Chapter 3

Innovation Spaces and Activating Embedded Knowledge: The Case of Krauss InnoHouse[1]

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Abstract

The perception of space in innovation has always been a fascinating topic of interest in innovation research. There is extensive evidence that physical and virtual environments can positively influence individuals' ability to generate ideas and collaborate. For these reasons, this section defines the innovation space as a critical component of corporate innovation systems. Accordingly, this chapter aims to answer the question of what characteristics an innovation space should possess. A case-based qualitative methodology has been used for this purpose. This qualitative method is primarily based on observations obtained from consultancy experience acquired through the Türkiye Exporters Assembly (TIM) InoSuit Program. In addition, the research question is also addressed through a literature review. Based on findings from the observations and the literature review, an innovation space has been developed for an export/manufacturing company. This innovation space, called Krauss InnoHouse, is presented as a case study in this section. The main finding is that the originality of the developed innovation space is activating embedded knowledge. Two essential roles have been identified in activating embedded knowledge: i) the knowledge broker role undertaken by the innovation space, and ii) the knowledge worker role undertaken by experienced employees.

1 Krauss InnoHouse was developed within the scope of the InoSuit Program of the Türkiye Exporters Assembly (TIM). The project was awarded among "Best Practices in Innovation Management" at Turkey Innovation Week 2024 (TIW24). The author thanks the company's innovation ambassadors Ali Baştürk and Ahmet Taner Baştürk, and the InoSuit academic board for their contributions.

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Introduction

Innovation is a multidimensional phenomenon resulting from the interaction of various elements within an ecosystem. This is clearly evident in studies examining firms' innovation performance (Dindaroglu et al., 2017; Yıldız and Dindaroglu, 2019). At the heart of these variables are people, spaces, and their interactions. Therefore, companies today aim to develop non-hierarchical, inclusive idea and suggestion systems within their corporate innovation management systems. Given that critical information leading to genuine innovation comes from within the organization (Penn et al. 1999:195), innovations tend to come from the grassroots (Bierwiaczonek and Pyka, 2023: 682), or that bottom-up management systems encourage innovation and entrepreneurship (Li, 2023:158), this can be considered a very accurate approach. Indeed, the most powerful improvements in a given field are provided by those who directly contribute to that field.

In this context, companies are increasingly adopting platform-based structures to coordinate information flow. Physical or symbolic innovation spaces, ranging from production areas to in-house centers, facilitate creativity, collaboration, and knowledge integration. Whether located within the organization or in a separate location, the physical, sensory, and organizational characteristics of these spaces shape not only how employees work, but also how they think, interact, and generate ideas.

In this section, innovation spaces are defined as an essential component of corporate innovation systems. The most important reason is that the innovation space fosters a culture of innovation among employees by increasing the capacity of the idea and suggestion system. It has been observed that, in companies mentored under the Türkiye Exporters Assembly (TIM) InoSuit Program, this approach supports employee participation in the innovation system and strengthens innovation outcomes.

The question is: What characteristics should an innovation space possess to enhance the performance of the corporate innovation system?

A case-based qualitative methodology has been used for this purpose. This qualitative method is primarily based on observations obtained from consultancy experience acquired through the Türkiye Exporters Assembly (TIM) InoSuit Program. In addition, the research question is also addressed through a literature review. Based on findings from the observations and the literature review, an innovation space has been developed for an export/manufacturing company. This innovation space, called Krauss InnoHouse, is presented as a case study in this section. Krauss InnoHouse has been

physically established by restoring the firm's old, inactive administrative building at the entrance to the new production facility, and has distinguished itself from others due to its strong corporate memory and ability to activate embedded knowledge.

The following section first presents a conceptual framework regarding the characteristics of the innovation space. The case of Krauss InnoHouse follows this. The section concludes with a discussion of the originality of Krauss InnoHouse in activating established knowledge within the innovation space, and the presentation of the results

1. The Conceptual Background

1.1. Definition of Innovation Space

According to the Oxford Lerner's Dictionary, one meaning of "space" is a place, especially a room or a building that can be used for a particular purpose. While the concept of space, in its dictionary definition, refers to "the place where one is located," in a broader sense, it also encompasses workplaces, locations, environments, surroundings, or regional (spatial) structures. The term "spatial" has been omitted in this chapter because it is primarily used in analyses of regional innovation systems, whereas here the focus is on the innovation spaces associated with corporate innovation systems and organizational practices.

According to Oksanen and Stahle (2013:824), innovative spaces are defined as catalysts for developing a diverse range of capabilities (e.g., improving communication, reconfiguring resources) within an organization. Bloom and Faulkner (2016:1374) define 'innovation spaces' as physical or virtual spaces that enable and support the creative problem-solving of those who participate in the space. Moultrie et al (2017) define innovation space as physical areas that reflect a firm's strategic intentions toward innovation and its desired mode of operation. Wagner and Watch (2017) define innovation spaces as physical manifestations of economic, demographic, and cultural forces. Highlighting the importance of innovation spaces in collaborative innovation. Caccamo (2020:178) states that innovation spaces, which bring together multiple actors to produce new products and processes, provide firms with opportunities for convergence, productivity, socialization, and collaborative learning. Klooker and Hölzle (2024:324) define space as an enacted place, drawing on De Certeau (1984).

Drawing on definitions from the literature, ***this chapter defines the innovation space*** as a physical, collaborative workspace that brings together

diverse actors within the corporate innovation management system to drive innovation and is designed to foster employees' creativity and idea generation.

1.2. What characteristics should an innovation space possess?

To answer the question in the title, a review of the literature and definitions of innovation space makes it possible to reach the answers as follows:

i. ***Physical space versus virtual space***

While definitions in the literature generally refer to a physical space, post-pandemic research has shown that virtual meetings and online collaboration tools offer a powerful alternative to face-to-face interaction. On the other hand, Wagner and Watch (2017: 7) emphasize the growing importance of face-to-face communication as collaboration becomes increasingly crucial in advancing innovation, and due to the necessity of conveying both tacit and highly complex information. There is also evidence that well-designed physical environments increase creative synergy more than virtual environments (Nabergoj and Uršič, 2024:1) or that video conferencing hinders the production of innovative ideas (Brucks and Levav, 2022:302). Therefore, virtual spaces are not replacements for physical spaces, but rather complements to them.

ii. ***Physical characteristics of the innovation space***

The relevant literature generally indicates that the physical environment supports innovation outcomes by enhancing individuals' creative thinking. Furthermore, a place's physical characteristics increase its potential for work performance. Therefore, literature on the physical characteristics of an innovation environment assumes a unidirectional effect, focusing on factors that enhance employee creativity (Klooker and Hölzle, 2024:324). Thus, what is meant here is not only material elements, such as architectural features and interior design, but also social factors, such as visual stimuli and social spaces.

Examples of physical characteristics include light, furniture, visual stimulation, indoor plants, windows, air quality, sounds, odors, noise levels, technical support, etc. Visual stimulation and social space are prominent (Lee and Lee, 2023: 47). Meinel et al. (2017) also contribute to the architecture and interior design of an innovation space. According to the empirical results of their research, both tangible elements of space (positive sounds and smells, the use of plants in the workspace, both low-tech and high-tech office equipment) and intangible elements (personalization of the workspace, flexible furniture, dedicated areas for rest, and social interaction among employees) clearly

encourage creativity. Kristensen (2004) state that physical space affects people's well-being, information channels, the availability of information tools, and prepares the ground for creativity, and they argue that the space requirements differ in the different stages of creative processes defined as value creation, scaffolding, imagination, and materialization. Cirella and Yström (2018:12), based on a case study, presented the positive characteristics of the innovation space. These include building a shared identity, articulating a clear and consistent mission and vision, promoting specific values, designing structured processes for creative work, and creating an arena for idea sharing, debate, and networking

iii. ***Social characteristics of the innovation space***

This section reviews research that moves beyond a one-sided focus on the physical characteristics of innovation spaces, instead examining their impact on social processes such as two-way learning, collaboration, creative teamwork, and organizational culture.

Lewis and Moultrie (2005) define innovation spaces, called innovation laboratories, as facilities specifically designed to encourage users' creative behavior and support innovative projects. Researchers conclude that innovation labs strengthen companies' commitment to innovation and creativity by providing a physical manifestation of the concepts of dynamic capabilities and double-loop learning (Lewis and Moultrie, 2005:73). Stating that the relationship between innovation spaces and innovativeness is strong, Oksanen and Ståhle (2013) presented five characteristics of an innovative space. These are communicativeness, modifiability, smartness, attractiveness, and value reflection. According to Oksanen and Ståhle (2013: 820), a creative space highlights teamwork and the communicative aspects of work and study (it supports collaboration), is creatively designed (it is attractive), and reflects the personality and values of users. Weingber et al. (2014) argue that a flexible work environment enables teams to innovate, create, and design, and they refer to this space as innovation workshops. In addition, they emphasize that the opportunity to develop one's own team space proves highly beneficial for innovation teams. Wagner and Watch (2017: 7) emphasize that aligning organizational goals, culture, and people to produce a supportive and enabling design will lead to success, noting that innovation space designs are evolving toward open, flexible configurations to facilitate open innovation and collaboration (Wagner and Watch, 2017: 15). On the other hand, Maslikowska and Gibbert (2019), in their study examining the role of congruence in the relationship between workspace design and organizational culture, show that overall congruence between

space and culture is insufficient to yield positive outcomes. This research differs in that it shows that focusing solely on the relationship between space and organizational culture yields ambiguous results.

iv. ***The socio-material perspective***

This approach, proposed by Caccamo (2020:179), combines the social dimension of Ollila and Yström (2016), which emphasizes relationships between actors, with the material dimension of Cirella and Yström (2018), which emphasizes creative environments. This socio-material approach emphasizes that the social and material elements of the innovation space are equally important (Klooker and Hölzle, 2024:327). Furthermore, according to Caccamo (2020), collaborative innovation can occur only in a "transitional space" that allows multiple perspectives and cognitive exchange. Adopting a socio-material approach, Klooker and Hölzle (2024) argue that innovation space, which they call the "in-between space," cannot be intentionally designed; instead, it evolves. In addition, they put forward that the generative design of a collaborative innovation space involves three dimensions: Designing a workspace for collaborative innovation, adopting a collaborative-participatory design approach, and creating a generative reflection practice (Klooker and Hölzle, 2024:339).

1.3. Innovation Space Design for Activating Embedded Knowledge

According to the Oxford Lerner's Dictionary, embeddedness refers to the degree to which an activity, an organization, or a relationship is influenced by the social or cultural environment in which it occurs or exists. ***Embedded knowledge*** refers to knowledge embedded within processes, products, rules, and procedures, beyond that represented in documents and in the embodied wisdom and experience of individuals (Gamble and Blackwell, 2001: 17).

In other words, embedded knowledge is the implicit elaboration of past experiences, successes/failures, lessons learned, or collective memory rules into processes, products, organizational culture, or ethical principles. In this way, embedded knowledge develops its own unique, implicit processes.

The dialectical negotiation over time of distinctive skills, know-how, practices, and values creates shared organizational routines that become socially accepted and adopted by members. This process creates an organizational culture in which tacit elements may eventually become more important than explicit ones in fostering innovation (Bertola and Teixeira, 2003: 182).

Erkelens et al (2015:180) argue that when knowledge is embedded in people and practices, its transfer between different locations and practices can occur through knowledge workers. Thus, he points out that embedded knowledge can contribute to organizational learning (Erkelens et al, 2015: 192). Similarly, Andersen (2013) noted that embedded knowledge enhances the development of specialized skills through knowledge transfer. According to Andersen (2013), embedded knowledge is a framework for innovation and an essential prerequisite for high performance.

In this context, activating embedded knowledge means transferring knowledge already situated in people, applications, or places. Erkelens et al. (2015) and Andersen (2013) identify "knowledge workers" as the agents enabling the transfer of embedded knowledge. On the other hand, Bertola and Teixeira (2003: 182) argue that design is used as a strategic tool to access embedded knowledge. In this context, they define design primarily as a 'knowledge broker' that encourages the flow of knowledge from outside to inside organizations. In this approach, any design that can represent culture, whether traditionally or historically, can be considered a "knowledge broker".

In light of this information, this section defines the design of innovation space as a "knowledge broker" and experienced and senior employees as "knowledge workers".

2. Methodology

This section adopts a case-based qualitative methodology. This qualitative method is primarily based on observations gained from consultancy experience acquired through the Türkiye Exporters Assembly (TIM) InoSuit Program. The "InoSuit Program," based on university-industry collaboration, aims to sustainably develop innovation management competencies in TIM member companies, to create and strengthen innovation management infrastructure, and to design and implement corporate innovation systems tailored to each institution's specific goals, structure, and needs.

Additionally, a literature review is presented seeking to answer the question, "What characteristics should an innovation space possess to enhance the performance of the corporate innovation system?" In answering this question, the focus has been on the literature concerning the interaction of innovation space, employee creativity, and knowledge transfer. Using findings from the literature review, an innovation space has been developed for an exporting/ manufacturing company. This innovation space, called Krauss InnoHouse, is presented as a case in this chapter.

2.1. The Case of Krauss InnoHouse

Krauss InnoHouse is an organizational innovation that marks the signature of a manufacturing company that participated in and successfully completed the TIM InoSuit Program. The company's blue-collar workers' insufficient use of technology led to the design of physical environments rather than virtual ones for idea-sharing processes. Krauss InnoHouse has been established through the accumulation of knowledge gained from a review of relevant scientific literature and an examination of various innovation spaces.

2.2. Characteristics of the Krauss InnoHouse

Krauss InnoHouse has been established by restoring the old, inactive administrative building at the entrance to the new production facility. Initially, the building was reinforced while preserving the old architectural structure. Then, elements derived from the literature that could enhance employee creativity have been integrated into the space.

In the ***physical interior design***, comfortable furniture, non-glare lighting, and painting (Lee and Lee, 2023) have been used to maintain a cozy and attractive atmosphere (Oksanen and Ståhle, 2013). Plants have been used both within and around the space (Meinel et al., 2017). Both low-tech office equipment for blue-collar workers and high-tech office equipment for researchers and engineers have been installed (Meinel et al., 2017). In addition to sensory stimuli such as light, sound, smell, and texture, sensory stimulation of an innovative culture, such as visuals emphasizing the value of creative ideas, has been integrated into the space.

To enhance interaction among employees and foster a collaborative work environment (Klooker and Hölzle, 2024), a ***socio-material perspective*** has been adopted, treating social and material elements as equally important (Caccamo, 2020). To increase employee interaction, shared social spaces, such as break and rest areas, have been created around the innovation area. These social spaces have enabled employees to relax without leaving the innovation area, and conversations during tea and coffee breaks have become innovation-related. It has been observed that these social spaces have, over time, transformed into ***informal meeting areas***.

Krauss InnoHouse's ***location*** at the entrance of the production facility has attracted the attention of ecosystem stakeholders, including customers, suppliers, and researchers. It's warm and friendly atmosphere has encouraged these stakeholders to contribute to the idea/suggestion system. The suggestion boxes and easily accessible virtual suggestion system located here have fostered collaboration.

The firm at the center of the case study, despite its strong production and financial structure, had areas for improvement in its corporate innovation management system. Therefore, in establishing the innovation space, various tools have been developed to improve the corporate innovation system simultaneously, and numerous organizational innovations have been implemented. ***The transfer of the developed tools to the corporate innovation system has primarily been conducted through Krauss InnoHouse***.

In this context, regular training sessions ***and idea-sharing workshops*** (Cirella and Yström, 2018) have been organized to create and disseminate a culture of innovation within the firm. At Krauss InnoHouse, these activities have become routine. ***Face-to-face training sessions*** and workshops have made it easier for blue-collar and senior staff, who are unable to adapt to virtual environments, to participate in the idea and suggestion system. ***This has led to the creation of a more inclusive system.***

Announcements regarding the ***Incentive/Reward System***, which governs monetary rewards for employees' contributions to the innovation system, are displayed visually at Krauss InnoHouse. In this way, users are honored (Oksanen and Ståhle, 2013), and the value the company provides is made visible (Cirella and Yström, 2018).

Finally, the most essential feature of Krauss InnoHouse is its ability to activate embedded knowledge. This unique aspect of Krauss InnoHouse will be discussed in the following section.

3. Discussion on the Originality of Krauss InnoHouse: Activating of Embedded Knowledge trough an Innovation Space

Krauss InnoHouse was physically established by restoring the old, unused administrative building at the entrance to the new production facility. This choice to transform the old administrative building into an innovation space gave it a unique character. This structure became a physical representation of the embedded knowledge. By changing the company's first campus building into an innovation space, Krauss InnoHouse has established connections that enabled the activation of embedded knowledge. Two channels exist here:

I) ***The role of knowledge worker:*** Those who worked here for many years have associated this building with personal memories; stories such as their first salaries, first work experiences, and old production processes have created a strong emotional bond with the place. ***This bond has supported the development of specialized skills by increasing the voluntary participation of experienced and knowledgeable knowledge workers in the innovation process, enabling the transfer of embedded knowledge.***

II) ***The role of knowledge broker:*** When knowledge becomes ingrained among the people working in the innovation space, each with unique experiences and skills, the field becomes highly attractive to both company employees and the labor market. Because knowledge is personalized and embedded in those who possess it, its dissemination occurs through the labor market. This is the fundamental reason for being there (Mariussen and Asheim, 2003: 73). ***This attractiveness has enabled the innovation space to act as a knowledge broker and to facilitate the transfer of embedded knowledge.***

Conclusion

In this section, innovation space is defined as a fundamental component of corporate innovation systems. The most important reason is that the innovation space fosters an innovation culture among employees by increasing the capacity of the idea and suggestion system. For these reasons, this section aims to answer the question, "What characteristics should an innovation space possess to improve the performance of a corporate innovation system?" To this end, a case-based qualitative methodology has been adopted. This qualitative method is primarily based on observations obtained from consultancy experience acquired through the Türkiye Exporters Assembly (TIM) InoSuit Program.

On the other hand, a literature review has been conducted to answer the research question. Based on findings from the observations and the literature review, an innovation space has been developed for an export/manufacturing company. This innovation space, called Krauss InnoHouse, is presented as a case study in this section.

The main results obtained are summarized as follows:

- First, virtual spaces do not replace physical spaces; rather, they complement them.
- The location of the innovation space should attract the attention of ecosystem stakeholders, including customers, suppliers, and researchers.
- Social elements are as crucial as physical elements in the design of the innovation space.
- It is recommended that the architecture and interior design of the innovation space support innovative ideas and that sensory stimuli be incorporated into the physical space.

- It is recommended to create social areas that support regular training sessions, idea-sharing workshops, an Incentive/Reward System, and informal meetings.
- It has been determined that the original feature of the developed innovation space is its ability to activate embedded knowledge. Two essential roles have been identified in activating embedded knowledge: i) the knowledge broker role undertaken by the innovation space, and ii) the knowledge worker role undertaken by experienced employees.
- Finally, activating embedded knowledge within the innovation space has increased voluntary participation in the innovation process, supported the development of specialized skills, significantly enhanced the capacity of the idea/suggestion system within the corporate innovation system, and ensured the spread and establishment of an innovation culture among employees.

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