MAGNET

PHYGITAL CAFE AND EVENT SPACE

EXPLORING THE NEW GENERATION OF DIGITAL INTERACTIONS IN COWORKING SPACES

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“MAGNET - PHYGITAL CAFE AND EVENT SPACE”.
EXPLORING THE NEW GENERATION OF DIGITAL INTERACTIONS IN COWORKING SPACES.

ELENA NAZAROVA
989951
SUPERVISOR: FRANCESCA FOGLIENI

Politecnico di Milano I School of Design I Master of science
Interior and Spatial Design
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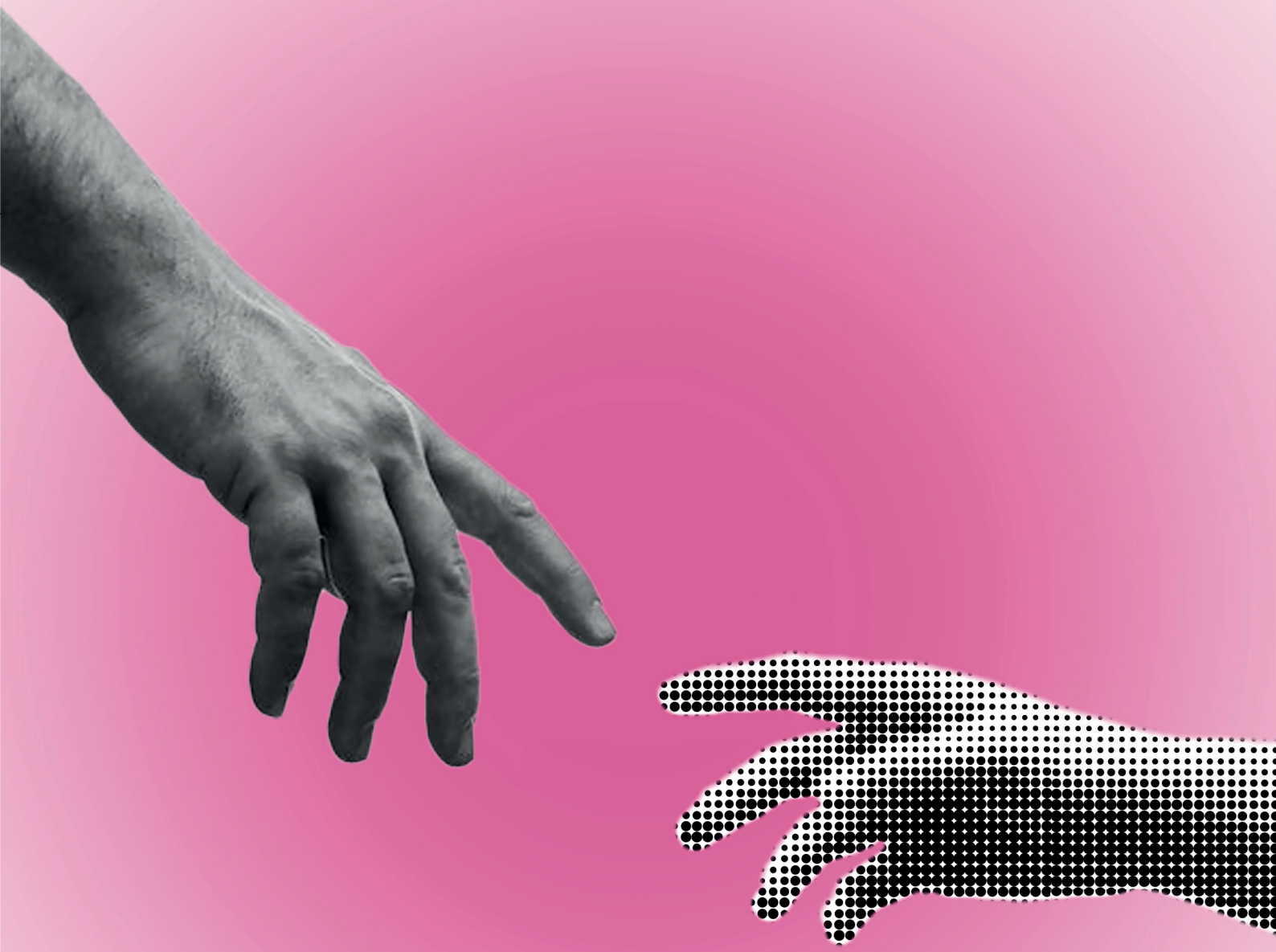

ABSTRACT

This thesis is dedicated to the design of a "third space" within a coworking office - Magnet - encompassing the entrance and reception zone, cafe, and event spaces. The office is located in Milan close to the Politecnico di Milano campus. The underlying concept of coworking at Magnet revolves around a deliberate integration of digital technologies with physical space. Serving as a convergence point for remote workers, startups, and freelancers primarily engaged in creative and high-tech sectors, this space is chosen for its capacity to facilitate work, collaboration, and networking. The primary objective of this project is to establish congenial and welcoming conditions for meetings, communication, and business interactions through the adept utilization of digital technologies, thereby transforming the impact of digital technology on human communication from negative to positive.

The progression of this thesis is underpinned by a comprehensive exploration of the digitalization of workspaces in the post-pandemic era and the pivotal role played by third informal spaces in fostering networking within office environments. Subsequently, a thorough analysis of relevant case studies informs and inspires the conceptualization of the project, finalizing the design phase.

The design comprises three principal areas fostering informal interactions among coworking users. Commencing with the entrance zone housing a reception and self-check-in area, the configuration extends into a cafe seamlessly integrated with an event space. The cafe features a live conversation bar staffed by a human barista, an automated coffee station around which users can gather, digital tables facilitating communication, and a self-service station for food and drinks. Mobile partitions demarcate the cafe from the event space, the latter being utilized for workshops, and conferences, and also functioning as an extension of the cafe during idle periods.

As an outcome, the proposed design aims to offer comfortable conditions for communication among new users, mitigate feelings of loneliness within the coworking space, attract a new target audience, convey brand identity, and optimize both spatial utilization and the company's budget.

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Introduction: Towards the era of phygital offices

1.1. The rising role of digital over physical at work

The structure and function of the office space have changed dramatically with the rise of the internet and digitalization, while remote working and flexible working hours have allowed many people to organize their work environments. In response to this change in work culture, co-working spaces and rented workspaces have been established. Workers' motivation to use co-working is associated with the fact that they seek a workplace that is away from home, has an inspiring and dynamic atmosphere, offers an economical form of accommodation, and allows the opportunity for social interaction with co-workers (Weijs-Perrée, 2018).

Summarizing the work of Joao Baptista in 2018 about blending physical and digital environments, we can highlight the main idea that office workers have been impacted directly by a phenomenon called phygital, where physical experience is blended with digital experience. For today's employed and self-employed workers, this translates into the ability to be immersed in a virtual environment and handle work and personal tasks from almost anywhere in the world, while the physical experience has become less valuable. Being immersed in the virtual world has led to disconnection from the nearest environment, disconnecting users from their neighbors and even from our bodies.

Nevertheless, the role of the co-working space is changing from a primitive workplace with internet access to a comfortable place for work, networking, socializing, and even leisure activities. This demand from users is related to the loss of social connections with colleagues and like-minded people due to remote work or the absence of a team (Wygal, 2022).

In coworking, such tasks require a third space, which is neither a workplace nor a secondary utility space and this experimental platform is necessary for users to network and socialize, relax, and have new experiences.

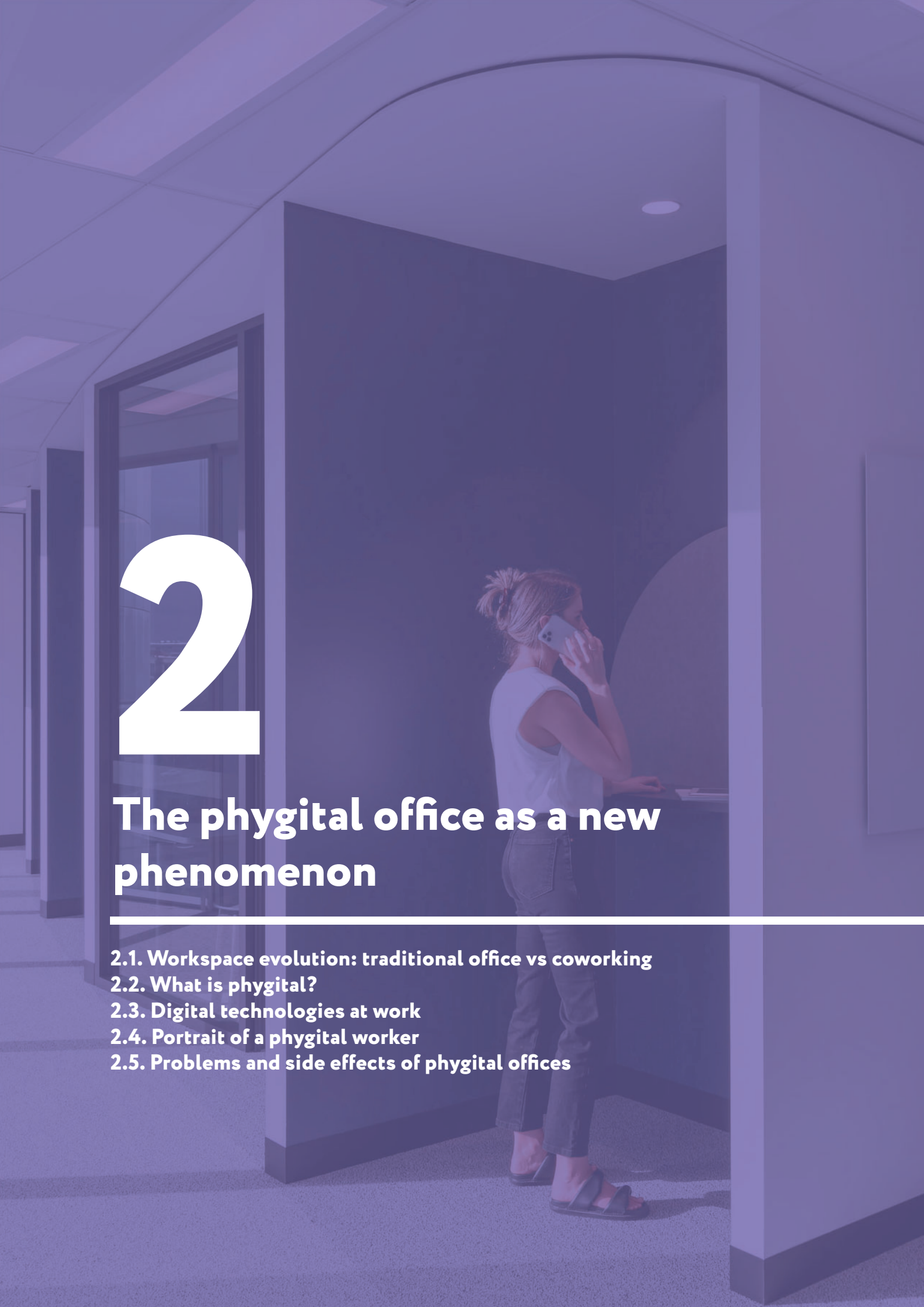
Based on this premise, the development of an experimental third space in the "Magnet" co-working was proposed, which combines a standalone digital cafe station and event space.

1.2. Digitalization for socialization

The main objective of this thesis is to explore the role of "third space" in coworking offices for socializing and networking using the positive aspects of digitalization in work and recreation while compensating for the negative effects of the widespread presence of digital technologies.
The aim is to design the Third place in the existing G-gravity coworking located in Milan. This space includes 2 zones with a high-digitalized cafe and event area. These spaces merge into each other and can shift depending on the application.
They are made up to engage in social and entertaining activities using digital technologies the processes of communication with the cafe, and order will be optimized and simplified, and the freed-up time and space will be given for communication and acquaintance with other users of the co-working space. The layout and technology will stimulate communication between people in the cafe and during events.
They are organized in such a way that the users of the co-working space can switch from individual online activities (like checking their phone or watching videos on YouTube and Instagram) to live communication with colleagues and other visitors, which also includes entertaining or educational content in the event area.
An additional goal is to increase the quality of intellectual work as well as to improve the commercial appeal of the co-working space.

1.3. Research methodology

The research methodology has been divided into three parts.
First, the theoretical framework is done to understand how workspaces have evolved into the offices that are seen today also along with hybrid working. Next, there are reviewed new digital technologies in the workplace and built a portrait of a typical co-working space user, and it is explored how technology affects these users and what challenges they face.
In the next chapter, the importance of "third place" in offices is addressed. This starts by first understanding the changing role of the "third space" at work like cafe and office living room from formal to a less formal type. From this, the research moves forward to understand the crucial role of these spaces for networking, building connections, and its positive leisure effect. Further explores which digital technologies have already been successfully implemented in these spaces. The final insight from this chapter is the importance of integrating technologies into the "third places" to stimulate socializing in the coworking space.
Based on the design drivers, the next chapter focuses on case studies where technologies, flexibility, and spaces for socialization were carried out successfully. These case studies provided a basic understanding of the ways and methods to be applied in the project development phase.



2

The phygital office as a new phenomenon

2.1. Workspace evolution: traditional office vs coworking

The evolution of offices into co-working spaces has been influenced by various factors over the years. Co-working spaces emerged as a reaction to the development of internet and digital technologies and the rise of coworking offices is a result of globalization and corporate neoliberal policies that have left knowledge workers seeking out community for both social and professional needs (Boyer, 2018).

Co-working represents an alternative for freelancers, remote workers, entrepreneurs, small and micro enterprises, among others, who previously did not have appropriate spaces to carry out their activities (Brown, 2017; Bouncken and Aslam, 2019). In addition to a physical environment, these also represent a new workspace format, where workers can foster creativity, improve communication, share knowledge, exchange information, and, consequently, identify new business opportunities (Spinuzzi, 2012).

Co-working emerged as a 'third way' between a 'standard' occupational life in a traditional, well-defined workplace within a community environment, and an independent and autonomous one, in which workers were restricted to the home office and professionally isolated (Christino, 2022).

Figure 1. Old type of office: fixed table near colleagues.

Figure 2. New type of office: no office, individual work.

Analyzing the article of Hensher et al. (2023) I noticed a trend of offices turning into co-working spaces started before 2021, COVID-19 accelerated the trend as companies across the globe were forced to adopt remote working policies to ensure business continuity. Many employees experienced the benefits of working from home or in a co-working space during the lockdown, leading to an increase in demand for flexible workspaces post-pandemic.

Co-working space is rented by people whose jobs allow them to work remotely with just a laptop and internet access, but co-working spaces offer both standard office equipment and more specific video calling and conferencing equipment. Some of them have a strong emphasis on employee well-being and offer amenities such as common areas, gyms, meditation rooms, and ergonomic workstations to increase productivity, job satisfaction, and work-life balance OpenAI. (2023).

Thus co-working spaces have become a new flexible and improved workplace for remote workers, freelancers and small businesses, where people feel a sense of belonging to a community of like-minded people, share experiences and build new professional connections.

2.2. What is phygital?

The term "phygital" is a combination of two words: "physical" and "digital." It refers to a type of work or work environment that blends physical and digital elements seamlessly, combining aspects of the physical world with digital technologies and tools (WhiteKube, 2022). The concept has gained popularity as technology continues to play an increasingly significant role in our everyday lives. The ubiquity of mobile digital media drives constant connectivity and the emancipation of people from physical locations and physical presence with others (Baptista, 2018).

In a phygital office, you may find elements like smart meeting rooms with interactive displays, IoT devices for efficient space management, advanced communication tools, virtual collaboration platforms, augmented reality (AR) or virtual reality (VR) setups for training and meetings, and other digital technologies that improve productivity and employee experience. In a phygital office, traditional physical office spaces are enhanced and complemented by various digital tools and technologies. This integration allows for increased collaboration, streamlined processes, and improved productivity OpenAI. (2023).

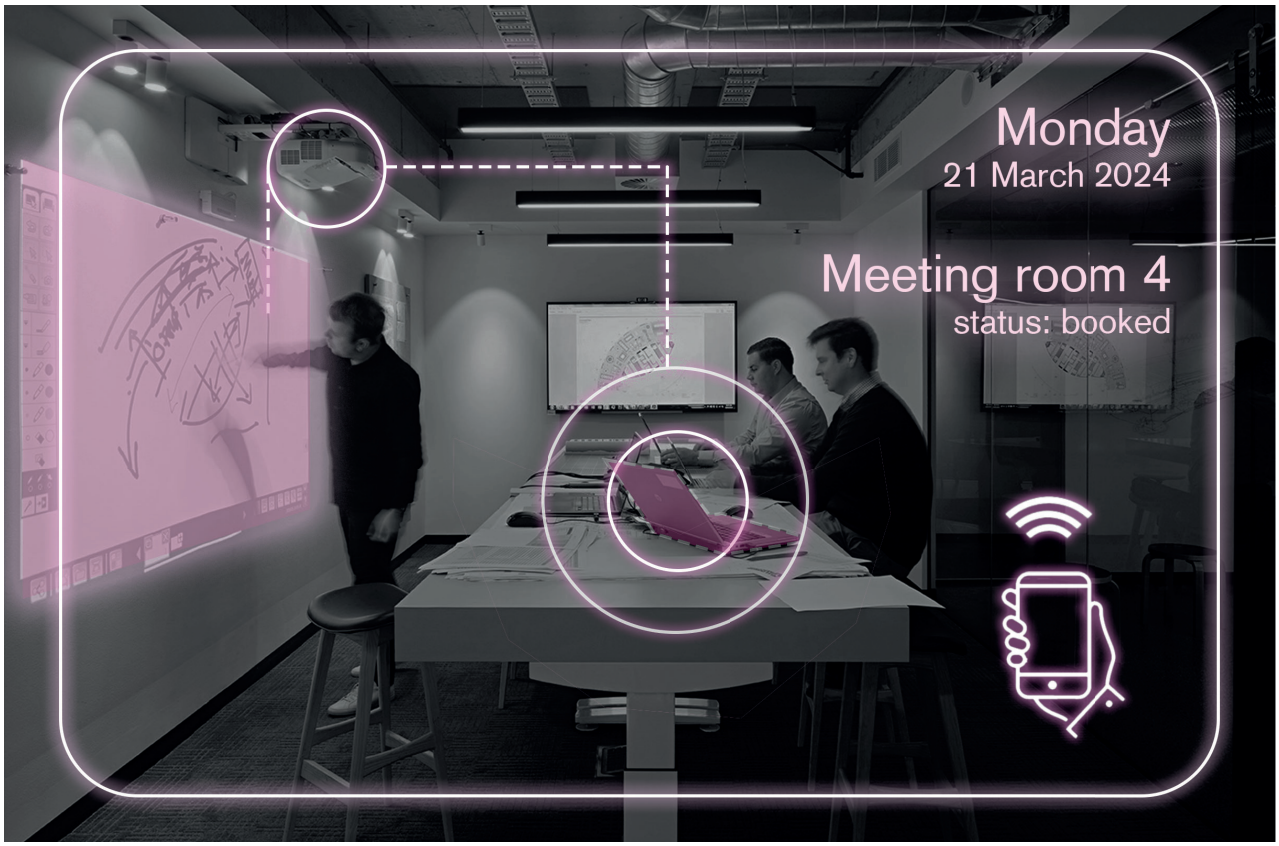


Figure 3. Phygital office.

Although the health and safety precautions may fade away post-pandemic, many of the technologies that have gained popularity will stay. This means that many of these virtual workers will no longer be required to return to the office, and the innovations like online platforms Slack and Trello that have been developed to allow for virtual collaboration will remain important tools for the successful completion of their work. Many experts anticipate a "tele-everything" world, which refers to the ways in which people's relationship with technology will deepen (Davis 2011)
This movement towards digital working has meant that many organizations have had to rethink the role of the physical office space in response to these new emergent patterns of work. Despite using digital media to enable more flexible working practices, many modern organizations have made significant investments to upgrade and rethink their office buildings to bring employees back to the office for collocated working practices (Baptista, 2018).

2.3. Digital technologies at work

The physical environment of the workplace is being enriched by new digital technologies, bringing people from all over the world together and creating a new working reality. Below is the list of digital technologies taken from the article by Accenture (2023) that give us a unique phygital experience and are available to a wide range of people now:

- **Digital collaboration tools.** Video conferencing platforms, virtual conference rooms, and collaboration software ensure seamless communication between remote and internal teams.

- **Internet of Things (IoT) devices.** Smart sensors and IoT devices can be integrated into office space to control temperature, lighting and occupancy, optimize energy consumption and improve comfort.

- **Virtual Reality (VR) and Augmented Reality (AR).** These technologies can be used for virtual office tours, immersive learning sessions, and enhancing the overall work experience. The Metaverse is the next iteration of the Internet powered by artificial intelligence (AI) and new 3D visual technologies such as augmented reality (AR) and virtual reality (VR). Accessible via Web3, the metaverse provides creative opportunities for interaction and participation, as well as a decentralized digital identity and economy. It is an expanding continuum of digital worlds, realities, and even business models.

- **Cloud systems.** Using cloud-based document management and project collaboration tools provides easy access to files and data from anywhere.**AI-driven automation.** Implementing artificial intelligence can help automate routine tasks and improve the efficiency of various office processes.

https://skywell.software/blog/beneficial-use-of-virtual-reality-in-the-workspace/

https://takeleap.com/blog/the-future-of-holograms-and-the-technology-s-potential-impact-on-society

- **Digital Signage.** Interactive displays and digital signage can be used for intercom, announcements, and office navigation.

- **AI-driven automation.** Implementing artificial intelligence can help automate routine tasks and improve the efficiency of various office processes.

- **Mobile Apps.** Programs that allow users to access company resources, book conference rooms, and receive notifications on the go.

- **Robotization.** Multidisciplinary field where a mechanical or virtual device can replicate or enhance human actions and decision-making abilities in environments that are hazardous, remote, or difficult for humans to access.

- **Holograms.** Three-dimensional (3D) images created by recording light patterns and then reconstructing them to simulate the appearance of a physical object in space which gives immersive and realistic visual experiences compared to traditional screens when physical presence is impossible (von Goeler, 2020).

2.4. Portrait of a phygital worker

The Internet and global computerization and, as a consequence, dematerialization of the workplace, produced the rise of a new generation of so-called freelancers and entrepreneurs, working primarily in the tertiary sector such as the creative and digital economy (Ceinar et al., 2021).

Based on the article by Bouncken in 2016 and the study by the Coworker Members' Choice Awards launched in 2018 I classified the main users of coworking in these types of workers:

1. **Freelancers and digital nomads (19,43%)** Independent professionals, remote workers, and freelancers who need a dedicated workspace away from home or traditional offices (bloggers, YouTubers, journalists).
2. **Startups and small businesses (65,05%)** Entrepreneurs and small business owners who sought flexible and cost-effective office solutions for their teams (for example, architecture companies).
3. **Remote entrepreneurs and corporate employees (13,17%)** Employees of companies with remote work policies who preferred a more dynamic and inspiring workspace outside their homes (SMM specialists, programmers).
4. **Employees of large-scale corporations. (2,35%)** Workers whose companies have been geographically separated, relocated or converted to telework.

The results of Coworker's study reveal that the most common demographics of people who use coworking spaces are members of small companies and startup teams.

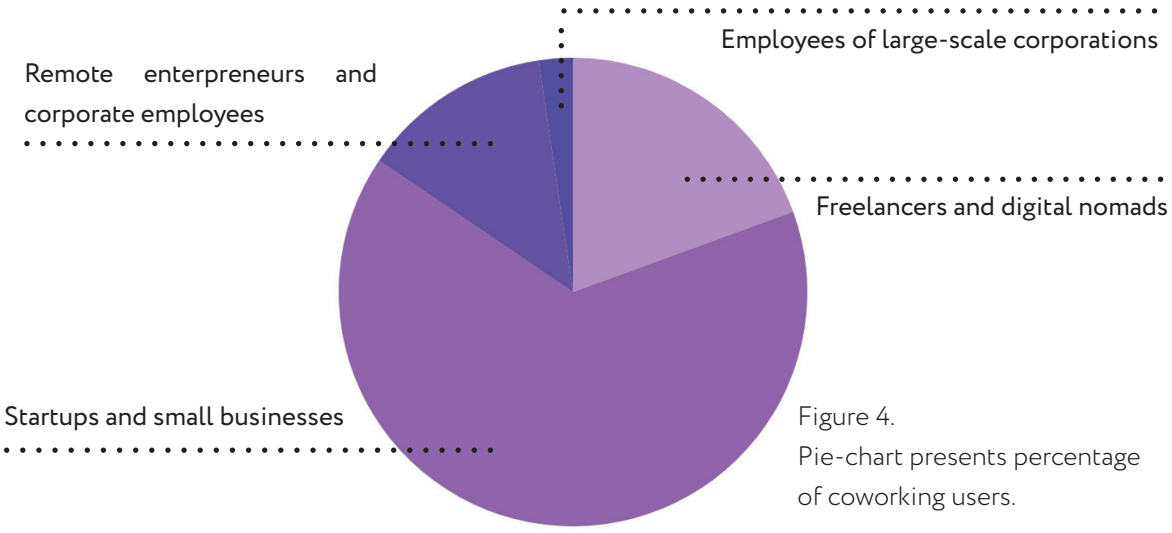


Figure 4.
Pie-chart presents percentage of coworking users.

2.5. Problems and side effects of phygital offices

Despite the fact that co-workings solve many problems of modern freelancers, entrepreneurs and remote workers and adapt to their needs, they are still not perfect and also have their weaknesses. A Harvard Business Review (2023) gives an example of the discomfort of working in a shared co-working space where "too much together time, without enough individual focus time" (Keane, 2023).

This is caused by the unfortunate open space type layout of the co-working space, adopted from the old type of office, and the greediness of the owner to accommodate as many workstations as possible. If we consider a typical work of a remote employee with colleagues or partners in different cities and countries, it is morally and physically exhausting for them because of the impossibility to have non-verbal contact or live conversation with colleagues.

An article by Wygal (2022) gives such an example: "For companies that have employees who would fly out to various locations frequently to collaborate with teams in other states, the option to meet over Zoom has saved a lot of time, money, and hassle, and has made that communication easier. At the same time, many people are fatigued by Zoom calls"

To sum up the article mentioned above, single users of co-working spaces have a feeling of loneliness and isolation, because they are online a lot of the time, but live contact with other users of co-working spaces is minimal unless special conditions are built for it.In addition to individual users, employees of small startups and company departments also work in co-working spaces. In teams, they feel a double load due to the combination of live and online communication with colleagues, and some of them also feel that their social circle is not large enough.When companies move to co-working centers or the head office is divided and split into mini-offices using co-workings, employees can feel quite lost because of the new structure and lack of friendships and contacts, lack of common interests and community around one company as before.

All of these weaknesses of co-working and the peculiarities of remote work affect the satisfaction of users with their type and place of work, as well as the overall level of happiness. These weaknesses can be addressed by owners and managers of co-working spaces, either individually or together, raising the overall quality standards of such offices.

3

Redefining new centers of socialization

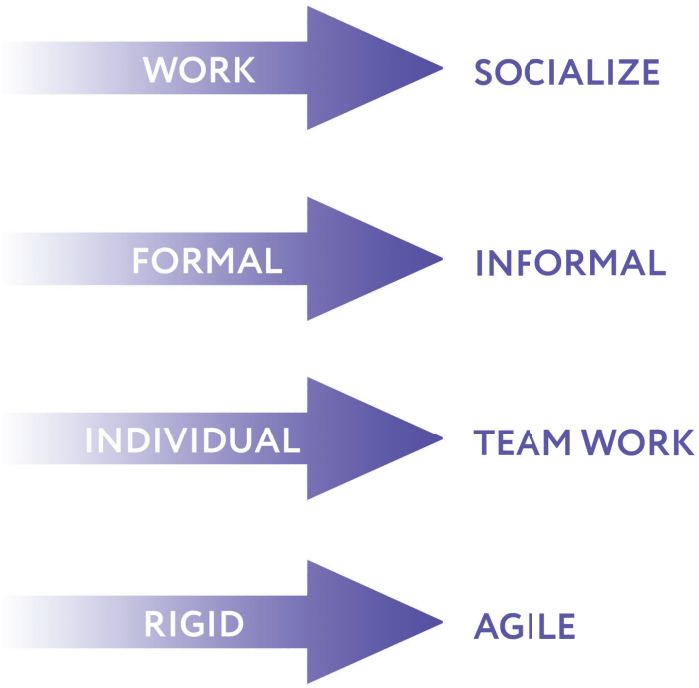
3.1. Spatial and functional transformation of offices and coworking in the phygital era
3.2. "Third spaces" as a new hub of networking
3.3. Digital technologies in "third spaces": cafeterias, event zones, and reception

3.1. Spatial and functional transformation of offices and coworking in the phygital era

The development of digital technologies and the pandemic phenomenon are forcing offices to transform in order to stay on the market. The traditional type of office no longer responds to modern requirements and is at risk of extinction. Co-working spaces have appeared due to changes in the type and approach to work, but they too have to adapt to the changing world. The post–COVID–19 workplace will shift from a place where people work to a place where teams meet, socialize, and connect (Tech Trends 2023). This means that for the most part, post-pandemic people do not come to the office for quiet solitary work, but rather to interact with others. This likely will require businesses to significantly retool and redesign their office environments to meet workforce preferences and re-envision the workplace as a social hub to boost human experience and performance (Tech Trends 2023, n.d.).

Digitalization has impacted most work processes in and out of the office. Over the years of the pandemic, employees have caught up on their digital skills and computer and software proficiency and many of them have shifted to hybrid work, combining physical and remote presence. The office will likely be retooled to more easily permit virtual and technologies can create parity of experience between people meeting in the office and remote participants. (Tech Trends 2023, n.d.).

Figure 5. Office transformation in digital era.



Designing for employee engagement in digital-to-physical space means thinking like a movie director – lights, camera, audio, content. Ample power supplies, whiteboards, and a variety of software solutions will contribute to an easier, more seamless hybrid collaboration experience for people (Keane, 2023).
Conference rooms with video and audio connectivity to work with all team members, including remote employees, will become more in demand. It will be a cross between a television production facility and a conference room; they feature audio/video capabilities, furniture, and lighting that allow participants to interact with someone half a world away as easily as with the colleague seated next to them (Adecco, 2022).
Digitalization will also affect administrative tasks. There are already apps that allow employees to see traffic areas and booking systems to plan their schedules and places to work. It will be possible to order a coffee or lunch from your phone in the cafeteria and pick it up at a convenient time. Changes in the type of work and digitalization are reflected in the zoning of spaces and their functions. (Wygal, 2022)

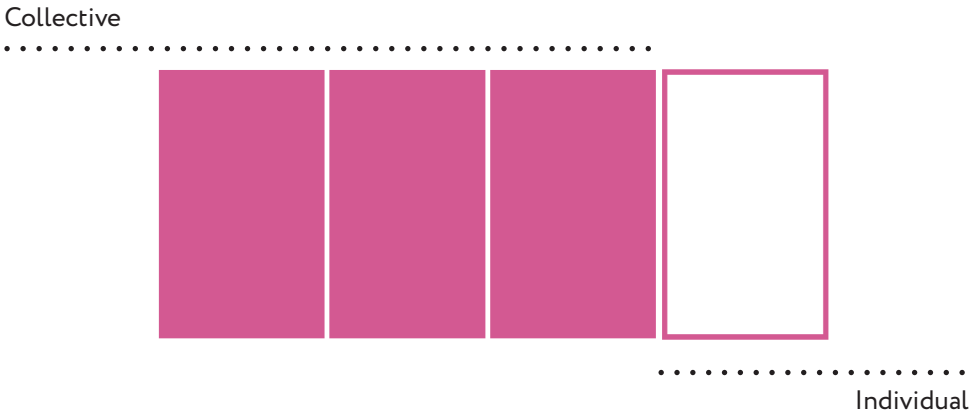
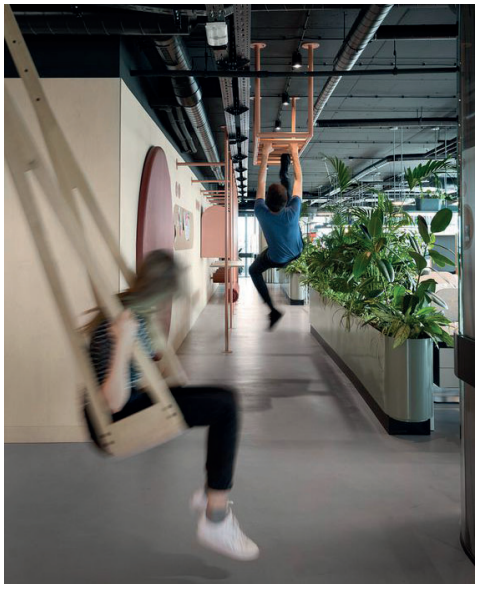


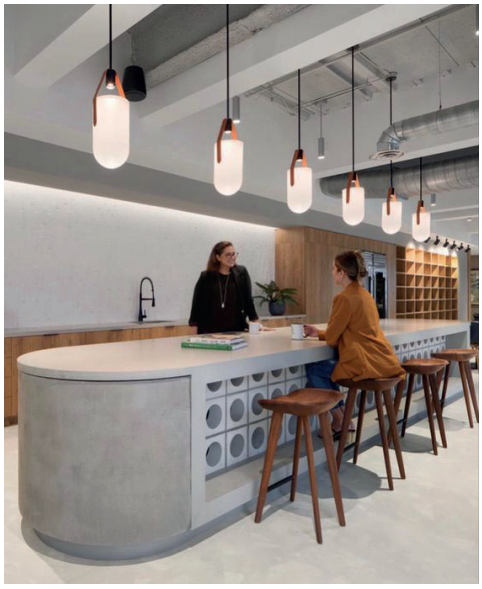
Figure 6. Workspace use in future offices.

To meet the needs of the future workforce, these proportions likely will need to flip, with roughly three-quarters of the workspace for collective use and the rest set aside for individual work (Tech Trends 2023, n.d.). Also, instead of cubicles and open spaces with an endless number of cubicle desks will be an open-plan office, which allows users to easily share workstations and does not impose rigid boundaries between the zones of individual teams (Msikora, 2023).

We are witnessing a trend toward increased demand for additional informal spaces in the type of lounge areas, playrooms, and kitchen areas or cafes. Even meetings with colleagues and teamwork are starting to relocate to the food and beverage zone. All this indicates a decrease in the degree of formalization and a shift to more relaxed informal communication and breaks from work. For hybrid workgroups, the office becomes a place to socialize and build relationships daily, and the distinction between social space and workspace blurs. Kitchens and dining areas are part of social space and organizations are willing to dedicate more space to them and incorporate custom designs (Msikora, 2023). These rooms are being used as areas for team meetings and integration, where current projects are discussed over food in a less formal atmosphere. They are also becoming places where larger company-wide meetings are held, both informal and formal such as quarterly summaries (Msikora, 2023).
Overall, in modern workspaces, there is a trend of a massive shift from formal to informal communication and behavior, from individual to teamwork, from rigid planning to flexible and agile zoning, and it is all linked with comprehensive digitalization.



https://divisare.com/projects/425103-studio-autori-relja-ivanic-catena-media-serbia



https://interiorarchitects.com/projects/banco-itau/

Overall, in modern workspaces, there is a trend of a massive shift from formal to informal communication and behavior, from individual to teamwork, from rigid planning to flexible and agile zoning, and it is all linked with comprehensive digitalization.

3.2. "Third spaces" as a new hub of networking

Workers' motivation to use co-working is associated with the fact that they seek a workplace that is away from home, has an inspiring and dynamic atmosphere, offers an economical form of accommodation, and allows the opportunity for social interaction with co-workers (Weijs-Perrée, 2018).
Coworking users are united by a similar approach to work, flexibility, most often age and educational level, while they do not compete in work.
Co-working spaces are more than mere offices, as co-workers often share the same core values, namely collaboration, community, accessibility, and sustainability (Christino, 2022). But a specific type of work and the fact that these people work for different companies or on themselves and don't know anyone before they join the co-working community makes them feel uncomfortable in the beginning or even stops them from using these spaces. Current users also mention the high impact of digital and virtual work with remote colleagues which makes present users of co-workings more isolated from each other in the real physical space, which leads to social isolation (Hofeditz, 2020). As a consequence, owners of co-working spaces face the challenge of how to make the atmosphere more comfortable and friendly, how to create a sense of belonging to this community, and how to reduce the distance between users and melt the ice in communication.

> ***"Installing a magnet space or a place similar to a cafe space, where workers can gather, is considered important for activating informal communication"***

There are successful examples of modern co-working spaces and offices that already work on this problem and there we see that there were designed spaces that create natural opportunities for social interaction which spark new ideas and a refresh for the brain. Sometimes located near entryways or lobbies, these warm community settings convey the specific company personality, creating an immediate, almost palpable energy within the workplace for employees and visitors. Creating spaces where people can take a break, have coffee, look at art, or communicate with others around them invites camaraderie and creativity, creating strong bonds between the coworking users (Foong 2019).

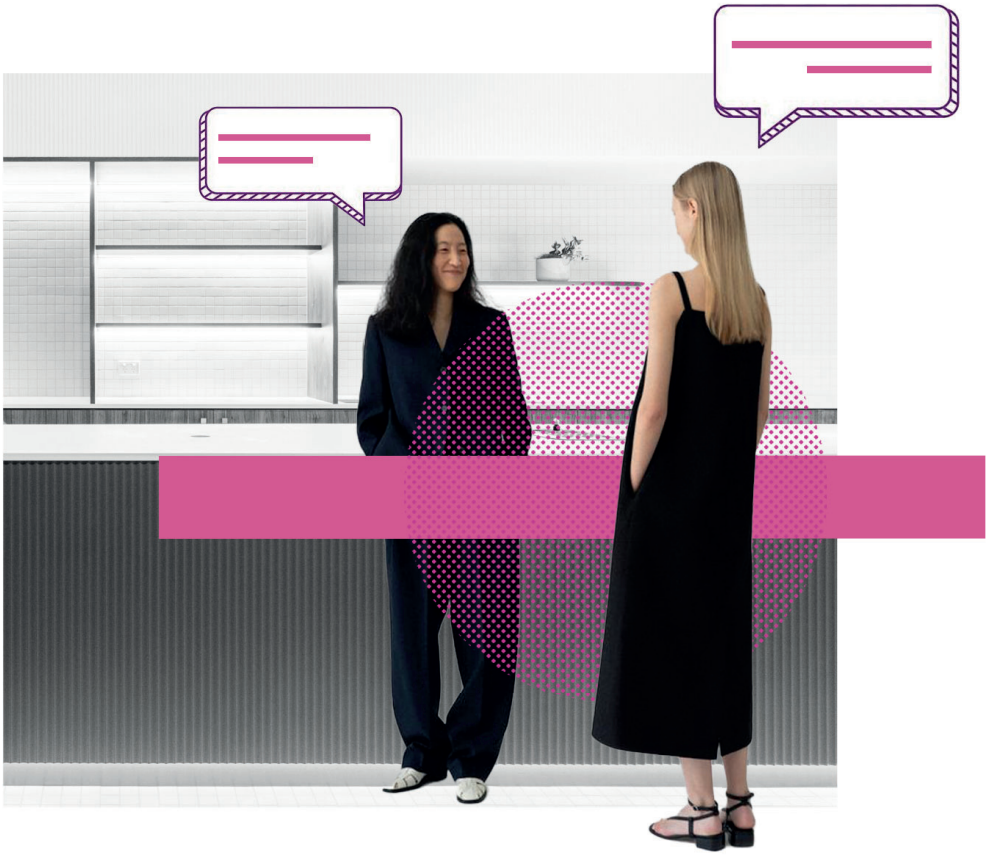


Figure 7. Office kitchen as a new hub of networking.

Communication appears more often between users and can be described as café-style areas, areas for breaks with comfy seating reminiscent of a living room. It has also been observed that strong bonds between coworkers and users are built during work hours over shared breakfasts and lunches. This engages people in a social setting and often encourages a different dialog than across a desk or conference table (Metz, 2019). In Japan, there was a study that the chances of communication in the office increase in the café area even if unfamiliar people working in the same company cross paths during a coffee break. Installing a magnet space or a place similar to a cafe space, where workers can gather, is considered important for activating informal communication (Satoh, 2022).

The events also help in building new contacts and strengthening ties within the co-working community, both during working hours and in the evening. Social events were particularly effective at fostering a SOC because they were volitional and separate from any work-related agenda. An opportunity such events provided to talk about non-working things, enabling them to discover additional common interests (Garrett, 2017).
Thus, in order to reduce the distance between people and give users a sense of belonging to the local community, special places like cafes and lounge areas need to be created in the co-working space, which will help and encourage meeting and further communication in a more relaxed, safe and relatively informal environment. Community building is also greatly enhanced by activities in the coworking space during and outside of working hours. The owners and managers of the co-working space should be interested in creating such spaces and giving them meaning and a friendly atmosphere to encourage existing users to stay in the co-working space and new users to join.

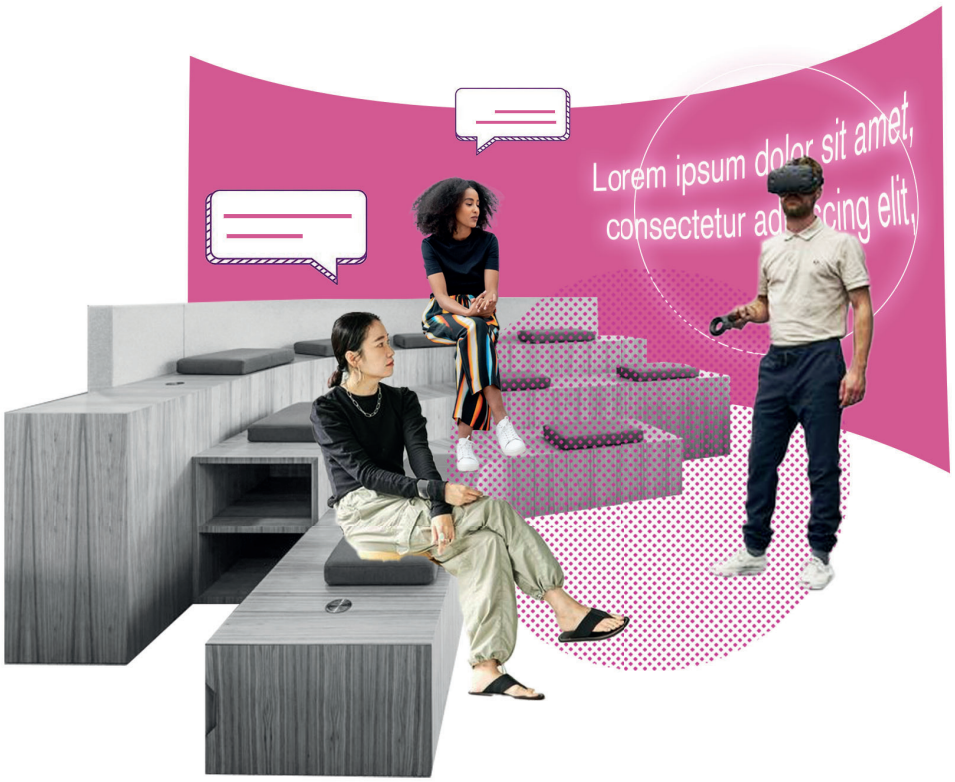


Figure 8. Event and meeting space as a new hub of networking.

3.3. Digital technologies in "third spaces": cafeterias, event zones, and reception

Modern co-working spaces and offices that utilize digital technologies in their work can be successfully used in managing other processes as well. In service areas such as reception and cafeterias, as well as in highly specialized areas such as event spaces, it is already possible to use less human labor and automate the process. Applications, sensors and devices can perform standard tasks almost without human assistance. First of all, the owners of such businesses are motivated by economic benefits, and for the business, it leads to optimizing work, saving employees' time, reducing paper waste, and reducing staff to maintain and control all processes.

a. Reception area.

The first thing a visitor sees is the entrance, reception and lounge area of the coworking space. Already here it is possible to introduce technologies in the form of digital reception.
It is a solution that streamlines and automates the visitor sign-in process, removing the queues and manual tasks at the reception area (Solutions & Solutions, 2023). Also, the reception area can be supplemented with the technology of a self-service kiosk for check-ins, membership verification, and issuing access cards.

https://medium.com/marketing-in-the-age-of-digital/covergirl-utilizes-ar-and-more-for-personalized-beauty-3628af25c51a

https://www.uniqhotels.com/9-hours-capsule-hotel/

https://neilkite.com/project/one-new-change

Another effective tool is digital signage. These displays can provide dynamic information about the coworking space, important announcements, personalized greetings for members, and even work as a wayfinding tool.
Some offices are going more drastic and replacing or supplementing humans with robots, which are used for tasks like greeting visitors, directing them to the appropriate areas, or providing general information about the space.(Solutions & Solutions, 2023).

b. Cafe area.

A very young phenomenon is the introduction of digital technology in the cafe area, including the coffee station and kitchen. Using an app on the phone it is possible to order food in the cafe and come to pick up the order by the appointed time and even check the cafe's workload, which helps minimize queues on-site. Cafes can have kiosks for ordering or vending machines with boxes for the delivered food. During the pandemic, their popularity increased drastically.

https://www.archdaily.com/983477/blue-bottle-coffee-pop-up-cafe-shibuya-schemata-architects

A much bolder solution was borrowed from Japan, where the first cafes appeared with robots that deliver the order directly to the visitor's table. For example, in the Merry-Go-Kitchen cafe customers can place an order using a dedicated mobile app. It gives access to the menu, ordering options, and payments. and in this way, the customer's journey is fully digitalized and mobile. Once the order is placed, robots use a special conveyor to hand out cutlery, dishes, napkins, and drinks. As the customer receives their order, they can return the robots by pressing a red button below the conveyor belt. For those sitting far from the conveyor belt, two robot waiters will deliver the food to the right table, relying on navigation sensors to avoid obstacles and reach the customer (Turchenko, 2023).

https://sf.eater.com/2018/2/6/16976446/cafe-x-sf-robot-coffee-market-street

Robots are now being used for food preparation as well and can be a point of attraction in the heart of a cafe. When a visitor is already seated at a table, their experience can be enhanced by screens integrated into the table with functions for ordering, payment, entertainment, and socializing during the meal.

https://www.bizbash.com/venues-destinations/united-states/new-york/media-gallery/22751459/new-venues-in-new-york-for-spring-2023-meetings-and-events

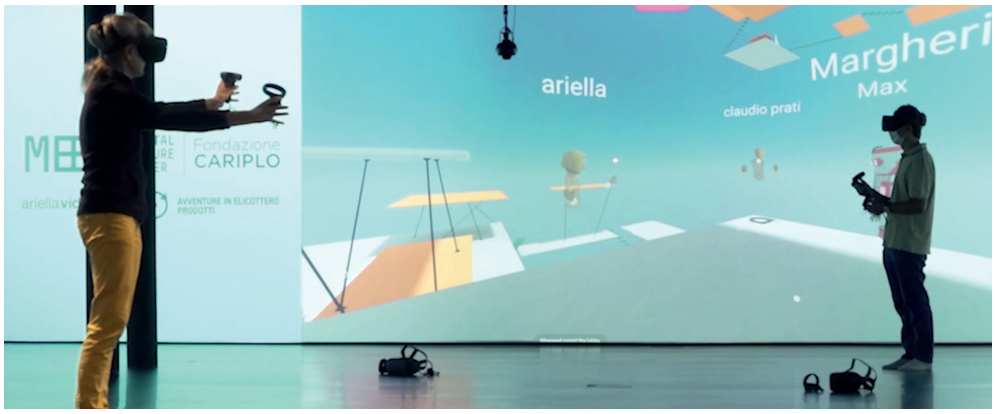
More entertaining is the technology with image projection on the table or diners' plates. This blending of physical and digital environments provides an unforgettable immersive experience.

c. Event area.

The event industry is actively using digital technologies to communicate information to participants in video and audio format, entertain, attract participants and speakers anywhere in the world and interact with audiences. Audio-visual equipment, smart lighting, digital and interactive displays are mostly used everywhere.

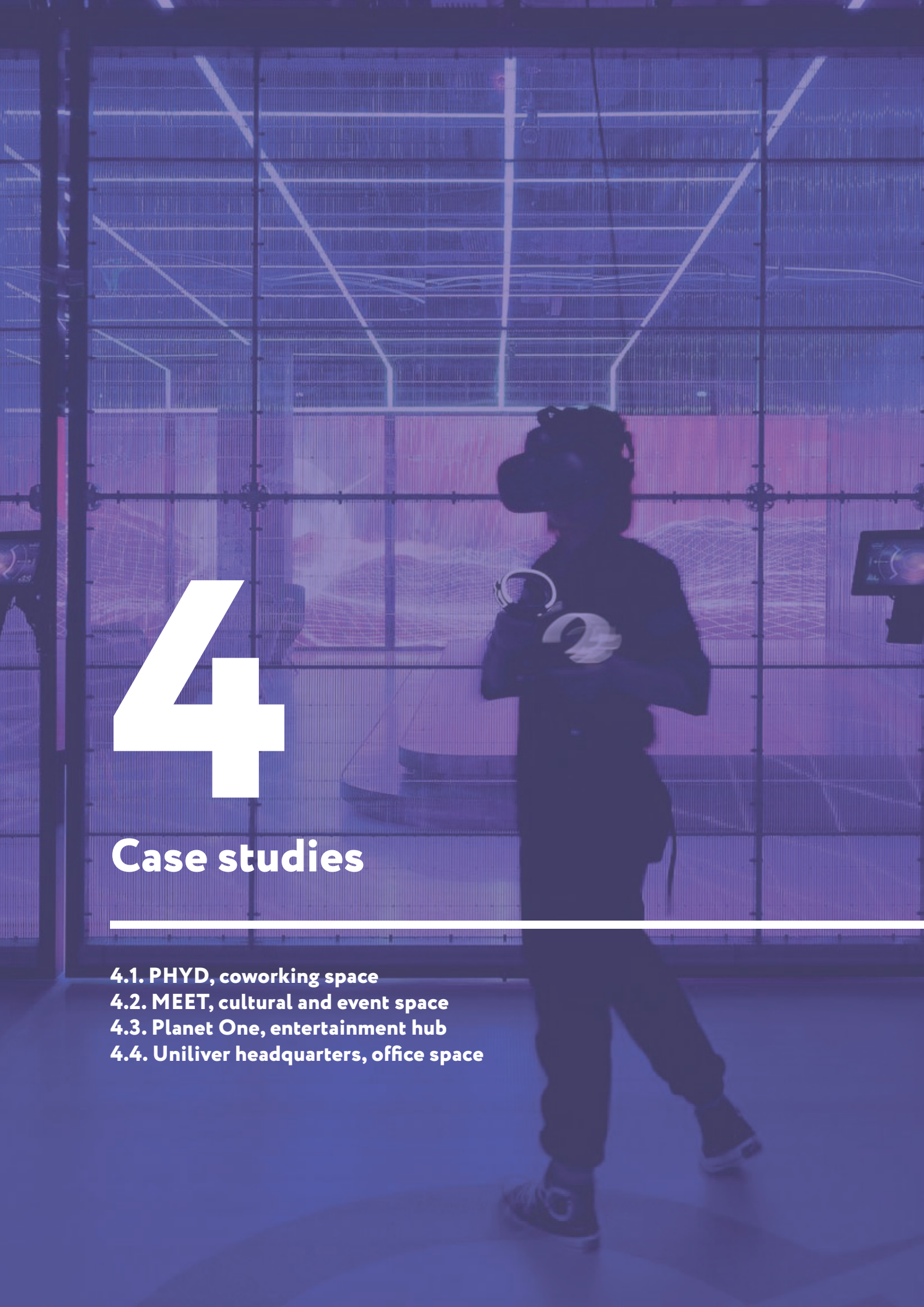
https://rijksmuseumboerhaave.nl/english/

With the development of virtual and augmented reality, these innovations have come to the field of events, which also includes holograms. Web platforms and applications are used for remote access to such events.



https://www.meetcenter.it/en/about/

To provide an example, an event space has opened in Milan - MEET - that embeds digital technologies into physical space with an array of advanced projection systems and screens scattered across the building. This allows people to access MEET's digital archive in unexpected ways. Drawing on the idea of "ubiquitous computing" put forward by scientist Mark Weiser, who argued that digital technology would become so pervasive that it will "recede into the background of our lives", the project transforms architecture itself into a medium to share knowledge and culture (Carlo Ratti Associati, 2022).



4

Case studies

For the analysis were selected working spaces like office and co-working spaces, as well as event and entertainment spaces, where there are third places in the kind of cafes or meeting rooms. They are united by modern design, spaces for socialization and extensive use of digital technology, including media technology for everyday tasks and as a tool to bring people together around a single activity. By analyzing these cases, it is possible to identify ways to use digital technologies in physical spaces to the benefit of people for both work and socialization.

https://archello.com/project/planet-one

4.1. PHYD, coworking space

Location Milan, Italy
Design Il Prisma
Year 2021
https://www.phyd.com/

Merging and balancing spaces phygitally

https://www.archilovers.com/projects/278518/phyd.html

PHYD is the first entirely phygital space in Italy dedicated to the job market, where applicants can find opportunities to evaluate and recalibrate their skills, by learning the technologies and attending events and classes related to their topic.

https://www.archilovers.com/projects/278518/phyd.html

Main design points

The space is divided into four distinct areas: Start, Training, Food, and Connection.The Start entrance creates a powerful impact, seamlessly merging digital and architectural elements. Projectors and a lit ceiling create a blend of digital and physical using immersive visuals. Here the visitors pass through the self-check-in kiosk meeting the first digital technology in space.

Moving through a corridor, you'll find the Training capsules inspired by phone booths. These soundproof capsules offer private spaces for individual content consultation and varied experiences.
PHYD technology enables interactions like self-interviews, professional self-portraits, and 3D assessments with 360-degree visors.

Adjacent to the bistro, the flexible Food area features foldable partitions and versatile furniture. This space facilitates networking, sharing, discussions, learning, and focused training for small groups.

The Arena serves as the Connection hub for classes, workshops, talks, and events. Adjacent to the bistro, it employs folding partitions to seamlessly blend physical and digital realms. This integration extends not only between the physical-digital but also among different physical aspects.

Insights

- Digital technologies are changing the usual physical space, adapting it to new functions and tasks without losing its comfort and utility.
- High-functional Arena-space adapts to changes for meetings, master-classes and other types of events using modular and mobile furniture and partitions.
- Human-oriented design is combined with high digitalization.

https://www.digitalworlditalia.it/digitalpartner/adecco-apre-phyd-milano-apprendimento-continuo-ai-microsoft-131086

4.2. MEET, cultural and event space

Location Milan, Italy
Design CRA Carlo Ratti Associati
Year 2021
https://www.meetcenter.it/

Social design element

City's first international center for digital arts and cultures with a reconfigurable auditorium and movie theatre, a cafe and an immersive hall for digital installations.

https://www.michelenastasi.com/portfolio/meet-digital-culture-center-photography-architectural/

https://www.michelenastasi.com/portfolio/meet-digital-culture-center-photography-architectural/

Main design points

The heart of the exhibition space is the Living Staircase, which features asymmetric landings and moves to encourage spontaneous meet-ups. It connects all spaces in the building playing an important social and network role. According to the designer Carlo Ratti, physical spaces can function as a much-needed way of strengthening social ties. The staircase is capable of turning into a theater or a workspace depending on the occasion: a vertical space where slides and videos are projected, hosting art shows, installations and conferences, to help the digital center's aim of marrying the physical and digital.

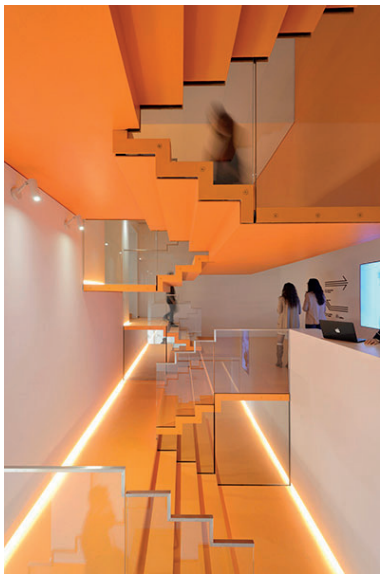
Another key element of MEET is the Immersive Room, equipped with 15 projectors that offer extremely bright images in continuous projection over three walls at a 270-degree angle, and the Theater, the cinema with 200 seats, three projection surfaces and spaces that can be reconfigured according to the requirements of installations. MEET's plan is completed by the Gallery, a number of exhibition rooms made with mobile walls that can be organized in totally different configurations, and the Creative Studio, a space dedicated to audio and video editing.

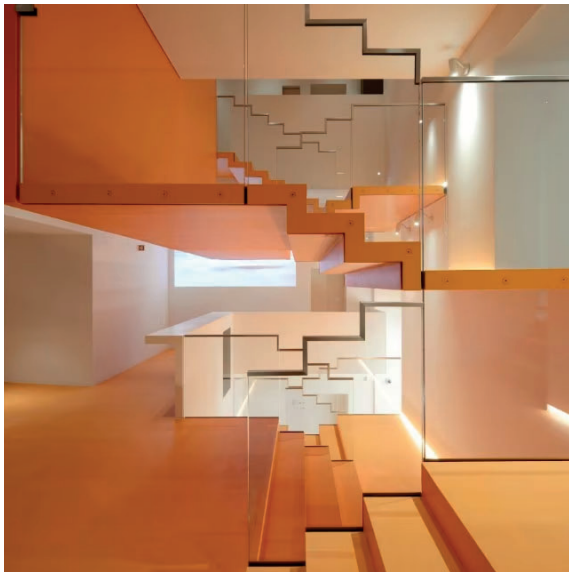
Insights

- Functional architectural elements such as stairs are a continuous heart of the space which connects people and encourages for interaction while the digital layer brings more sense into this space.

- Walk-through corridor works as an independent and self-sufficient space.

- Movable parts of the room are an indispensable element in highly digital spaces, including media technologies.





https://www.michelenastasi.com/portfolio/meet-digital-culture-center-photography-architectural/

4.3. Planet One, entertainment hub

Location Shanghai, China
Design Coordination Asia
Year 2021
http://coordination.asia/portfolio/planet-one/

Phygital materials and expression

COO created a mixed-reality entertainment hub that provides multiple opportunities for live gaming contests, lectures, coding workshops, and events. As a versatile and flexible platform, this venue actively engages customers both online and offline, blurring the boundary between the virtual realm and reality.

https://archello.com/project/planet-one

https://archello.com/project/planet-one

Main design points

The interior design seamlessly merges futuristic virtual experiences with real-world social interactions. The venue features authentic materials like copper, aluminum, and glass, enhancing the futuristic digital surfaces. Transparent foldable LED walls connect customers across sections, and a dynamic ceiling light installation guides guests.
The space offers a laser tag arena with captivating light effects, VR game stations with suspended screens for third-person views, and thrilling drone simulators. The restaurant area includes a futuristic 'robobar' and eye-catching moon-shaped light installations on the counter. The result is an innovative, immersive, and high-tech interior design.

https://archello.com/project/planet-one

Insights

- The futuristic design emphasizes the digital expressiveness of the physical space through the use of an appropriate palette of colors, materials, and lighting.

- The robotization of a café enhances the experience of a highly digital place.

- In a high-tech space, interior design can bring people together and provide a rich social experience.

4.4. Uniliver HQ, office space

Location Rotterdam, Netherlands
Design Mecanoo
Year 2020
https://www.unilever.com/

The heart of networking

The new office for Uniliver headquarter in Rotterdam occupies 5 floors in an office building and fits about 750 employees. It was designed in a modern human-centered approach with a focus on wellbeing, networking and collaboration.

https://www.officeinspiration.com/en/offices/unilever-benelux-headquarters-rotterdam/

https://www.officeinspiration.com/en/offices/unilever-benelux-headquarters-rotterdam/

Main design points

The most interesting area of the office is a cafe with a flexible space around. Upon entering the sixth floor, visitors are welcomed in the Lipton Bar exhibiting a beautiful view of the city. Bar has an oval shape with barmen in the centre which stimulates conversations in the bar and helps to "break the ice" between employees during the break or event.

From the Lipton Bar, all floors are accessible via internal stairs. Breakthroughs were made in the floors creating voids that connect the various departments and thus employees.
Upon entering, the auditorium, the so called Townhall, immediately stands out. This auditorium as well as the event space and restaurant are multifunctional and can be used for events, lectures and a place to have lunch. They can also be used for informal meetings or working, making these functions all part of the working environment.

Spaces around the Bar are divided with foldable soft partitions (curtains) and let organize the space based on necessary activities.

Insights

- A cafeteria or bar with a barista in the center activates the social function of an office cafe.

- Cafe and event spaces can blend and complement each other when zoning is well-organized with partitions and sound isolation.

- Even digitally intensive offices can look welcoming and user-friendly and as a result, this design compensates the overload of working with digital products and a large number of colleagues.

https://www.officeinspiration.com/en/offices/unilever-benelux-headquarters-rotterdam/

5

“Magnet”: a new coworking space for phygital workers

5.1. Project site

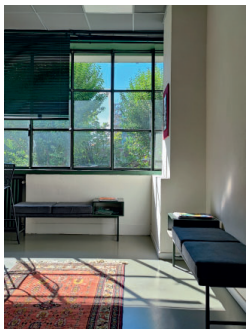
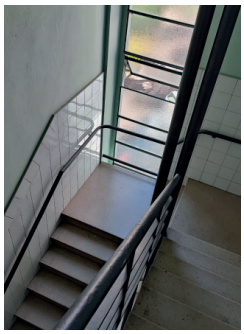
G- Gravity
Via Legnone 4, Milano MI

An Innovative co-working hub promoting and encouraging entrepreneurship to accelerate ideas through a collaborative work environment.

Figure 9. Location of the coworking in Milan

The project located in the one of historic Milanese building built over the years 1930` based on a project by Luciano Baldessari and Giò Ponti. This building located in the Bovisa district in Milano and was used as chocolate factory called Italcima. Giò Ponti was an Italian architect who designed more than a hundred projects in Italy and the rest of the world.

The buidling currently hosting the innovation hub and competence center named G-Gravity. This coworking space open for startups, large corporations, agencies, freelancers, students who wants to find the ideal space, with services that can be adapted to specific needs, to develop their own project, in an environment that favors the contamination of skills and a collaborative approach.


5.2. Concept: balancing physical and digital

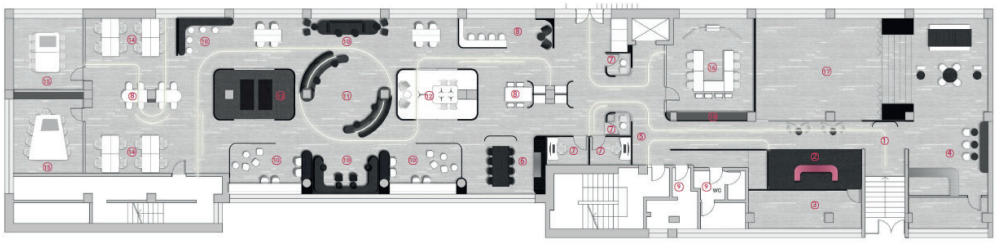
Magnet is a phygital and technology driven co- working space for Digital creatives. In the highly digitalized world it is also important to focus on the break and no tech spaces. These spaces are for relaxation and are more human centric. "Magnet" for us represents the coming together of two opposites to create a balance in the workspace.

opposites exist together to create a balance
leads to spaces based on movement & dynamism

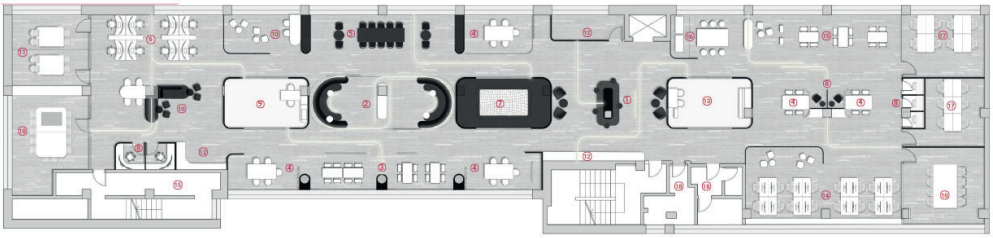
+ TECH	- NO - TECH
work	break
automated	human-centered
digital	physical

Spanning over 2 levels the co-working hub included functions of break & work both. While the ground floor was imaged for more public functions, tech-first floor was focused on work, with varying typologies of workspaces.

Ground floor



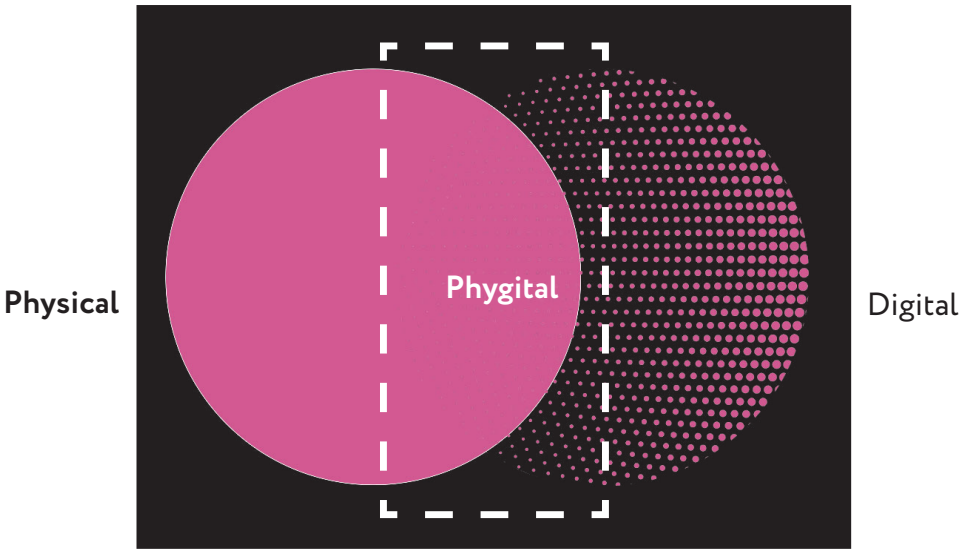
First floor



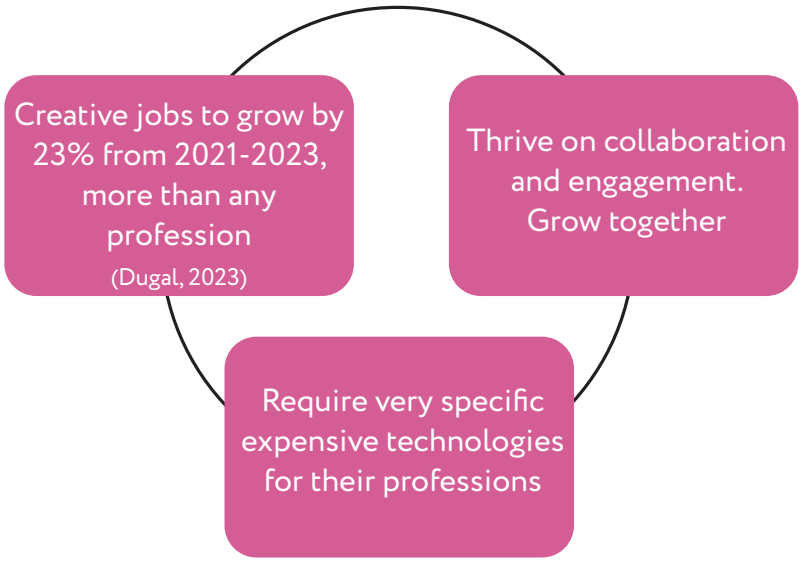
5.3. Designing a phygital workspace for contemporary creatives

Phygital Workplace

Phygital is the concept of using technology to bridge the digital and physical world with the purpose of providing a unique interactive experiences for the user.

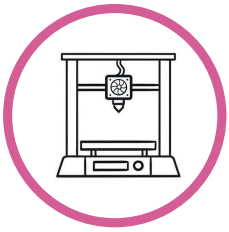


Why digital creatives?

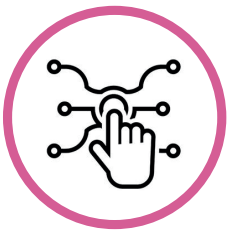


The phygital workspace for creatives includes built-in tools that foster creativity amongst team members. These tools should help in developing better brainstorming sessions, improved team meetings, more organized documentation, and reporting.

Augmented and virtual reality



Development tools



Internet of things

Automated app control

Selected users	Professions	Space requirements
 Digital communicators	Influencer Podcaster Youtuber Media agencies Public relations	Sound proof room Background Adjustable space Advanced lighting
 Digital designers	Architect Interior designer Product designer Graphic designer UI UX designer	Meeting room Open workstations Phone booth
 Digital developers	3D visualizer Game developer Animators NFT artist	Personal pod Workstation Room for testing

5.4. Project shortcomings

The focus of the coworking project was **mostly on the work zone.** For the work zone it was crucial to design spaces with coworking tables, meeting rooms, rooms with specific high-tech equipment. In contrast to this, special **breakout rooms were designed in the heart of the workspace.** Style of these spaces is **cold high-tech** in black and white colors with pink accents.

Thus the concept of phygital co-working was expressed by combining work and non-work spaces side by side, but not mixed. That is, **digital technologies were not introduced into non-working areas**.
As a result, not enough attention was given to the café space and the multifunctional media space for events.

PROJECT WEAKNESSES

1. PHYGITAL DIVISION

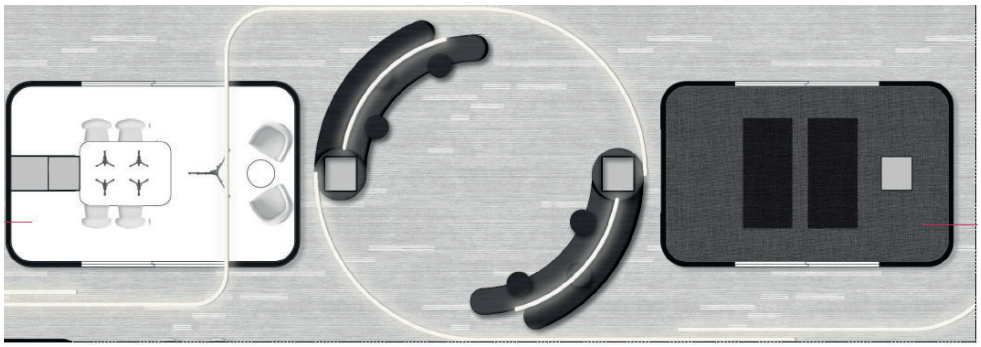
2. ZONES EXCLUSION

3. COLD ENVIRONMENT

1. PHYGITAL DIVISION

The “Magnet” concept was expressed in the opposition between digital technology and physical space. Work areas were equipped with technology, while rest areas excluded all digital technology and were darkened. This led to a strict separation of the purpose of the spaces.

Meeting zone between podcast capsule and yoga capsule



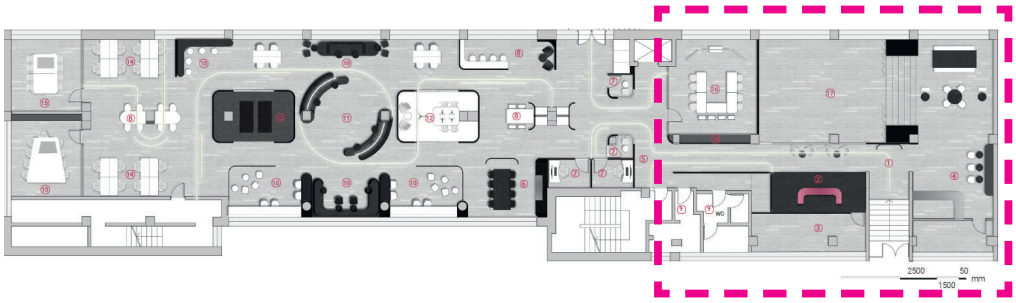
Podcast capsule

Yoga capsule

Whereas it should have combined the technologies with each physical space as an extra layer. As a result, the idea of phygital space was given in an inaccurate interpretation.

2. ZONES EXCLUSION

The focus of the project on the working areas did not allow the full potential and importance of the secondary spaces, which have a rather utility function, but are also significant for the whole co-working space.



Cafe and event space are excluded from the main project

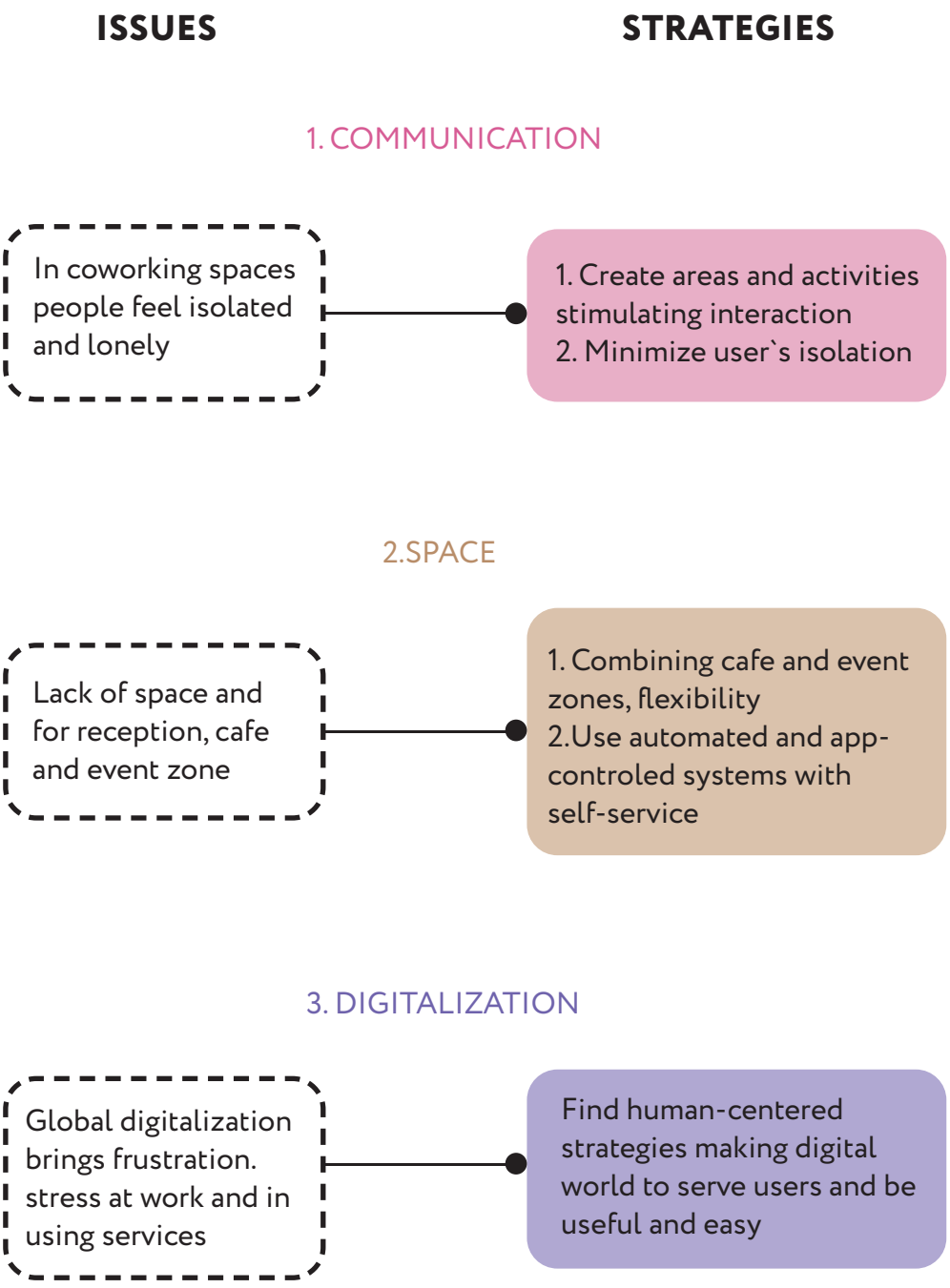
3. COLD ENVIRONMENT

The atmosphere of the co-working space looks rather cool, unfriendly, though it emphasizes the technological direction of this office.

6

Project development

6.1. Project strategy: digitalization, communication, space



6.2. Design drivers

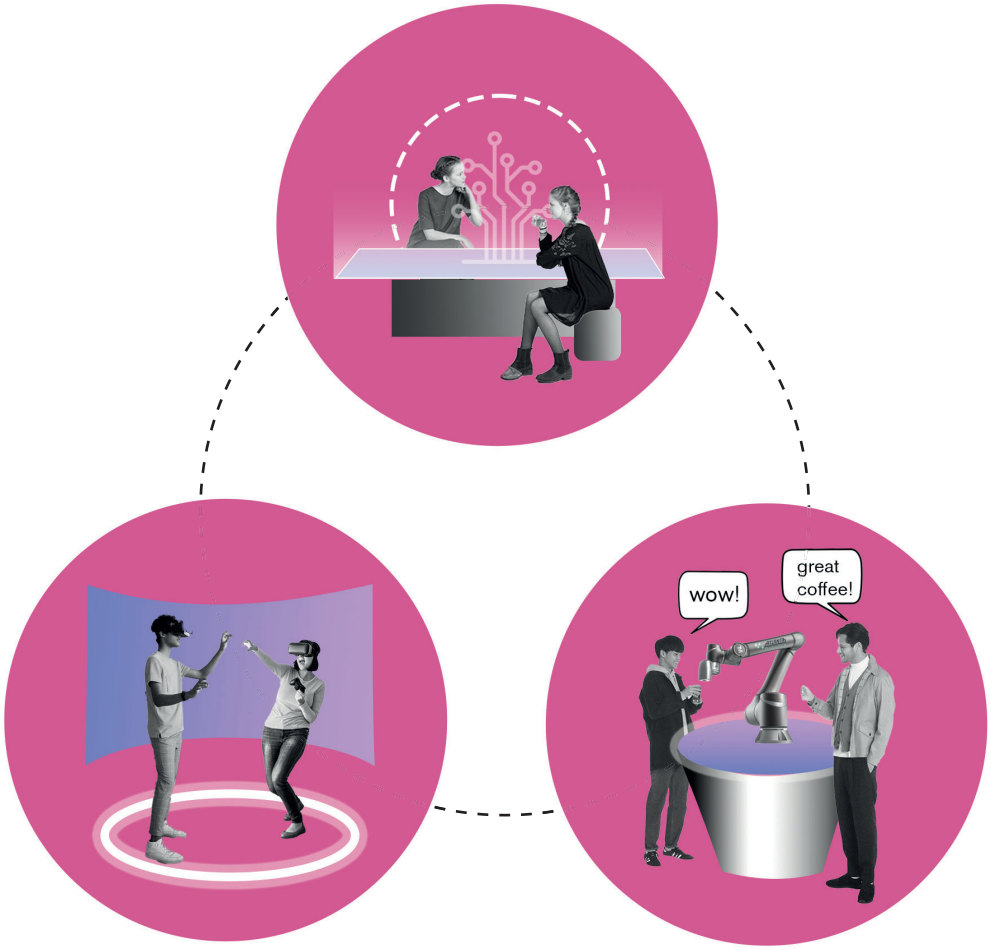
1. COMMUNICATION

SOLUTION

Create activities stimulating communication between people with help of digital technologies

Points of interaction:

- robot coffee station, bar with barista
- interactive tables with other visitors
- events with AR and VR equipment



2. SPACE

SOLUTION

Blur border between cafe and event zone with flexible solutions

- Light and sound regulation via sensors and app control

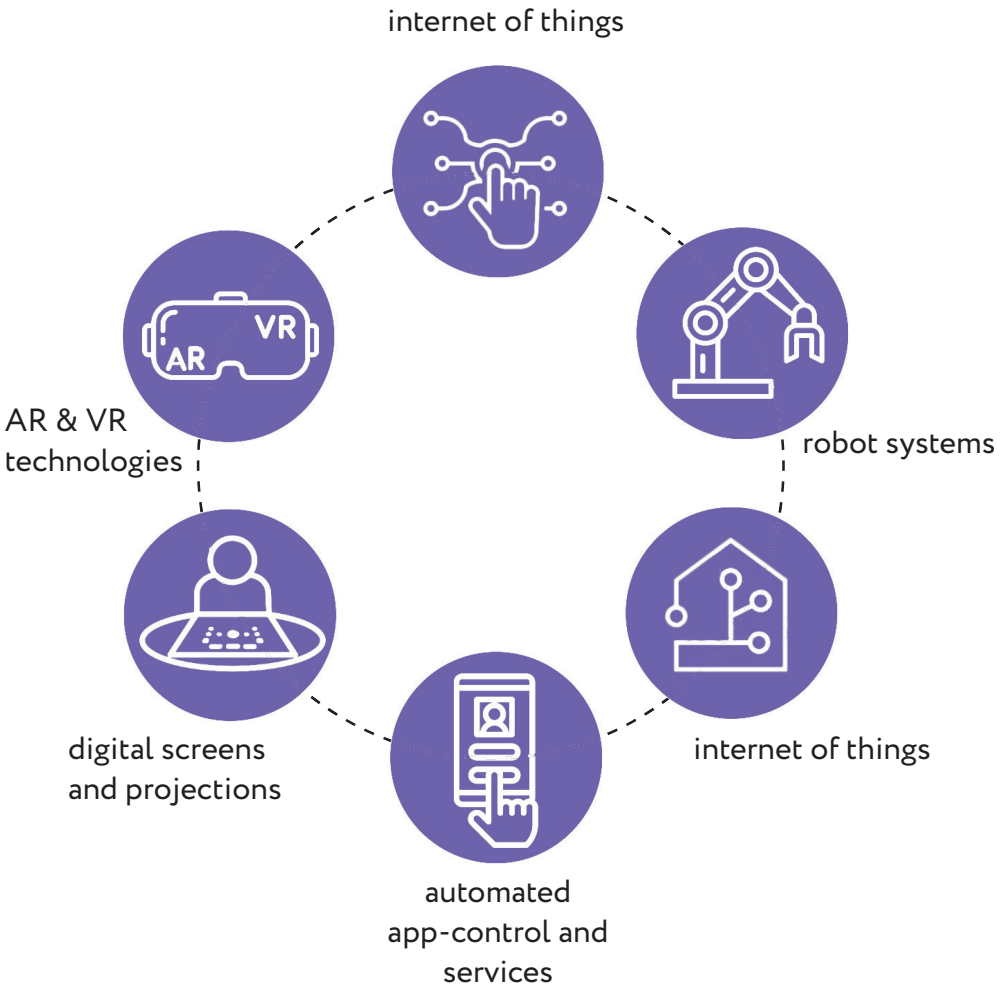
- Flexible partitions to connect event zone with cafe zone

- Window shutters for daylight and event mode

3. DIGITALIZATION

SOLUTION

Use digital technologies to serve people and adapt to changing functions

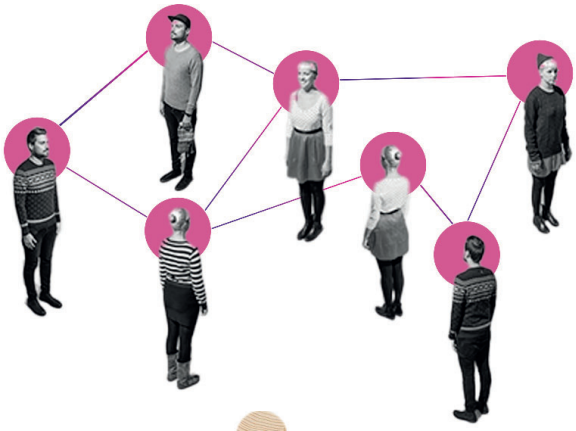


6.3. Design identity

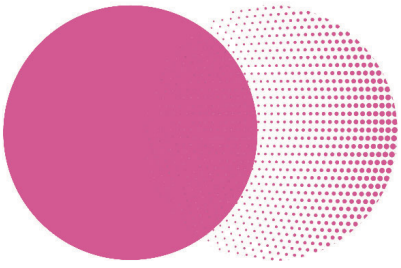
MAG
NET

"Magnet" is used as a metaphor to describe the property of metal to attract positively and negatively charged particles. Thus it symbolizes the **attraction of opposites, minus and plus, physical and digital**. The concept revealed itself in the idea of attracting people (minus) to digital technology (plus) and actively interact with each other. Visually it was expressed in the combination of contrasting materials of wood and metal

1 connecting people in physical space through technologies



2 contrast of materials



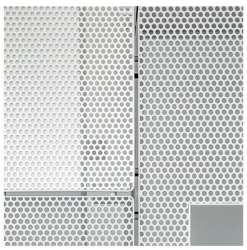
3 contrast of physical space and digital technologies

6.4. Mood board

6.5. Material board

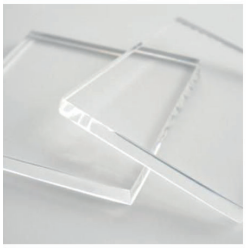
DIGITAL WORLD

polyshed metal



perforated metal grill

transparent glass

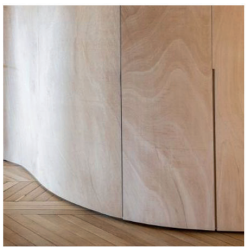


acrylic matt glass

plaster walls

concrete floor

flat plywood



curved plywood

velour fabric

hard linen fabric

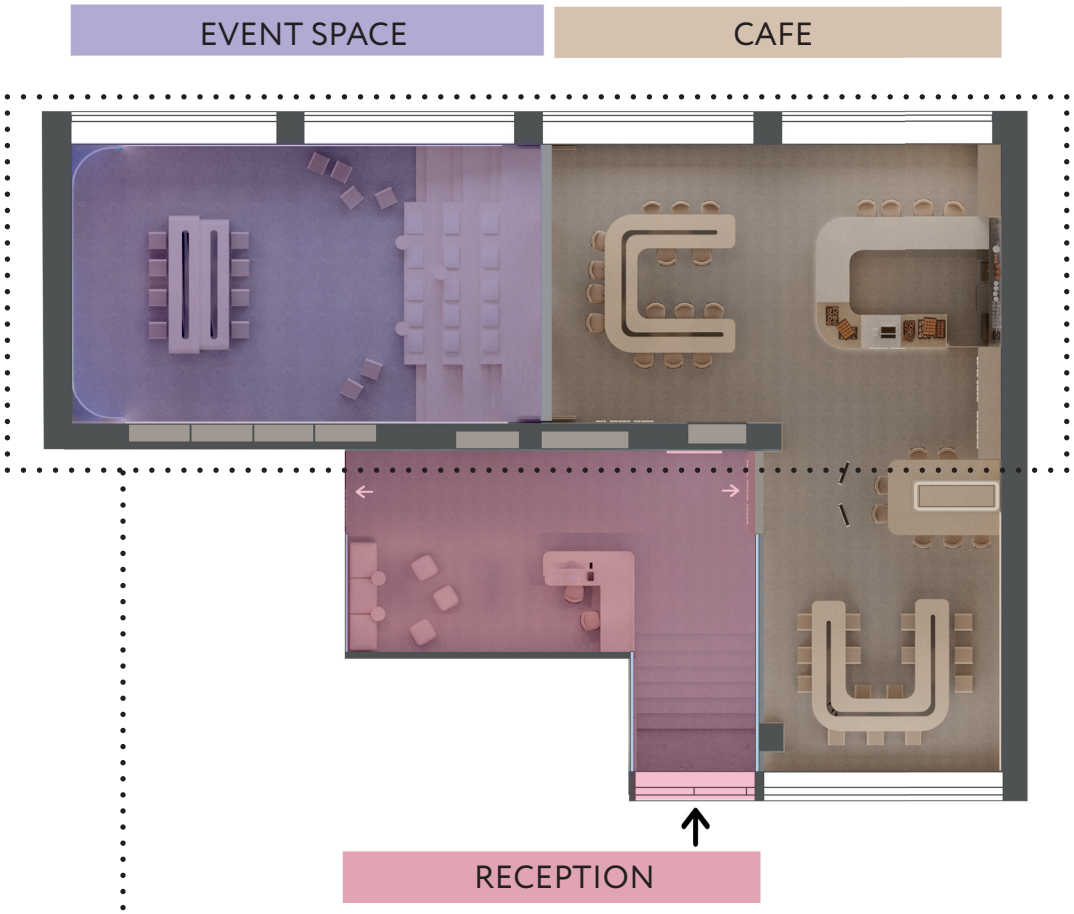
PHYSICAL WORLD

7

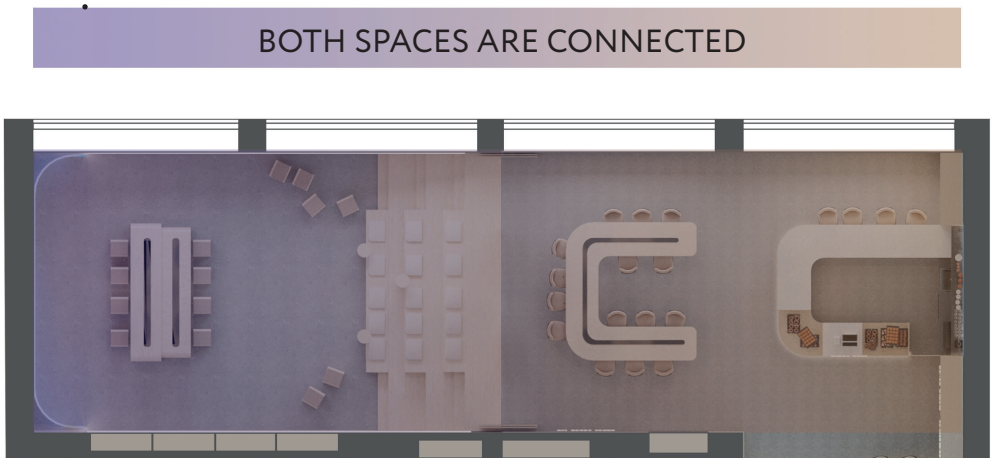
Spatial implementation

7.1. Layout zoning

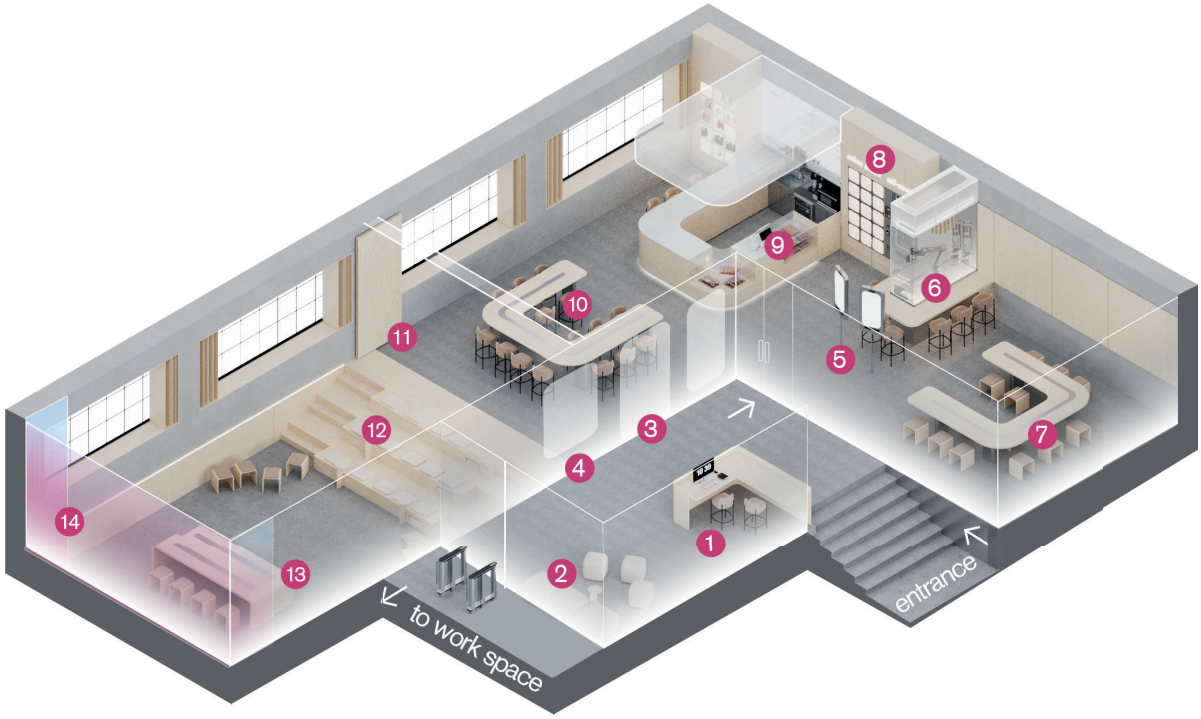
SCENARIO №1 (during events)



SCENARIO №2 (no events)

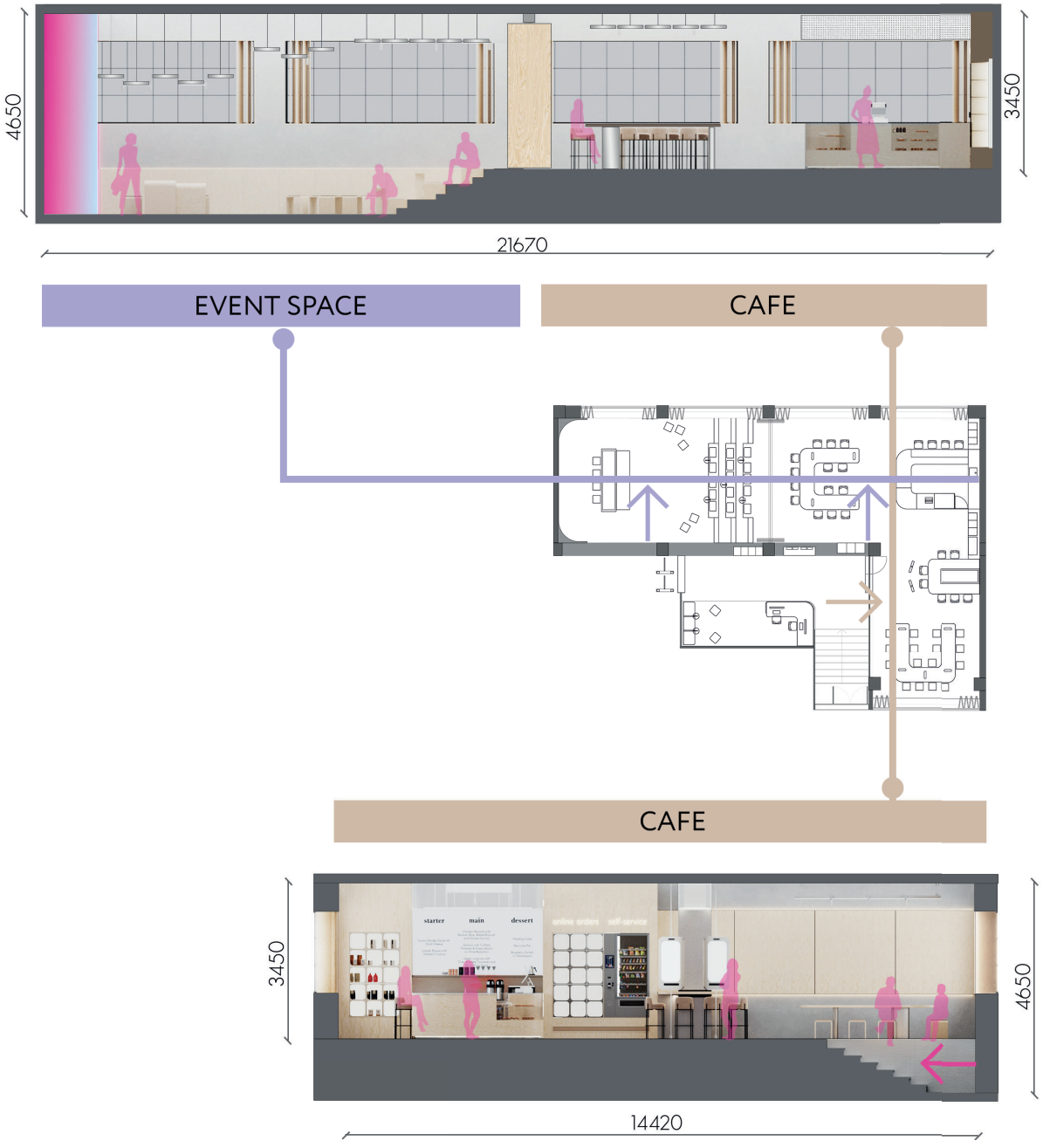


7.2. General layout



1. Reception
2. Lounge zone
3. Self-check in
4. Mail boxes
5. Online order
6. Coffee-robot station
7. Digital tables(low)
8. Self-service area
9. Bar with barista
10. Digital tables (high)
11. Sliding doors
12. Stairs and seats
13. Extendable conference tables
14. Screen wall

7.3. Wall section

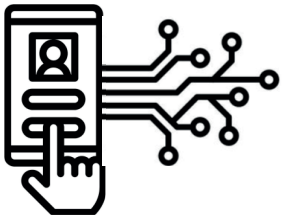


7.4. Digital technologies and furniture equipment

In a coworking office with a high level of digitalization, there will also be implemented digital technologies in "third spaces": reception, cafe and event space. They are integrated into a united smart system due to the "Internet of Things" technology, their synchronization and can be controlled by users both from a mobile app with a personal account and from digital screens installed in these spaces. The smart system encourages users to interact with each other, technically provides modern users with convenient services and automates processes for business, while reducing the number of staff.

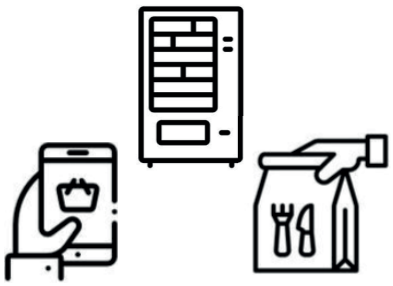
1 Digital reception and self-check in

A digital reception and self-check-in point is a technology-driven system that allows individuals to register or check in electronically without the need for traditional paperwork or human assistance.



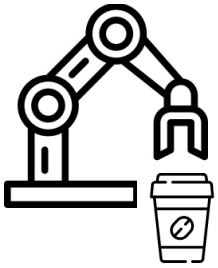
2 Online order and self-service kiosk

A self-service kiosk for food and beverages enables customers to place orders through a mobile app or digital screen within a cafe, with the convenience of retrieving their items from an automated locker storage system upon completion.



3 Robot-barista

A robot-barista machine for cafe is an automated device that utilizes robotic technology to prepare and serve various coffee and beverage orders without the need for human intervention.

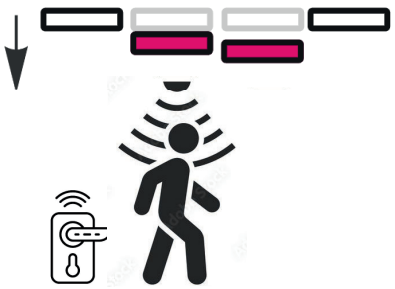


4 Digital tables

A table equipped with AR technologies and overhead panel projections detects human presence, offering an engaging and safe interactive experience with gamified elements for individuals seated at the same table while also providing dynamic information about the menu, cafe, events, and other relevant details through augmented reality displays. This innovative setup enhances both social interaction and customer engagement in a multifunctional dining or entertainment.

5 Hinged smart panels with light and sound

The smart panels installed above desks in a cafe and event space feature light and sound control that dynamically adjusts based on human presence, creating an adaptive and comfortable atmosphere. These panels, regulated by local sensors and a mobile app, enhance user experience by providing personalized control over ambient conditions, contributing to a more productive and customizable workspace.



1 Digital reception and self-check in

Digital touch-screen system fixed from floor to ceiling. On the panel over the screen is a camera with face recognition and in the bottom under the screen is panel with ticket printing and NFC sensor for payment.

- facial recognition
- online order and self-check in
- contactless payment

2 Online order and self-service kiosk

A self-service kiosk for food and beverages combined with a vending machine. Via an app or digital counter at the cafe, food and drinks can be pre-ordered and the cafe staff or city food delivery service leaves the order in a specific box.

- online order
- self-service

3 Robot-barista

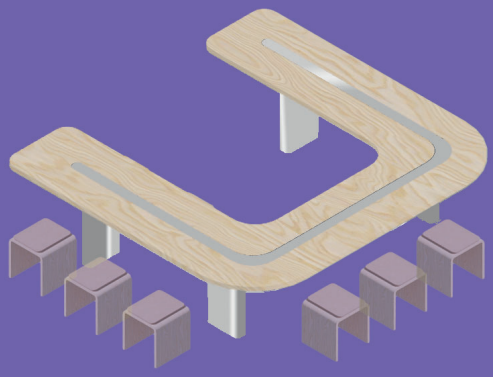
Robot barista prepares a drink by prepaid online order and dispenses a cup into a special window. The robot is protected by glass walls for safety for both the device and the users. Such a robot attracts a curious audience around it, so seating is provided on the sides of the table.

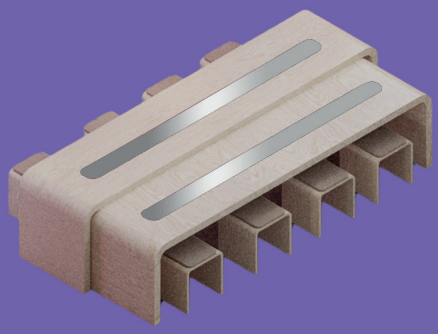
- robot system
- online order
- QR and NFC scanner

4 Digital tables

Wooden tables for the visitors are equipped with a single panel with wireless and usb charging, device locator, and also on the surface of the table projected image from the ceiling panels.

- wireless charger
- USB charger
- smartphone locator

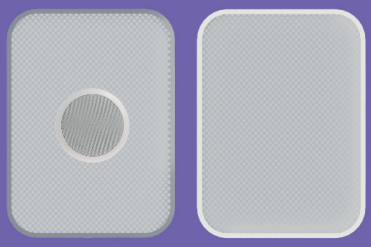




5 Smart hinged panels with light and sound

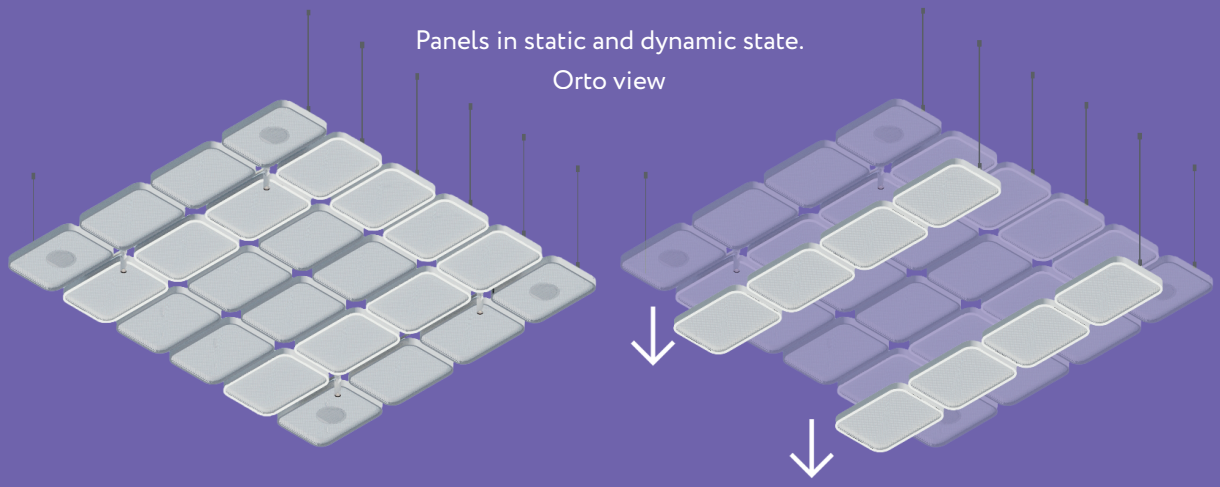
Suspended panels with light and audio equipment are lined up and each row is height adjustable. In the gaps between the panels are spot projectors that transmit the image on a horizontal surface of the table or floor, and sensors detect the movement of hands and the presence of a person

Panels with sound and light equipment.
Bottow view

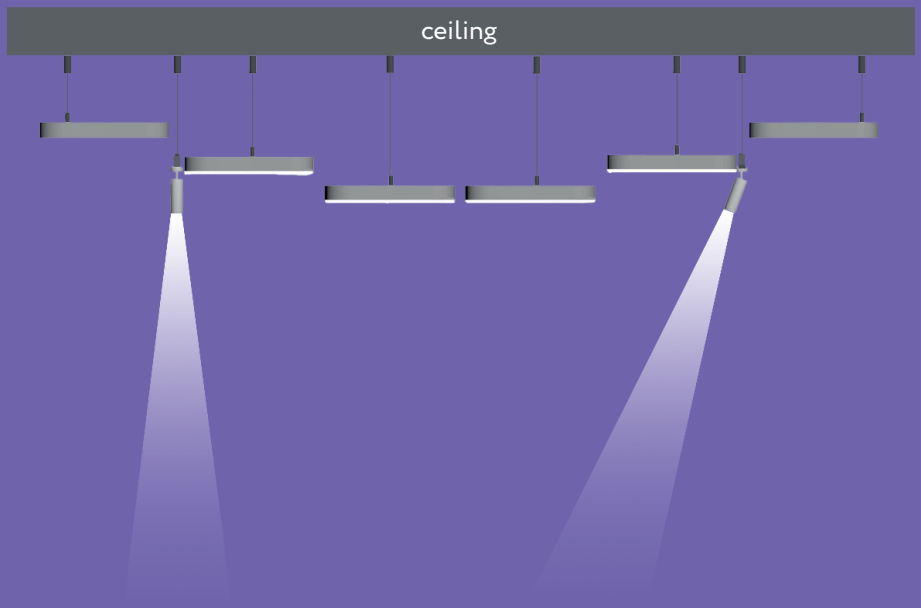


- smart lighting and environment control
- augmented reality

Panels in static and dynamic state.
Orto view

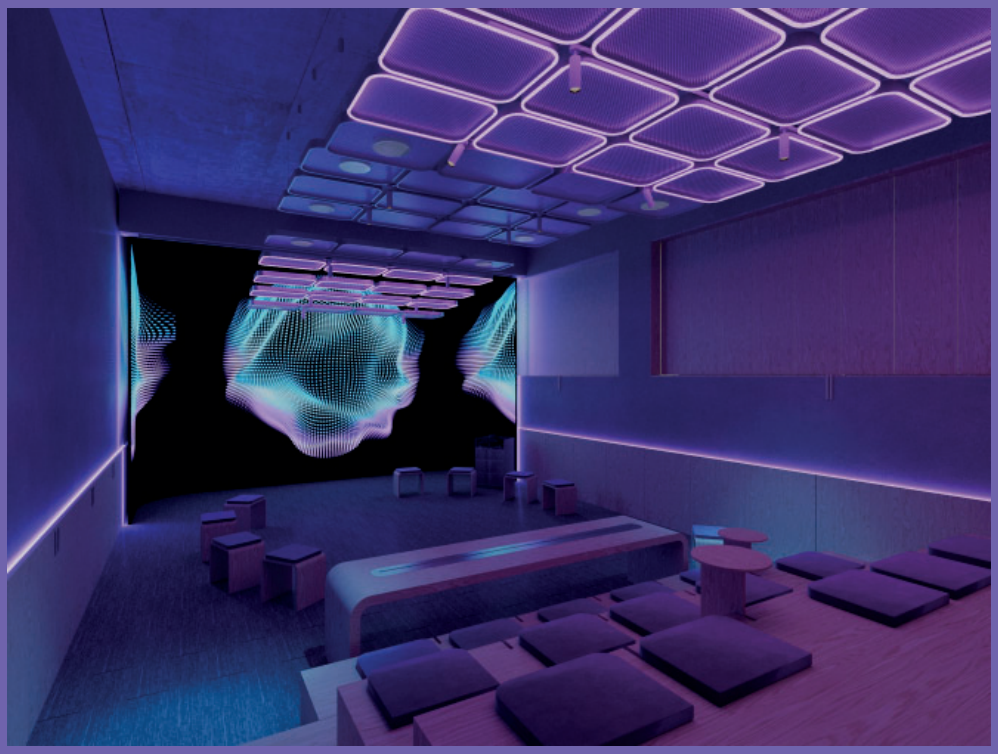


Panels in dynamic state Front view



Smart hinged ceiling panels. Scenario 1-Day time

Smart hinged ceiling panels. Scenario 2-Event time



7.5. User journey

Persona 1

Elisa
art director, freelancer

"Coworking space for me is a great opportunity for networking and collaboration"

Activities

- individual work
- meetings with clients
- networking during breaks

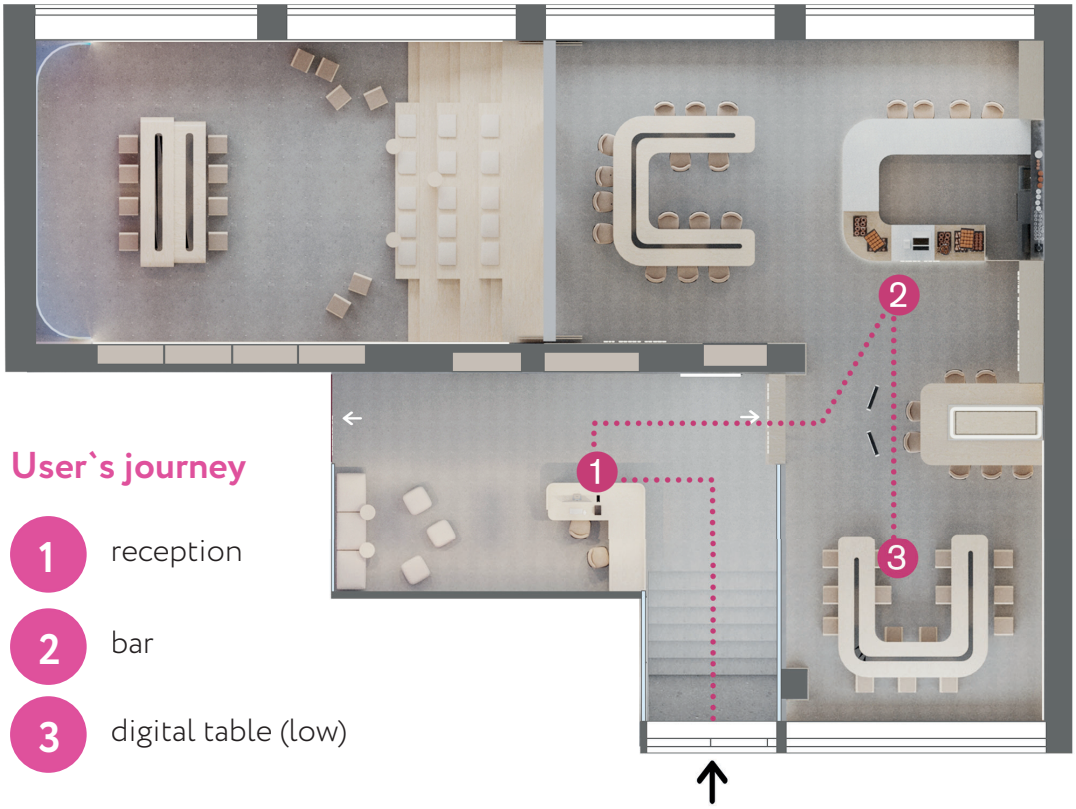
Needs

- informal conversation during break
- make new contacts
- space to meet clients and friends

Elisa is a freelance art director in a advertisement company who has a flexible schedule and works 4 days a week remotely in coworking or from home.

She is an extrovert and in her free time she enjoys socializing with new people. She is also in constant search of new business partners and clients, so in her breaks she also tries to meet new people and does not miss the opportunity to attend business and informal events in the co-working space.

Before starting her working day, she goes to the café and buys a coffee at the bar to chat with the barista and then joins other people open to socializing at the common table. She gets recommendation about the best place at the table from the co-working app.



User`s journey

1. reception
2. bar
3. digital table (low)

1 reception

2 bar

3 digital table (low)

Persona 2

Francesco
IT developer

"A modern office where I can order everything through an app creates a safe and comfortable environment for me"

Activities

- full time work at the fixed desk
- coffee breaks alone
- occasional lunches with colleagues

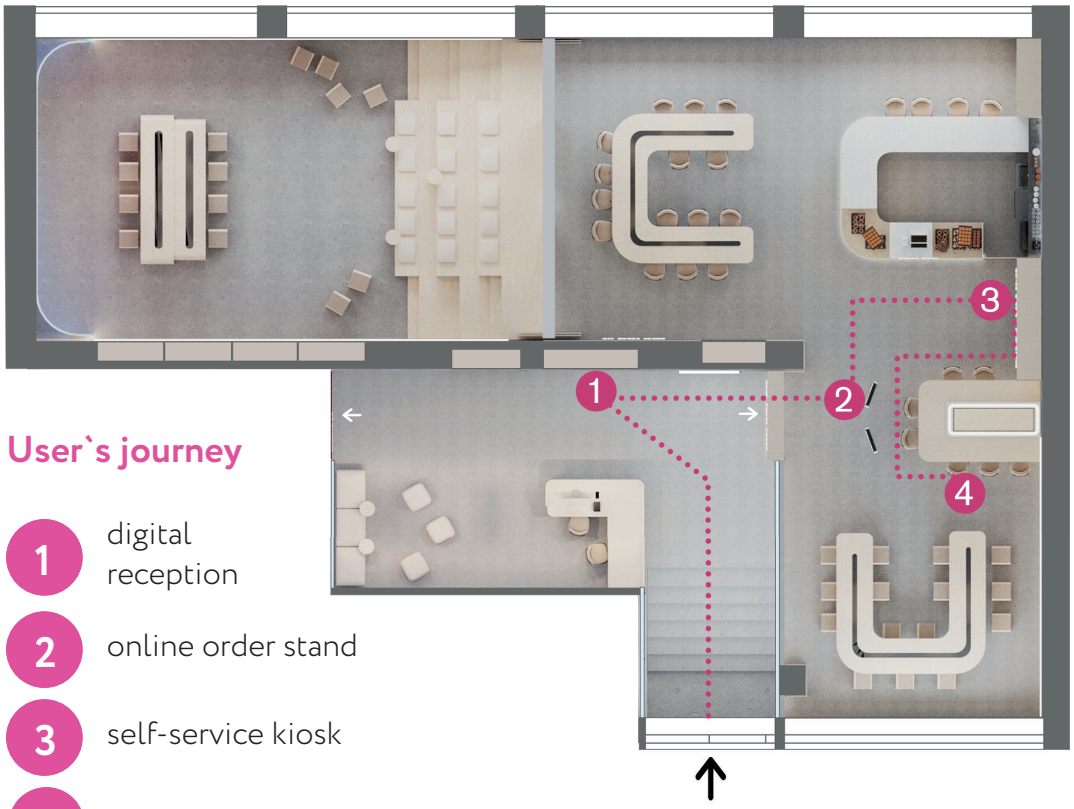
Needs

- digitalized services
- safe social space
- modern minimalist office and IT community

Francesco works as a developer at a startup with a small team. During the day, he is immersed in his work and rarely takes a break from his laptop.

He is an introvert and there is also little interaction with live people in his work. He is comfortable with this level of socialization and often goes alone for coffee or lunch breaks and sometimes joins his colleagues. Francesco prefers to order food and drinks online via the coworking app.

When he gets to the office, he logs in through the digital reception desk and goes to the café to pick up his breakfast in the self-service kiosk, which was ordered on the way to work. Next, he is likely to sit down at the robotic barista to order a drink and have a small talk with other coworking users.



User`s journey

1. digital reception
2. online order stand
3. self-service kiosk
4. robot-barista station

1 digital reception

3 self-service kiosk

2 online order stand

4 robot-barista station

Persona 3

Maria
UX/UI designer

"The Magnet for me is a place for socialization within the work team, as well as an opportunity to learn new things"

Activities

- works in a team
- visits events with colleagues
- networking with other people during breaks

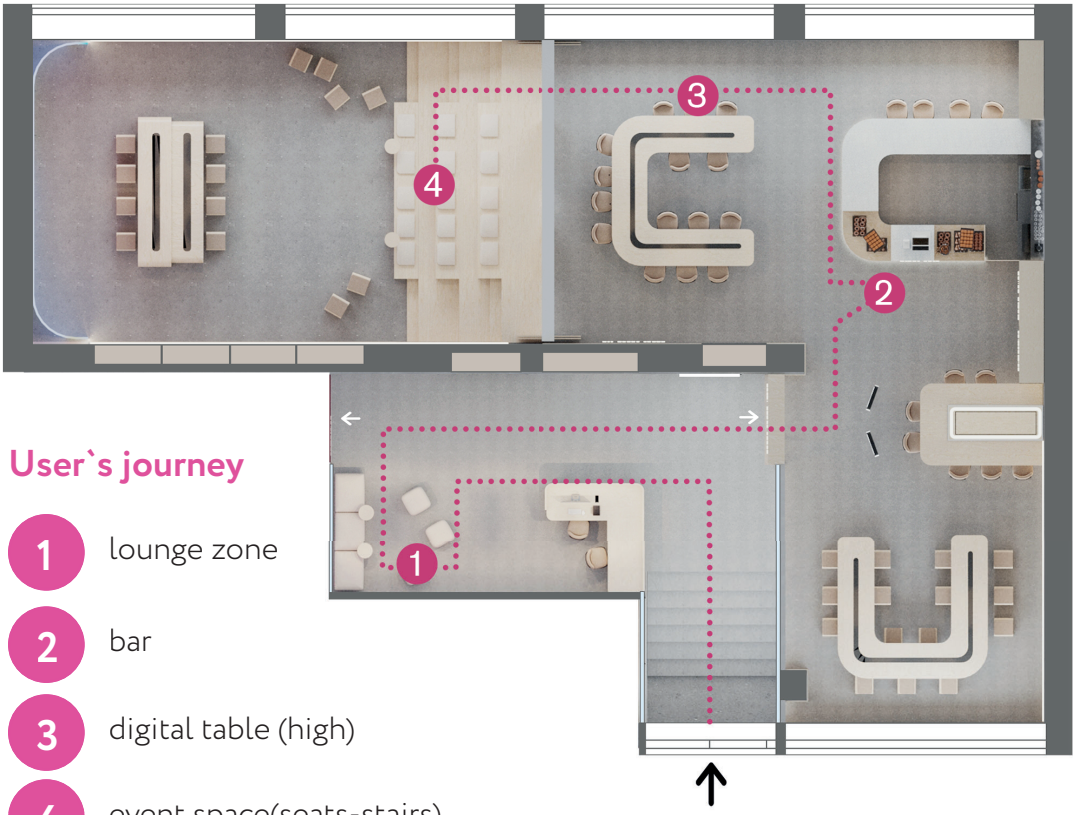
Needs

- fit in the new team
- make new friends
- get new skills and knowledge

Maria has just recently joined a new company as a ui ux designer and is actively building social connections within the team. She also focuses on continuous professional growth, so she never misses an opportunity to learn something new.

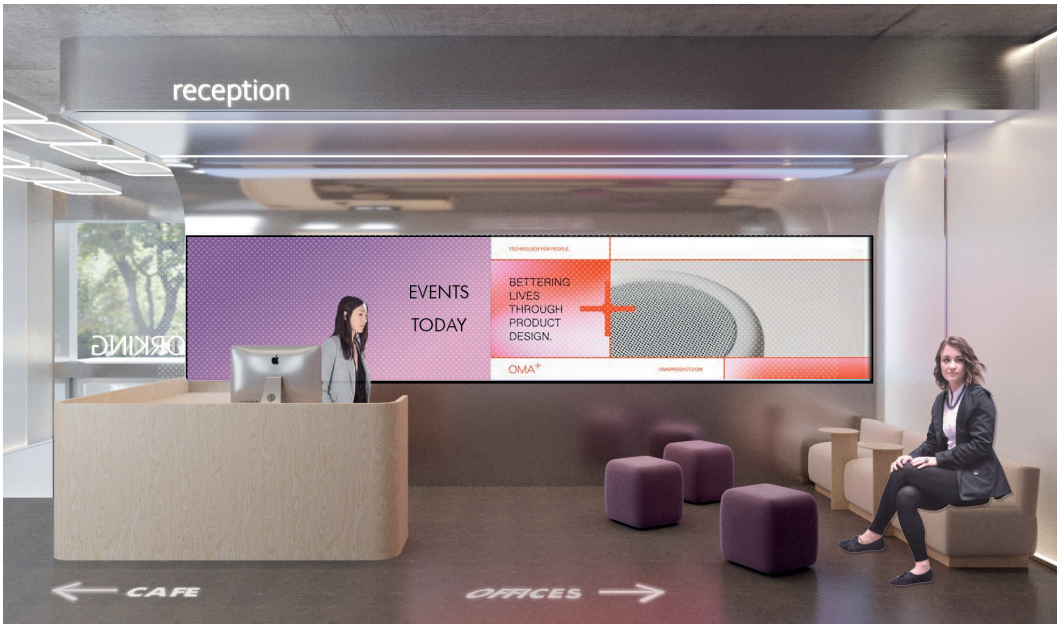
Whenever possible, she invites her new colleagues to participate in a master class about design organized by another company for the participants of the co-working space.

In the morning she waits for her colleague in the lobby area, gets a takeaway coffee and then goes to an interactive master class with AR elements together with other colleagues.



User`s journey

1. lounge zone
2. bar
3. digital table (high)
4. event space(seats-stairs)



1. lounge zone

2 3 bar, digital table (high)

4 event space(seats-stairs)

Persona 4

Kevin
video content creator, blogger

"Event space technologically equipped for different event formats is what I am looking for"

Activities

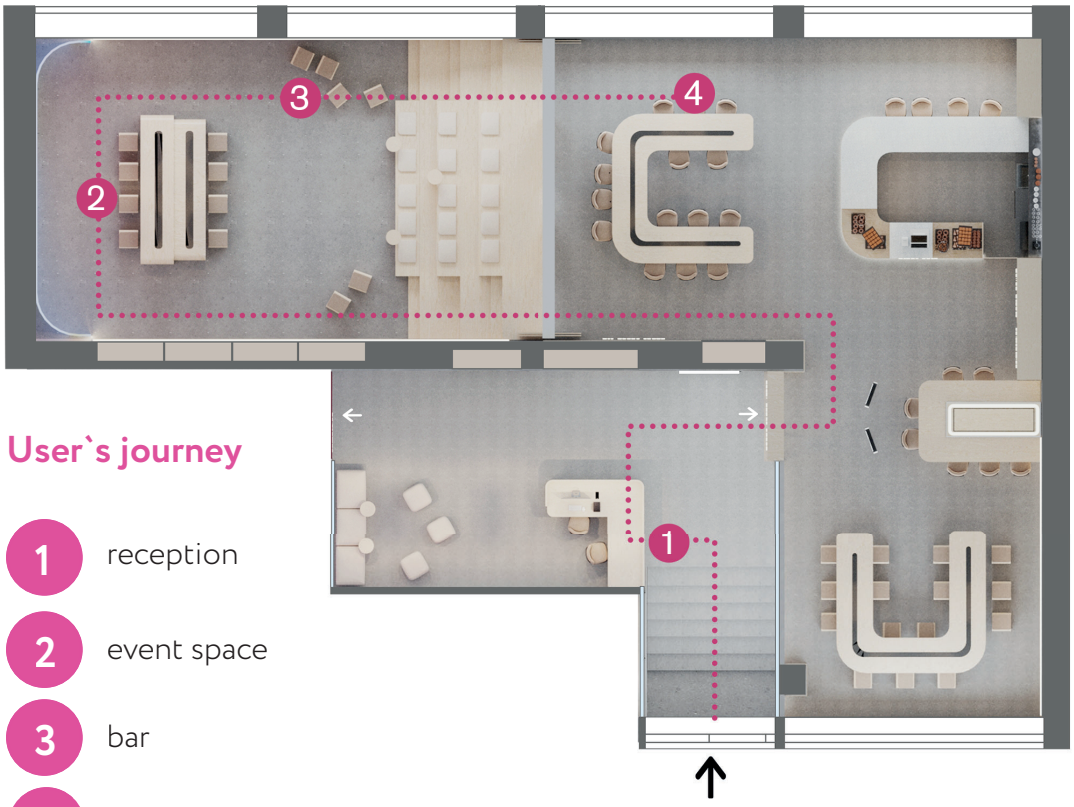
- media content creation for social nets
- collaborations with professionals and bloggers
- photo and video editing

Needs

- professionally equipped performance space
- networking
- creative space for inspiration

Kevin is a blogger and video maker for his youtube channel. He has many subscribers and often organizes workshops and lectures in the evening time. Presentation requires a special room with conference equipment, cameras and lights, that's why he chooses this co-working space.

Also after the event his audience needs to stay and network with Kevin and make useful connections, so after the event people move to the cafe for an informal chat over drinks.



User`s journey

1. reception
2. event space
3. bar
4. digital tables (high)

2 event space in an evening AR&VR scenario

3 bar in an evening event scenario

4 digital tables (high), cafe in an evening event scenario

8

Future steps and open issues

Future steps

Creating a space with digital integration as a unified system across all services and functions it is **crucial to work as a team with UI/UX designers and smart solutions engineers.** The designer creates the space for these technologies and they set the conditions for the design.
The next step is to test the technology in real life, on different space scenarios and improve it. After the test period, it is important to **return to the programmed equipment and adjust it for new user requests** and remove unnecessary items.
In the end, it is essential to make all users familiar with modern technologies. The experience of interaction varies among the users of the co-working space and some will need additional instructions. It will be mandatory to **tell and show users about all the possibilities of integrated digital technologies for their most positive experience**.

Open issues

- **Privacy and digital safety**

The use of personal data via an application to use all services of the coworking center increases the **risks of data leakage to third parties.** Need to protect personal data to use simple services.

- **User training**

The **level of digital education of users varies**, and taking full advantage of the coworking space requires knowing the "game rules". So it is necessary to develop a training program: from simple tips to a full training.

- **Unconventional solutions**

Creating unfamiliar seating arrangements for people in a cafe can affect user behavior. Initially, **visitors will be confused and find it inconvenient to share a table** with other people they don't know. Eventually seeing the proper use of space the new format will most likely be accepted.

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ELENA NAZAROVA
989951

SUPERVISOR: FRANCESCA FOGLIENI

Politecnico di Milano I School of Design I Master of science
Interior and Spatial Design
a.a. 2022-2023

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