrough, H. and R. S. Rosenbloom. 2002. "The role of the business model in capturing value from innovation: evidence from Xerox Corporation's technology spin-off companies". *Industrial and Corporate Change* 11(3): 529–555.
- Dell'Era, C. and R. Verganti. 2007. "Strategies of innovation and imitation of product languages". *Journal of Product Innovation Management* 24(6): 580–599.
- Dell'Era, C. and R. Verganti. 2010. "Collaborative Strategies in Design-Intensive Industries: Knowledge Diversity and Innovation". *Long Range Planning* 43 (1): 123–141.
- Dell'Era, C. and R. Verganti. 2011. "Diffusion Processes of Product Meanings in Design-Intensive Industries: Determinants and Dynamics". *Journal of Product Innovation Management* 28(6): 881–895.
- Dell'Era, C., N. Altuna, P. Landoni, and R. Verganti. forthcoming. "Radical Circles – The contribution of small group of individuals challenging the dominant visions and transforming entire industries". *International Journal of Technology Intelligence and Planning*, forthcoming.
- Dollinger, M. J. 1995. *Entrepreneurship, Strategies and Resource*. Marsh Publication.
- Dubois, A. and L. E. Gadde. 2002. "Systematic combining: an abductive approach to case research". *Journal of Business Research* 55(7): 553–560.
- Easton, G. 1998. Case Research as a Methodology for Industrial Networks: A Realist Apologia. In *Network dynamics in international marketing*, ed. P. Naudé and P.W. Turnbull, 73–87. Oxford: Pergamon.
- Eisenhardt, K. M. 1989. "Building theories from case study research". *Academy of Management Review* 14(4): 532–550.
- Eisenhardt, K. M. and M. E. Graebner. 2007. "Theory building from cases: Opportunities and challenges". *Academy of Management Journal* 50(1): 25–32.
- Enkel, E. and K. Bader. 2016. "Why do experts contribute in cross-industry innovation? A structural model of motivational factors, intention and behavior". *R&D Management* 46(1): 207–226.
- Farrell, M. P. 2001. *Collaborative circles: Friendship dynamics and creative work*. Chicago: University of Chicago Press.
- Foss, N. J. and T. Saebi. 2017. "Fifteen years of research on business model innovation: How far have we come, and where should we go? ". *Journal of Management* 43(1): 200–227.

- Frattoni, F., M. Bianchi, A. Massis, and U. Sikimic. 2014. "The role of early adopters in the diffusion of new products: differences between platform and nonplatform innovations". *Journal of Product Innovation Management* 31(3): 466–488.
- Gassmann, O., and M. Zeschky. 2008. "Opening up the solution space: the role of analogical thinking for breakthrough product innovation." *Creativity and Innovation Management* 17(2): 97-106.
- Gawer, A. and M. A. Cusumano. 2014. "Industry platforms and ecosystem innovation". *Journal of Product Innovation Management* 31(3): 417–433.
- Gesing, J., D. Antons, E.P. Piening, M. Rese, and T. O. Salge. 2015. "Joining forces or going it alone? On the interplay among external collaboration partner types, interfirm governance modes, and internal R&D". *Journal of Product Innovation Management* 32(3): 424–440.
- Gnyawali, D. R. and B. J. R. Park. 2011. "Co-opetition between giants: Collaboration with competitors for technological innovation". *Research Policy* 40(5): 650–663.
- Gustavsen, B. 1992. Dialogue and development: theory of communication, action research and the restructuring of working life. Assen: Van Gorcum.
- Herzog, P. 2011. *Open and Closed Innovation: Different Cultures for Different Strategies*. Wiesbaden: Springer Fachmedien.
- Hienert, C. and C. Lettl. 2011. "Exploring how peer communities enable lead user innovations to become standard equipment in the industry: Community pull effects". *Journal of Product Innovation Management* 28(1): 175–195.
- Hofstetter, R., J. Z. Zhang, and A. Herrmann. 2017. "Successive Open Innovation Contests and Incentives: Winner-Take-All or Multiple Prizes?". *Journal of Product Innovation Management*. DOI: 10.1111/jpim.12424.
- Huizingh, E. K. 2011. "Open innovation: State of the art and future perspectives". *Technovation* 31(1), 2–9.
- Jensen, M. B., C. Hienert, and C. Lettl. 2014. "Forecasting the Commercial Attractiveness of User-Generated Designs Using Online Data: An Empirical Study within the LEGO User Community". *Journal of Product Innovation Management* 31(1): 75–93.
- Jick, T. D. 1979. "Mixing qualitative and quantitative methods: Triangulation in action". *Administrative Science Quarterly* 24(4): 602–611.
- Klein, H. K. and M. D. Myers. 1999. "A set of principles for conducting and evaluating interpretive field studies in information systems". *MIS quarterly*, 67–93.

- Lauritzen, G. D. 2017. "The role of innovation intermediaries in firm-innovation community collaboration: navigating the membership paradox". *Journal of Product Innovation Management* 34(3): 289–314.
- Laursen, K. and A. Salter. 2004. "Searching high and low: what types of firms use universities as a source of innovation?". *Research Policy* 33(8): 1201–1215.
- Laursen, K. and A. Salter. 2006. "Open for innovation: The role of openness in explaining innovation performance among UK manufacturing firms". *Strategic Management Journal*, 27 (2):31–150.
- Lee, T. W., T. R. Mitchell, and C. J. Sablinski. 1999. "Qualitative research in organizational and vocational psychology, 1979–1999". *Journal of Vocational Behavior* 55(2): 161–187.
- Lepak, D. P., K. G. Smith, and M.S. Taylor. 2007. "Value creation and value capture: a multilevel perspective". *Academy of Management Review* 32(1): 180–194.
- Mason, J. 2002. *Qualitative researching*. Thousand Oaks, CA: SAGE Publications.
- Massa, L., C. L. Tucci, and A. Afuah. 2017. "A critical assessment of business model research". *Academy of Management Annals* 11(1): 73–104.
- Miles, M. B. and A. M. Huberman. 1984. *Qualitative data analysis*. Beverly Hills: Sage Publications.
- Padovani, G. 2004. *Slow Food Revolution*. Milano: Rizzoli.
- Pettigrew, A. M. 1990. "Longitudinal field research on change: Theory and practice". *Organization Science* 1(3): 267–292.
- Randhawa, K., R. Wilden, and J. Hohberger. 2016. "A bibliometric review of open innovation: Setting a research agenda". *Journal of Product Innovation Management* 33(6): 750–772.
- Ritala, P. and P. Hurmelinna-Laukkanen. 2009. "What's in it for me? Creating and appropriating value in innovation-related coopetition". *Technovation* 29(12): 819–828.
- Salter, A., A. L. Wal, P. Criscuolo, and O. Alexy. 2015. "Open for ideation: Individual-level openness and idea generation in R&D". *Journal of Product Innovation Management* 32(4): 488–504.
- Sherwood, A. L., and J. G. Covin. 2008. "Knowledge acquisition in university–industry alliances: An empirical investigation from a learning theory perspective". *Journal of Product Innovation Management* 25(2): 162–179.
- Siggelkow, N. 2007. "Persuasion with case studies". *Academy of Management Journal* 50(1): 20–24.
- Strauss, A. and J. Corbin. 1998. *Basics of Qualitative Research: Techniques and Procedures for Developing Grounded Theory*. London: Sage Publications.

- Teece, D. J. 1986. “Profiting from technological innovation: Implications for integration, collaboration, licensing and public policy”. *Research Policy* 15(6): 285–305.
- Teece, D. J. 2010. “Business models, business strategy and innovation”. *Long Range Planning* 43(2): 172–194.
- Tsinopoulos, C., C. M. Sousa, and J. Yan. 2017. “Process innovation: Open innovation and the moderating role of the motivation to achieve legitimacy”. *Journal of Product Innovation Management* 35(1): 27–48.
- Verganti, R. 2009. *Design driven innovation: changing the rules of competition by radically innovating what things mean*. Boston: Harvard Business Press.
- Verganti, R. 2017. *Overcrowded – Designing Meaningful Experience in a World Awash with Ideas*. Boston: MIT Press.
- Verganti, R. and C. Dell'Era. 2014. Design-driven innovation: Meaning as a source of innovation. In *The Oxford Handbook of Innovation Management*, ed. M. Dodgson, D. Gann, and N. Philips, 139–162. Oxford: Oxford University Press.
- Verganti, R. and Å. Öberg. 2013. “Interpreting and envisioning—A hermeneutic framework to look at radical innovation of meanings”. *Industrial Marketing Management* 42(1): 86–95.
- Verganti, R. and A. B. R. Shani. 2016. “Vision transformation through radical circles”. *Organizational Dynamics* 2(45): 104–113.
- Visnjic, I., F. Wiengarten, and A. Neely. 2016. “Only the brave: Product innovation, service business model innovation, and their impact on performance”. *Journal of Product Innovation Management* 33(1): 36–52.
- Von Hippel, E. 2005. *Democratizing innovation*. Boston: MIT press.
- West, J. and M. Bogers. 2014. “Leveraging external sources of innovation: a review of research on open innovation”. *Journal of Product Innovation Management* 31(4): 814–831.
- West, J. and M. Bogers. 2017. “Open innovation: current status and research opportunities”. *Innovation* 19(1): 43–50.
- Widén, K. 2017. Innovation roles for clients: implementing building information modelling. In *Clients and Users in Construction: Agency, Governance and Innovation*, ed. S. Abingdon, 214–228. Routledge.
- Williamson, O. E. 1991. “Comparative economic organization: The analysis of discrete structural alternatives”. *Administrative Science Quarterly* 36(2): 269–296.
- Yin, R. K. 2003. *Case study research: design and methods*. Thousand Oaks, CA: Sage Publications.

Table 1. Data collection.

Source	Data
Face-to-face Interview (about 17h)	<ul style="list-style-type: none"> - Alberto Arossa, Communication officer at Slow Food and Member of the Slow Food team that is running Nutrire Milano, Mercato della Terra and Slow Food Editore (17th July 2014) - Silvia Barbero, Founder of Slow Food and Vice-President of the University of Gastronomic Sciences (18th July 2014) - Carlo Barbieri, Typical Products Project Manager, Coop Italia (16th February 2016) - Giorgio Beltrami, Director for Quality and Food Safety Global Governance, Barilla Group (22nd February 2016) - Paolo Bolzacchini and Alessandro Cecchini, Co-Founders of Mi.Cibo (Members of the Slow Food teams that are running the projects Nutrire Milano and Mercato della Terra) (19th March 2014) - Michele De Lucchi, Founder of Amdl (23rd March 2016) - Sebastiano Sardo, Former Slow Food employee and Member of the team that consulted on Eataly and current Eataly employee (19th July 2014) - Matteo Thun, Founder of Matteo Thun & Partners (25th February 2016)
Web Interview and Speech	<ul style="list-style-type: none"> - Aldo Cibic: www.educational.rai.it/lezionididesign/designers/CIBICA.htm - Carlo Petrini (Global Food Movement): https://www.youtube.com/watch?v=Flqg1-o_pZY - Ettore Sottsass: www.educational.rai.it/lezionididesign/designers/SOTTASSJR.E.htm - Matteo Thun: www.educational.rai.it/lezionididesign/designers/THUNM.htm - Bob Young (Linux Conference 2015): www.youtube.com/watch?v=Txvs2hkhZq0
Book	<ul style="list-style-type: none"> - Buck A and Vogt M (1993). <i>Matteo Thun - Designer Monograph</i> - Catalogue <i>Swatch 83-92</i> - Cibic A (2010). <i>Rethinking happiness. Fai agli altri quello che vorresti fosse fatto a te</i> - De Lucchi M (1983). <i>Sofisticazione a sofisticazione</i> - De Lucchi M (2015). <i>I Miei Orribili e Meravigliosi Clienti</i> - Doveil F (2003). <i>Aldo Cibic</i> - Martinetti G and Grom F (2015). <i>Grom. Storia di un'amicizia, qualche gelato e molti fiori</i> - Memphis (2001). <i>Memphis</i> - Petrini C (2004). <i>Buono, pulito e giusto: principi di una nuova gastronomia</i> - Petrini C and Padovani G (2006). <i>Slow Food Revolution. A new culture for eating and living</i> - Petrini C (2010). <i>Terra Madre – Come non farci mangiare dal cibo</i> - Petrini C (2013). <i>Cibo e Libertà – Slow Food: storie di gastronomia per la liberazione</i> - Petrini C (2014). <i>La coscienza del cibo</i> - Radice B (1985). <i>Memphis – Research, Experiences, Result, Failures and Successes of New Design</i> - Thun M (2013). <i>The Index Book</i> - Video Documentary <i>The Story of Slow Food</i> - Young R and Goldman Rohm W (1999). <i>Under the radar - How Red Hat changed the software business and took Microsoft by surprise</i>
Web	<ul style="list-style-type: none"> - https://archive.org/web/ - https://consumergoods.com/barilla-shows-consumers-journey-their-food - www.fondazioneSlowFood.com - www.fsf.org - www.mozilla.org - www.olivetti.com - www.raiscuola.rai.it/articoli/memphis-lezioni-di-design/7109/default.aspx (Memphis, Lezioni di Design) - www.redhat.com - www.slowfood.it - www.slowfood.com - www.slowfoodeditore.it - www.storiaolivetti.it - www.swatch.com - www.terramadre.info - www.unisg.it - www.youtube.com/watch?v=u404SLJj7ig (Netscape Mozilla Documentary)

Table 2. Description of the collaborations between radical circles and other organizations.

Radical Circle	Collaboration	Collaboration Description
Slow Food	Coop [Presidia]	In the 2000s, Coop Italia, a cooperative firm managing supermarkets in Italy launched a project in collaboration with Slow Food. This was the starting point which made Coop Supermarket a "champion" of the local gastronomy, culture and traditions related to the territory by offering small producers an opportunity to continue their activities and helping to preserve that small but important part of the traditional and typical of production, otherwise doomed to extinction.
	Barilla [Safety 4 Food]	In December 2013 Barilla launched in partnership with Slow Food the protocol of Milan, a global agreement to be signed during Expo 2015 in Milan, aimed at sustaining sustainable agriculture. During the Global Exposition of Milan, Barilla presented "Safety 4 Food", an initiative which concretized the spirit of the Protocol. The project provided consumers the ability to trace the entire chain of production for the ingredients in their food, from where it was grown to how it arrived on the store shelf, assuring the sustainability of the supply chain.
Memphis	Olivetti Synthesis [Icarus]	In the early eighties, the architects Ettore Sottsass and Michele De Lucchi, members of Memphis, designed the series of office furniture Icarus, produced by Olivetti Synthesis. This series was characterized by a wide use of plastic materials and a high degree of modularity of different furnishing solutions. Icarus was regarded as a high innovative production due to its new conception of the work space as a more comfortable and informal place.
	Swatch	From 1990 to 1993 Matteo Thun, a former member of Memphis, collaborated with Swatch. During these years he created various collections which drew as best the idea to a watch as a fashion item and which were characterized by innovative product languages.
Free Software Foundation	Red Hat	Red Hat is an innovative operative system developed in the nineties and still on the market. The software was developed thanks to the influence and support of Free Software Foundation members and it was marketed by challenging the industry giants. The innovativeness of the project consisted in providing the users the domain on all the enhancements and modifications over the software.
	Netscape [Mozilla]	Founded in 1994, Netscape Communication Corporation, best known as Netscape, is an U.S. computer services firm famous for the success of Netscape navigator (a proprietary software), the dominant web browser in the mid-1990s. In 1998 Netscape started the Project Mozilla and issued the source code of its browser in the hope that it would become a popular open source project and it would lead to the creation of a new browser to withstand competition of Internet Explorer developed by Microsoft.

Figure 1. Value capture mechanisms of collaborations between radical circles and other organizations.

