

Open Innovation Approaches in Corporate Innovation hubs: exploratory analysis

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Short bio: Nicole Ciocia is a PhD candidate at the University of Modena and Reggio Emilia, specializing in the field of Management and an Innovation Manager at Krones Innovation Hub. Her research focuses on Open Innovation and Innovation Hubs, with a particular emphasis on the corporate innovation hubs (CIHs). In her research, Nicole explores the role of inter-organizational collaborations, knowledge sharing, and different approaches of open innovation adopted by different hubs. By studying the dynamics of innovation networks, she aims to provide insights into how firms can leverage external and internal resources to adapt to fast-changing market environments. Her academic interests also include the strategic management of innovation and the impact of collaborative networks on corporate growth and competitiveness.

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Abstract

The study investigates the emergence and characteristics of Corporate Innovation Hubs (CIHs) in Italy. Despite their growing prevalence and importance in driving innovation, significant gaps remain in the literature regarding their distinctive features, operational dynamics, and impacts. Anchored in the Open Innovation (OI) framework—which emphasizes collaboration and knowledge exchange—this pilot studies these gaps by analyzing selected Italian CIHs through a mixed-methods approach.

The research included a desk analysis to map Italian CIHs and three semi-structured

interviews to explore their structures, activities, and challenges. The findings reveal that there is no single, universal approach to adopting OI. Instead, companies leverage CIHs in diverse ways, with varying strategies and objectives, positioning these hubs as flexible catalysts for innovation tailored to their specific needs.

Keywords: Corporate Innovation Hub; Open Innovation; Knowledge Transfer; Innovation Approach; Network.

INTRODUCTION

The continuous evolution of the global market, the increasing complexity of technological, economic, and social challenges, the globalization of markets, the shortening of product life cycles, and the convergence of technologies have created the need to shift managerial and innovation paradigms (Di Minin & Ferrigno, 2020). In this context, the concept of Open Innovation (OI) was introduced by Chesbrough in the early 2000s, challenging traditional innovation approaches based on Schumpeterian models. OI promotes innovation through collaboration with external actors, moving beyond the notion that companies must maintain tight internal control over innovation processes to preserve their competitive advantage (Elmquist, Fredberg, & Ollila, 2009). At the core of OI lies the creation of ecosystems or networks through which organizations can share knowledge, facilitating knowledge flows to accelerate innovation and advance technological capabilities (Chesbrough, 2003). One of the most significant structures that has gained prominence in the Italian industrial landscape in recent years is the innovation hub, a concept with varied definitions in the literature. For some, innovation hubs are primarily physical spaces where diverse actors collaborate, often compared to co-working offices (Littlewood & Kiyumbu, 2018). For others, the emphasis shifts away from the physical space to highlight the importance of networks, know-how flows, and skills in the context of OI (Siebert et al., 2019). Others, in literature, describe the innovation hub as a mechanism employed by

corporations to promote the creation of new ideas and innovative products (Youtie & Shapira, 2008; Magnusson, 2009; Chesbrough, 2011). This is achieved by leveraging the contributions of various stakeholders, including employees, suppliers, partners, and customers, who are actively involved in the innovation process (Longo & Giaccone, 2017).

These different perspectives underscore the lack of extensive literature supporting a comprehensive study of this phenomenon. In particular, there is a dearth of detailed studies profiling Corporate Innovation Hubs (CIHs)—innovation hubs promoted and managed by private companies and used to support innovation. Addressing these gaps, scholars like Mohan and Chinchwadkar (2022) in their paper, “*Technology Business Incubation: A Literature Review and Gaps*,” have noted that the limited understanding of CIHs stems from a predominant focus on Digital Innovation Hubs and other technological incubation models.

This research aims to conduct a preliminary exploratory analysis of real-world CIH cases, following an initial mapping of the innovation hubs currently present in Italy.

With this objective as the focus, the study aimed to investigate the goals and intervention areas of CIHs within the framework of an Open Innovation (OI) approach, adhering to its principles and paradigms. In particular, the research sought to examine the objectives, intervention domains, and implementation strategies of Open Innovation within the corporate context of CIHs.

The remainder of this paper is structured as follows: Section 2 introduces the theoretical background on OI and CIHs. Section 3 describes the methodology used for the analysis, followed by the presentation and discussion of results in Section 4. Section 5 concludes the paper, outlining implications and potential directions for future research.

THEORETICAL BACKGROUND

OPEN INNOVATION

Over the years, the management of innovation by large corporations has undergone significant evolution, marked by the adoption of various strategic approaches. These changes reflect companies' adaptation to the new challenges of the global market and the growing complexity of technological, economic, and social challenges. Twenty years ago, it became evident that the challenge to overcome was no longer simply innovation itself but finding a way to innovate the process of innovation: the concept of *"Innovating Innovation"* (Chesbrough, 2003). In fact, it was within this context that a paradigm shift occurred in the early 2000s. The innovative approach used up to that point was defined by Chesbrough (2003) as Closed Innovation—a model based on the belief that companies should maintain internal control over innovation processes to preserve their competitive advantage (Elmqvist, Fredberg, & Ollila, 2009). However, this model showed significant limitations, particularly as companies began to understand, through the influence of *"erosion factors"*—such as the increasing

number of highly skilled individuals, the accelerated pace of innovation demanded by the market, and the emergence of new financial structures like venture capital that commercialized research and helped smaller, innovative firms to grow—that maintaining competitiveness and quickly responding to market changes required abandoning isolation and embracing new forms of collaboration (Chesbrough, 2003). It is precisely in this context that the concept of Open Innovation (OI) emerged—an innovative paradigm based on companies leveraging both internal and external ideas to accelerate innovation and advance their technological capabilities. According to this new model, innovative projects can be developed either inside or outside the company, and innovative ideas can flow into the company's pipeline at any stage of the process, as illustrated in Figure 1 (Chesbrough, 2003).

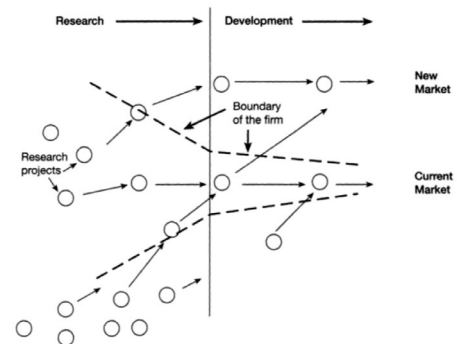


Fig. 1 *The Innovation Process Underlying Open Innovation*. Source: Chesbrough (2003)

With the advent of this new paradigm, a significant transformation occurs in corporate organization and its boundaries,

which, while impenetrable in Closed Innovation, are now semi-permeable, allowing innovation to flow more freely between the external environment and internal research and development departments (Elmquist, Fredberg, & Ollila, 2009). Specifically, the core of Open Innovation lies in the generation of new knowledge and, most importantly, in the ability to create systems and architectures that integrate existing knowledge fragments to address practical problems (Bogers et al., 2019). This competence in "system integration" or architecture design plays a crucial role in the context of Open Innovation (Chesbrough, 2006), as it is through the creation of an open innovation ecosystem that value is generated. In Open Innovation, the real value lies in the presence of a network that allows companies to access a vast pool of external resources, including knowledge, assets, and skills (Bogers, Sims, & West, 2019). In contrast, the Closed Innovation model emphasizes the necessity of keeping processes entirely internal and controlled by the company to ensure a competitive advantage (Elmquist, Fredberg, & Ollila, 2009). However, in practice, there is no sharp division between Open and Closed Innovation. Instead, there are various matrices comprising different forms of innovation with varying degrees of openness (Huizingh, 2011; Bogers et al., 2019). This divergence from the theoretical model is partly due to the varied use of terminology associated with Open Innovation (Chesbrough, & Bogers, 2014). In the literature, a taxonomy is applied to Open Innovation, mainly categorizing its modes into: "*Technology-oriented OI*", focusing on

knowledge and technological innovation as the ultimate goals; "*Market-oriented OI*", primarily centered on knowledge and meeting the actual needs of the market; "*Organizational-oriented OI*", which involves radical organizational changes, such as the creation of spin-offs (Ahn, Minshall, & Mortara, 2015). Moreover, in discussing Open Innovation, the term "open" is often used in the literature as a synonym for "user-centered." Thus, Open Innovation is defined as a paradigm of innovation, referred to as "open source innovation," in which end-users also participate in the innovation network (Von Hippel, 2006). Similarly, the term "open source model" describes an innovative approach where multiple actors collaborate on a single project, investing private resources for the creation of a public good (Raasch et al., 2009).

INNOVATION HUBS

Innovation today is no longer confined to the research and development (R&D) departments of companies; it has become a phenomenon involving a wide network of actors, including universities, public institutions, startups, and citizens. This concept is well represented in the triple and quadruple helix models, which expand the traditional understanding of innovation by including, respectively: universities and other knowledge-producing institutions, industry—including high-tech startups and multinational corporations, government at various levels (Etzkowitz, 2002), and, in the quadruple helix, civil society (Carayannis & Campbell, 2009). The helix in these models symbolizes the mechanism that drives the

process, namely, knowledge transfer (Scaramuzzi, 2012). In this context, Innovation Hubs emerge as key nodes that promote collaboration and knowledge sharing among various stakeholders, functioning as entities that integrate the principles of the triple and quadruple helix. But, at the same time, the innovation hubs are one of the modes used by the firm to adopt the open innovation approaches (Longo & Giaccone, 2017). In the literature, some describe the innovation hub as a mechanism employed by corporations to promote the creation of new ideas and innovative products (Youtie & Shapira, 2008; Magnusson, 2009; Chesbrough, 2011). This is achieved by leveraging the contributions of various stakeholders, including employees, suppliers, partners, and customers, who are actively involved in the innovation process. So, this definition of innovation hub is so correlated with the Open Innovation approach, because the core concept of open innovation is that innovation stakeholders, as innovation hubs, should actively engage with external parties to drive innovation and create new revenue opportunities (Remneland Wikhamn & Styhre, 2023).

To fully understand the role and impact of Innovation Hubs in Open Innovation processes, it is essential to define them. However, the literature offers few and fragmented definitions of Innovation Hubs. The most comprehensive one is provided by Pratt (2021). According to the author, Innovation Hubs can be characterized along three dimensions: first, they are physical spaces, understood as dedicated buildings where various activities are co-located;

second, they are flexibly managed spaces, with “easy entry and exit processes”; and third, they are places for knowledge and information exchange. In innovation management literature, the terms “space” and “place” are often used to describe environments that support and facilitate innovation. Both are associated with opportunities for interaction, collaboration, research, and knowledge creation (Haukipuro et al., 2024). Massey (2005), in her book *For Space*, defines space as an open, living, and continuously evolving entity shaped by social interactions—a concept that aligns perfectly with the idea of an Innovation Hub. Indeed, Innovation Hubs can be viewed as “built-up physical spaces that engender innovations” (Jiménez & Zheng, 2021, p. 164) and, consequently, as forms of co-working office spaces offering various services such as community building, pre-incubation, incubation, and acceleration (Jiménez & Zheng, 2017). In contrast, Siebert et al. (2019) define Innovation Hubs as a combination of physical and digital workspaces and tools where various ecosystem members interact with the goal of learning and producing innovation. While there are differing perspectives on the exact nature of these spaces, with some viewing them as hubs of physical interaction and others as nodes in a virtual network, both approaches agree on the crucial importance of creating environments that foster innovation. While the term “innovation” in “innovation hub” is clearly the focal point around which these concepts revolve, there is less consensus on what is meant by “hub” in its spatial dimension—whether it refers to a physical

space or a relational space. Indeed, some argue that innovation hubs are, in fact, innovation labs. This is because the term "lab," more commonly associated with physical and natural sciences, evokes a sense of a safe haven for experimentation and targeted problem-solving (Bloom & Faulkner, 2016). This distinction highlights two complementary approaches to innovation: while hubs operate as centers of connection and sharing, promoting innovation through collaboration among diverse actors, labs focus on experimentation and the development of new ideas in a controlled environment. Both play a critical role in the innovation process but with different objectives and methods. For the purpose of this research, however, the term innovation hub will be adopted, as it better emphasizes key aspects that fully express their importance in the innovation ecosystem. Specifically, the significance of networks and ecosystems of intermediaries is central in this context, as they catalyze the open innovation approach discussed earlier. This innovation model is based on the idea that companies no longer innovate in isolation but collaborate with a network of external partners to develop new ideas and solutions. Consequently, the term "hub" is more appropriate for capturing this dynamic.

According to Toivonen and Friederici (2015), the four fundamental characteristics that define Innovation Hubs are as follows:

Creation of Collaborative Communities

Innovation Hubs consist of groups of individuals and entities that share ideas and resources with the common goal of

experimenting and achieving objectives. At the center of these networks are autonomous individuals whose power and influence derive from their status as founders, charisma, recognized expertise, and/or strong network position rather than formal leadership roles. Hubs view individuality, leadership, collaboration, and participation as complementary traits.

Diversity of Members

Hubs attract members with diverse knowledge, fostering "creative collisions" between individuals from different networks and domains. This cognitive diversity encourages the emergence of novel combinations of ideas and practices, leading to unique and actionable innovations.

Facilitation of Creativity in Physical and Digital Spaces

Hubs are typically located in metropolitan areas and feature work environments designed to promote interaction. These spaces often include wooden furniture, large desks, whiteboards, foosball tables, artwork, shared kitchens, coffee bars, meeting rooms, and bean bags. Digital spaces, on the other hand, amplify an Innovation Hub's presence, enabling it to reach a broader audience and strengthen its identity.

Localization of Global Entrepreneurial Culture

Hubs see themselves as part of a global entrepreneurial culture, adapting their core values to the norms and values of their local environment. For instance, in Japan, hubs

must balance innovation and inclusivity with cultural norms that may resist promoting entrepreneurship among younger generations.

Classification of Innovation Hubs: CIHs

Innovation Hubs can be classified based on various criteria, such as organizational structure, type of space, sectoral focus, and services offered. Based on classification by the nature of the space (physical or digital), the type of promoter (private or public), and predominant activity (research and development, startup support, or technology transfer), Corporate Innovation Hubs (CIH) can be defined as physical hubs that act as knowledge mediators and catalysts for ideas, concepts, and technologies (Berger & Brem, 2016; Monteiro & Birkinshaw, 2017). They function as intermediaries between established companies and startups (Crisan et al., 2019).

Specifically, CIHs in the last reports published were described like “corporate units or independent legal entities owned by a corporation (private hubs) that operate autonomously but aim to support innovation within the company by facilitating the development and acquisition of new ideas, technologies, and innovative approaches” (Italian Open Innovation Lookout 2024). So, these are autonomous departments that fully share the corporate’s goals and mission. Among the main services offered by Corporate Innovation Hubs are coaching, mentoring, tutoring, co-creation, networking, prototyping, technology and trend scouting, strategic consulting, and applied research. For others, however, CIHs

establish and manage ecosystems within large, consolidated groups and conglomerates. Furthermore, they possess the ability to coordinate business resources, allocate them effectively and synchronized, and exploit synergies between various business units within the corporate network (Barcellos, 2023). According to this definition, therefore, CIHs play an extremely important role, but primarily within the corporate group, which reduces their autonomy and strong outward orientation. It can be inferred that there is a lack of clarity in the definitions, which appear to be rather fragmented.

RESEARCH OBJECTIVE AND METHODOLOGY

The analysis of the literature regarding CIHs has highlighted significant issues, including excessive fragmentation of definitions and several gaps regarding distinctive characteristics, modes of interaction with corporate companies, and the impacts generated. The aim of this initial research is to explore the emblematic characteristics of Italian CIHs in the industrial sector and analyze how CIHs apply the OI approach within their context.

Setting this as the ultimate goal of the investigation, this research aimed—within the framework of an OI approach, embracing its assumptions and paradigms—to explore the objectives and areas of intervention of CIHs. Specifically, the research sought to identify the goals, areas of intervention, and implementation choices of Open Innovation

within the context of CIHs in their corporate environment.

Given the exploratory nature of this study, a qualitative methodology was adopted, using various research tools to triangulate the results and achieve the most comprehensive understanding of the topic possible. First, a review of the academic literature on Open Innovation and Innovation Hubs in the industrial context, with a focus on CIHs, was conducted. This review allowed for the identification of the most recurring themes related to Open Innovation and Innovation Hubs, as well as the identification of less explored topics. Scopus was used as the primary database, and by limiting the occurrences to scientific articles and conference papers, a keyword-based search was carried out, utilizing the most correlated keywords to the topics explained in this research. Below is the number of occurrences for each keyword searched.

Table 1. *Number of scientific articles per keyword*

Keyword	Number of articles	Time frame
Ecosystems	371.127	1924-2024
Network management	223.867	1956-2024
Innovation strategy	10.097	1981-2024
Open Innovation	7.213	1985-2024
Innovation ecosystem	3.758	1985-2024
Open business models	1.100	1989-2024
Closed innovation	402	1988-2024
Open innovation ecosystem	375	1997-2024

Keyword	Number of articles	Time frame
Managing knowledge	310	1987-2024
innovation hubs	297	2004-20024
Closed open innovation	114	1995-2024
digital innovation hubs	70	2015-2024
corporate innovation hubs	4	2015-2022
Open innovation in Italy	3	2014-2019

Secondly, a desk analysis was conducted, through keywords and by checking the characteristics described - where available- on company websites, to identify how many industrial innovation hubs exist in Italy and, among them, select the sample to interview. In particular, an initial mapping was conducted using the main keywords: innovation hub, innovative hub, and corporate innovation hub. Subsequently, an online search was carried out using secondary sources to identify the companies in Italy that currently invest the most in research and the largest companies by revenue. For each of these companies, their corporate websites were analyzed to verify the presence or absence of an innovation hub. From the resulting mapping, the sample to interview was selected according to the following selection criteria: industrial innovation hubs, connected to a corporate company offering products or services, located in Italy, and applying the Open Innovation approach. The innovation hubs that met the selection criteria and were eligible for the exploratory purpose of the research were actually 10. Four were

contacted, and three responded positively to the request for interview availability. The interviews had an average duration of 40 minutes, were conducted via video call, two in Italian and one with an English-speaking contact, recorded and fully transcribed, and immediately anonymized. For this reason, in the following paragraphs, they will be referred to as Hub 1, Hub 2, and Hub 3, ensuring complete confidentiality. Below are the details of the three interviews.

Table 2. *Conducted Interviews*

	Number of hub employees	Number of corporate employees	Number of R&D employees
H1	3	19k	400
H2	40-50	31k	1000
H3	9	9k	300

In all three cases, semi-structured interviews were conducted, united by the same framework aimed at questioning individuals in managerial roles within the innovation hubs about the research objectives. It is important to specify that all three hubs belong to large corporate companies and also have an internal Research and Development (R&D) department. The interviews were audio-recorded with the consent of the interviewees to allow transcription and analysis of the text. Following the transcription and anonymization of the interviews, a thematic analysis was performed on the entire textual corpus, following the approach of Thematic Analysis (TA) (Clarke, V., & Braun, V., 2013). The results from the analysis are presented in the following paragraph.

KEY FINDINGS

MAPPING OF CIHS

From the desk research conducted, it was possible to identify the main innovation hubs located in Italy or operated by corporations with a presence in the country. Specifically, 28 corporate innovation hubs were identified, including those primarily acting as startup accelerators and incubators, which were not considered in the sample selection for the interviews.

Among these 28 hubs, based on ISTAT’s division of Italian regions into northern, central, and southern Italy, 18 hubs (64% of the total) are located in northern Italy. Meanwhile, 25% of the identified hubs are in central Italy, and only one hub is located in southern Italy. Furthermore, the sole hub in southern Italy is part of a network of four innovation hubs from the same corporation, spread across four different cities, thus being part of an already established and organized network by the parent company.

Another finding from the mapping is that CIHs are predominantly adopted by large, well-established companies. Of the 28 hubs, 9% belong to medium-sized enterprises, while the remaining 86% are associated with large corporations. Additionally, 50% of these large companies are publicly traded.

In terms of sectors, the energy industry emerges as the most active in this phenomenon, with the highest number of innovation hubs. All the associated corporations are large and publicly traded companies. The energy sector also leads in the number of Digital Innovation Hubs (DIHs)

in Italy, as confirmed by the European Digital Innovation Hubs Catalogue available on the European Commission’s website.

INTERVIEWS ANALYSIS

The analysis of the interviews conducted with the three Innovation hubs revealed significant similarities and differences regarding the topics under investigation. All three hubs were founded in different periods and to address different needs of the parent company. H1 was established only two years ago, in 2022, in response to the parent company's realization that it did not have all the necessary resources to overcome the present and future challenges of the market. H2, founded in 2019, was created with the goal of addressing challenges related to digitalization and digital transformation. H3, founded in 2015, has a different purpose, as it was created by the company to promote consumer-driven innovation, where consumers can actively participate in the innovation process, aiming to address their real needs and avoiding solely following market trends or already acquired technical skills, as the company reports having done in the past. The following table summarizes the key aspects regarding the founding period and the reasons behind the establishment of each of the three interviewed innovation hubs.

Table 3. *Founding period and reasons of the hubs interviewed*

Founding Period		Reasons
H1	2022	To address the parent company's lack of resources for current and future market challenges
H2	2019	To tackle digitalization and digital transformation challenges
H3	2015	To foster consumer-driven innovation, focusing on real needs rather than market trends or existing skills.

Thus, while H3 has chosen to focus more on consumers to guide innovation based on their needs, the other two innovation hubs have opted to apply an OI approach to address technological and market challenges. It emerges that all three hubs have objectives aligned with the core concepts of OI; however, in the case of H3, this is more specifically directed towards involving a particular stakeholder, the end consumer, while the other two are not as specifically aimed at one type of stakeholder. In fact, in the case of H3, the ultimate goal of the hub aligns with the concept of OI, often found in the literature, as synonymous with “user-centered” innovation. According to this conception, open innovation becomes an innovation paradigm defined as “open source innovation,” where the innovation network includes – and primarily involves – the end consumers (Von Hippel, 2006). On the other hand, the other two hubs follow the OI concept developed by Chesbrough, which emphasizes the creation of systems and

architectures that integrate existing fragments of knowledge to tackle real-world problems as the true value of OI (Bogers et al., 2019), without pre-identifying a specific stakeholder from which to predominantly source this knowledge.

In fact, during the interviews, when asked to describe the hub's network, it emerged that H1, which uses the OI approach to participate in knowledge exchange with external entities in order to innovate and overcome internal and market challenges, sees universities, research centers, and external organizations as the main actors in its network. These entities provide specific knowledge and guidelines to follow for the sector. H2, on the other hand, identifies universities and research centers, like H1, but also includes incubation centers, scouting players, institutions, and startups as key actors in its ecosystem. Therefore, both H1 and H2's participation in a knowledge ecosystem with key stakeholders such as universities, research centers, and incubators is primarily aimed at maintaining continuous access to a flow of knowledge and opportunities, identifying new trends and technologies that could provide added value to the parent company's R&D department. In contrast, according to the representative from H3, such openness is not fully present. Rather, the networks of H3 can be seen as following a more focused network logic, aiming at pursuing specific goals. Indeed, H3's network includes as main actors end consumers, universities, startups, accelerators, and consultants.

Table 4. Ecosystems of the hubs interviewed

Ecosystems	
H1	Considers universities, research centers, and external organizations as key ecosystem actors
H2	Includes universities, research centers, incubation centers, scouting players, institutions, and startups in its ecosystem
H3	H3's network includes end consumers, universities, startups, accelerators, and consultants

The term "ecosystem" is specifically differentiated when referring to H1 and H2, as opposed to "network" in the case of H3, because for the latter, the focus is mainly on finding industrial or technological solutions that are extremely specific to the sector in which it operates. This highlights the absence of an exploratory goal in the relationships within H3, which is characteristic of an ecosystem, in contrast to the operational and problem-solving goals aimed at precise and detailed challenges, typical of a network. Indeed, an ecosystem differs from a network due to the broader scope of the network and its objectives. While building a network is based on voluntary collaboration by all members, with similar roles and importance within the network, this specificity does not occur in an ecosystem (Leminen et al., 2012). The ecosystem, therefore, is a network made up of different stakeholders, often with differing views that lead to divergences on the topics of discussion (Hoffecker, 2019). In general, a network, unlike an ecosystem, is a relationship network more focused on

specific goals. Thus, it is a more targeted, narrower concept that could be considered a subset of an ecosystem (Aarikka-Stenroos & Ritala, 2017).

In general, however, all three hubs, although with different objectives and ecosystems made up of various stakeholders, leverage external know-how inputs to improve their innovation processes and achieve the set goals.

The activities primarily carried out by hub H1 involve the research and development of technological solutions and new materials. In fact, for H1, part of the work includes the experimentation of new solutions and materials that can be used to improve operational efficiency. In this case, therefore, we could speak of a "technology-oriented" open innovation approach, as defined in paragraph 2.1. In contrast, hub H2 emphasizes the crucial role that internal research activities play, aimed at creating new companies (spin-offs) to enhance internal intellectual property. In this case, the literature defines the open innovation approach as "organizational oriented." Even more distinct is the approach of hub H3, which leverages internal expertise to develop innovative products and services in collaboration with consumers, employees, and business partners, in order to meet the real market needs. For this reason, when discussing H3's approach to open innovation, it can be referred to as "OI market oriented."

Table 5. Activities carried out by the hubs interviewed and OI approaches

Activities	
H1	Focuses on researching and developing technological solutions and new materials to improve operational efficiency
H2	Focuses on internal research to create spin-offs and enhance intellectual property
H3	Uses internal expertise to develop innovative products and services with consumers, employees, and partners to address real market needs

The three hubs, in their operational methods and execution of activities, adopt business models that leverage open innovation in different ways. H1 stands out with an approach focused on internal research and development (R&D), with a strong emphasis on experimenting with new technologies and materials. This business model focuses on operational efficiency and optimizing industrial processes. Collaborations with universities and external research centers enhance H1's ability to access advanced knowledge and specialized skills that are not available internally. On the other hand, H2's business model is heavily oriented towards creating value through internal intellectual property. Unlike H1, H2 does not limit itself to internal experimentation but actively leverages external knowledge flows to create new entities (spin-offs) and develop new technologies. This represents a hybrid model, as the use of the venture client model to integrate external startups demonstrates

how H2 balances internal exploration and experimentation with the implementation of mature technologies developed by external partners. This model highlights the ability to create synergies between internal and external resources, accelerating the time-to-market of innovations and maximizing the value of intellectual property. H3, however, adopts a different approach with a business model based on participatory innovation, involving not only external technological partners, such as startups, but also consumers and employees. Its co-design approach creates innovation that is closer to market needs and enables quick responses to micro-challenges through small-scale solutions, bringing flexibility and speed of adaptation.

Table 6. *OI approaches adopted by the hubs interviewed*

OI approaches	
H1	Technology oriented
H2	Organizational oriented
H3	Market oriented

CONCLUSION

During the research, an initial exploratory analysis of the phenomenon of Innovation Hubs in the context of Open Innovation applied to the Italian industrial landscape was conducted. The main objective was to highlight the key characteristics of Corporate Innovation Hubs (CIHs), explore their operational modes, and understand the implementation of the Open Innovation paradigm in the applied context. Through a

mixed methodological approach, integrating desk research and literature analysis with semi-structured interviews, it was possible to deepen the topic and gather insights and information that can be used for further studies to fill the existing knowledge gap on the subject. The goal of mapping and exploring industrial innovation hubs in Italy was achieved, providing a clear view of the distinctive characteristics of these structures and allowing for an understanding of their operational modes and the different goals companies aim to achieve by leveraging Open Innovation ecosystems. However, despite the results obtained, this is only a first exploratory analysis, serving as a foundation for further examination of all aspects related to CIHs.

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