VALUE CO-CREATION BETWEEN COWORKING SPACES AND STARTUPS IN DIFFERENT STAGES OF DEVELOPMENT

COCRIAÇÃO DE VALOR ENTRE ESPAÇOS DE COWORKING E STARTUPS EM DIFERENTES ESTÁGIOS DE DESENVOLVIMENTO

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ABSTRACT

Purpose – This study identified, characterized, and evaluated the relevance of the services provided by Coworking spaces considering the different stages in the evolution of a startup.

Design/methodology/approach – A narrative literature review was conducted and the second phase of the research included the development of netnographic initiatives and the conduction of multiple case studies.

Findings – As a result, six categories of services were identified, comprehending 36 services, whose relevance varies considering the maturity level of the startup.

Originality/value – This research contributes to the literature by providing a systemic view of the state of practice of these services in the context of Coworking spaces.

Keywords - Coworking Space. Startup. Sharing economy. Co-creation. Digital transformation.

RESUMO

Objetivo – Este estudo identificou, caracterizou e avaliou a relevância dos serviços prestados pelos espaços de Coworking considerando as diferentes etapas da evolução de uma startup.

Desenho/metodologia/abordagem – foi realizada uma revisão narrativa da literatura e a segunda fase da pesquisa incluiu o desenvolvimento de iniciativas netnográficas e a realização de estudos de casos múltiplos.

Resultados – Como resultado, foram identificadas seis categorias de serviços, abrangendo 36 serviços, cuja relevâncias variam conforme o nível de maturidade da startup.

Originalidade/valor – Esta investigação contribui para a literatura ao fornecer uma visão sistémica do estado da prática destes serviços no contexto dos espaços de Coworking.

Palavras-chave – Espaços de Coworking. Startup. Economia compartilhada. Cocriação. Transformação digital.

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1. INTRODUCTION

Coworking Spaces are presented in the literature as central components of successful entrepreneurial ecosystems, providing a variety of complementary services to support emerging ventures in the development of innovative business models (GANDINI & COSSU, 2021; GAUGER et al., 2021). These services are co-created from different exchanges among coworkers, entrepreneurs, specialists, academics, and professionals, from different areas of knowledge (VARGO; LUSCH, 2012), and include training, mentorship, and investments, resulting in connections and collaborative practices for the development of new services, products, and enterprises. Coworking spaces are relevant for academic research because of the combination of individual work and social integration in shared initiatives conducted in creative territories (BOUNCKEN et al., 2021; RESE et al., 2022). Different to incubators, Coworking spaces services combine physical space in the form of workstations and interaction areas, digital technologies, and continuous interactivity for a group of members, the coworking community (BOUNCKEN et al., 2020; KOJO & NENONEN, 2016; SPINUZZI et al., 2019). In this context, the nature of work, along with technological advances and the widespread use of digital technologies that enable interaction between different parties, offer opportunities for establishing new ways in the value co-creation process (GOERMAR et al., 2021). To support and promote the startup development process, Pittaway et al. (2020), Bouncken et al. (2020), Rese et al. (2022) and Gauger et al. (2021) reinforce the importance of Coworking spaces as central components of entrepreneurial ecosystems.

However, although the success of Coworking spaces has been evidenced academically, there are no works in the literature that identify how startups co-create value in Coworking spaces considering the distinct evolutionary stages experienced during their first moments. Coworking spaces can offer distinct bundles of services (APPEL-MEULENBROEK et al., 2021; BERBEGAL-MIRABENT, 2021; BOUNCKEN et al., 2020; BOUNCKEN et al., 2021; GANDINI & COSSU, 2021; GOERMAR et al., 2021), so aligning provided services with the most relevant startup needs is key for maximizing value co-creation. Moreover, due to the pandemics of COVID-19, Coworking spaces dynamics and priorities for the development of startups changed significantly, so it is relevant to propose consolidated frameworks considering the specificities of these services in the pre-pandemic context and after the digital transformation experienced during the COVID-19.

Therefore, this research investigates how startups co-create value in relation to the services offered by Coworking spaces, considering the different stages of development, in predominantly face-to-face contexts, which lasted until the pandemic, and in predominantly digital contexts, experienced after the outbreak of the pandemic. This research aims to identify, characterize, and evaluate the importance of the services provided by Coworking spaces considering their relevance in the different stages in the evolution of a startup. For this, based on a narrative literature review, we identify the most significant categories of services offered in different Coworking spaces before and during the pandemic, map the services offered at Coworking spaces in a netnographic research, analyze the evolution of Coworking spaces services and the needs of startups with case studies conducted with managers of Coworking spaces, evaluate the relevance of the previously identified services in field research with startup owners, and consolidate and analyze data and in a framework to drive the co-creation of value between startups and Coworking spaces.

Results obtained with this research expand the knowledge about how startups co-create value from experiencing distinct services provided by Coworking spaces. This study, therefore, contributes to the literature by consolidating characteristics of Coworking spaces services considering bibliographic and field research initiatives. Analysis of communities in face-to-face and virtual contexts expands knowledge about startups' preferences considering the services offered and how the experimentation of these services allows startups to co-create value. In

addition, the study is also important for analyzing an emerging topic - Coworking spaces - encompassing new academic research that allows improving the understanding of services, Coworking spaces, and the needs of startups to develop. In this way, the research contributes to the literature by bringing insight into the state of practice of these services in organizations in predominantly offline contexts (pre-pandemic) and predominantly online contexts (pandemic).

This paper is structured as follows: section 1 presents the research context and objectives; Section 2 presents the results of the narrative literature review; Section 3 presents the results of the multiple case studies; Section 4 analyzes the relevance of Coworking spaces services for each category of startup; finally, section 5 presents the conclusions of this research.

2. LITERATURE REVIEW

2.1 The role of coworking spaces in value co-creation

In the last decade, the role of Coworking spaces has been discussed, promoted, and fostered by entrepreneurs and academics as potential accelerators for the development of innovative communities, resulting in shared workspaces that facilitate networking opportunities. Coworking spaces provide infrastructure, knowledge, and collaboration as key drivers for integrating resources in the value co-creation process. In this way, Coworking spaces enable multiple, flexible, and autonomous knowledge exchanges within a social community through specific infrastructure (BOUNCKEN; KRAUS; MARTÍNEZ-PÉREZ, 2020; GOERMAR et al., 2021).

Thus, Coworking spaces were described as the future of collective offices and as central components for open innovation (RESE et al., 2022). At the end of 2019, COVID-19 emerged unexpectedly and abruptly, and, in the first quarter of 2020, its consequences dramatically impacted political, social, and economic realities (CABRAL & VAN WINDEN, 2022), changing dynamics of work, communication, and interaction, affecting the business models adopted by Coworking spaces (APPEL-MEULENBROEK et al., 2021; MAYERHOFFER, 2021; HOWELL, 2022). As a result, Coworking spaces started to adjust their business models, redefining the value proposition, introducing new services and amenities, and placing more emphasis on personalization and proximity (SPINUZZI et al., 2019; CABRAL & VAN WINDEN, 2022). Many Coworking spaces are currently providing members with access to online resources and virtual networking events, also acting as hybrid (digital and physical) workspaces, a new perspective that is fundamental to sustain and guarantee the future success of Coworking spaces.

In this evolving context, managers of Coworking spaces have embraced innovative approaches to continuously support the needs of their communities. They are now offering a broader range of online services and encouraging coworkers to utilize digital technologies for remote work and meetings (RESE et al., 2022). The literature suggests that coworking spaces have implemented dynamic systems to achieve success in value co-creation processes. These systems provide opportunities for individuals to transfer, acquire, and assimilate knowledge, serving as pivotal points for the initiation of value co-creation (BOUNCKEN et al., 2020; GOERMAR et al., 2021).

However, Coworking spaces managers need to identify and employ new strategies to adjust these new practices and guidance about how they can monitor the needs of their users, especially in virtual contexts in which great challenges are presented, such as maintaining engagement and differentiating themselves from the competition (CABRAL & VAN WINDEN, 2022; MAYERHOFFER, 2021).

2.2 Characterizing coworking spaces services

Each generation of workers has different expectations, needs and requirements in relation to the workspaces and different studies evidenced which services are most important for coworking users (APPEL-MEULENBROEK et al., 2019; DI MARINO et al., 2018; SEO et al., 2017; WEIJS-PERRÉE et al., 2019). Capdevila (2014) identifies three types of collaboration in the context of Coworking spaces: cost-based collaboration, where the main objective of collaboration is to reduce operational costs; resource-based collaboration, in which collaboration focus is on learning and gaining access to new knowledge and resources; and relational collaboration, where participants engage in collaboration for synergic results, actively investing in building community dynamics. To create an initial illustrative landscape of the Coworking services analyzed in the literature, Table 1 reveals six different categories, of keywords associated with the concept of Coworking space services, shedding light on various facets of their functionality. Also, table 1 presents the principal authors that discuss this kind of service, and the general description of

Table 1
Summary of Coworking spaces Services Version 1

Categories	Description in Literature	Author
The workplace	Workstation Spaces, focused on task execution, including various spatial arrangements. Interaction areas include social spaces like recreation areas, meeting rooms, kitchens, and call rooms. Office Tools equipment, such as whiteboards, printers, projectors, Wi-Fi, video consoles, phones, coffee, and food. Technological Prototyping Equipment, including 3D printers, laser cutters, and other prototyping devices. Coworking spaces website Presentation of the space and its specifics, including general information, provided physical and digital services, and presentation of CWS physical spaces. Collaborative Work Platforms, offering creative and cooperative work environments. Communication Tools, including digital tools and platforms for communication, integration, and experience sharing among CWS participants.	(Appel-Meulenbroek et al., 2020; R. Bouncken et al., 2020; Capdevila, 2015, 2019; Di Marino et al., 2018; Gandini & Cossu, 2021; Goermar et al., 2021; Kojo & Nenonen, 2016; Pittaway et al., 2019; Rese et al., 2021; Richardson, 2017; Schmidt, 2019; Spinuzzi, 2012; Spinuzzi et al., 2019; Waters-Lynch & Duff, 2021)
		(Appel-Meulenbroek et al., 2019; R. B. Bouncken et al., 2020, 2021; Capdevila, 2019; Fraiberg, 2017;

Community	Networks and Connections for the establishment of international networks among entrepreneurs and innovators in coworking spaces, encouraging members to establish relationships and collaborations. Professional Services include support from specialized personnel (lawyers, programmers, designers, accountants).	Gandini & Cossu, 2021; Goermar et al., 2021; Kojo & Nenonen, 2016; Pittaway et al., 2019; Rese et al., 2021; Seo et al., 2017; Spinuzzi et al., 2019; Waters-Lynch & Duff, 2021)
The knowledge	Courses, Workshops, and Training with experts from various fields. Conferences, Lectures, Panels and Events to broaden knowledge and encourage discussions and practical learning in business innovation, science, technology, and entrepreneurship Mentorship Mentoring for reflection on events, learning, and the establishment of action plans Pre-Acceleration Programs Pre-acceleration programs focusing on MVP improvement and validation with users for market entry	(R. B. Bouncken et al., 2020, 2021; Capdevila, 2019; Di Marino et al., 2018; Gandini & Cossu, 2021; Pittaway et al., 2019; Rese et al., 2021; Richardson, 2017; Spinuzzi et al., 2019)
The innovation	Partnerships with Companies and Accelerators for creating new partnerships with companies and accelerators for creating new acceleration programs in specific areas Co-Creation of Innovation Projects in partnership with other participants from entrepreneurial ecosystems	(R. B. Bouncken et al., 2020, 2021; Capdevila, 2019; Gandini & Cossu, 2021; Kojo & Nenonen, 2016; Pittaway et al., 2019; Spinuzzi et al., 2019)

The workplace, described Coworking spaces as shared work environments, allowing the production, validation, and diffusion of knowledge, increasing creativity and innovation, providing opportunities for the exchange of concepts and ideas among professionals and specialists from different areas of knowledge, encouraging and promoting business relationships (BOUNCKEN et al., 2021; PITTAWAY et al., 2020; RICHARDSON, 2017). This category emphasizes keywords like co-working and workplace, underlining the communal nature of coworking spaces and their definition as shared workspaces. This category also describes coworking as alternative offices, providing users with access to complementary physical and virtual services, and technological aspects, designed to improve user performance, into the analysis of technological features designed to enhance user performance within these spaces, facilitating the realization of conferences and meetings with customers and partners, that can also be benefited with interaction and recreation areas (SPINUZZI, 2012; KOJO &

NENONEN, 2016). These characteristics allow Coworking spaces to differentiate themselves, increase coworkers' productivity, and avoid distractions, motivational problems, and feelings of isolation, being a differential in relation to other spaces such as cafés, libraries, and residential offices (CAPDEVILA, 2019).

The community, describes Coworking spaces as social tools for promoting collaboration, based on the idea of community, sharing, construction and sustainability in informal relationships (CAPDEVILA, 2019; SANKARI et al., 2018; SPINUZZI et al., 2019). The community aspect of coworking spaces shifts focus to collaborative learning, emphasizing coworking spaces as environments that foster collaboration and knowledge exchange, particularly within entrepreneurial and innovation contexts. This category promotes collaboration, closely connected to entrepreneurship and open innovation contexts, in the search for co-creation and knowledge exchange. This category, reveals research about new ways of working, involving resources for creating contexts of collaboration, as well as the dynamics of innovation involved with the Coworking spaces. The community category includes authors who wrote about community and work, especially topics related to distributed work, divergent activities, and nomad work;

The knowledge reveals research about new ways of working, involving resources for creating contexts of collaboration, as well as the dynamics of innovation involved with the Coworking spaces. In this category, Coworking spaces also act as startup incubators, contributing to the development and growth of startups and small ventures, providing consulting, mentoring, ecosystem mapping, networking, investments, and connections (RICHARDSON, 2017). Currently, independent entrepreneurs prefer this type of workplace instead of searching for private offices, since these "innovation ecosystems" promote creativity and entrepreneurial intentions, contributing to the improvement of global innovation ecosystems (SEO et al., 2017).

The innovation explores connections between coworking spaces and creative industries in the sharing economy, investigates and analyses the impact and influence of shared spaces on the economy; and elucidates the emergence of coworking spaces within smart cities, examining their governance and relationships with various organizations. This Category presents keywords such as innovation, creative industries, cities, sharing economy, and communities, evidencing the connections between Coworking spaces and the creative industries involved with the sharing economy. This category also evidences the relationship between Coworking spaces as emerging spaces in smart cities, the governance of these cities, and the relationship with different organizations involved. Finally, Coworking spaces also promote the experimentation and co-creation of projects, in temporary and hybrid structures, that may include distinct actors (BOUNCKEN, 2018b). In this perspective, Coworking spaces are described as open spaces that support professionally heterogeneous communities in the pursuit of technologically innovative solutions (CAPDEVILA, 2019; SPINUZZI et al., 2019).

2.3 Coworking spaces and startups

The main value proposition of the first generation of Coworking spaces was enabling the division between work and personal life and focused on specific business segments of startups (APPEL-MEULENBROEK et al., 2021). However, market evolution increased competition, resulting in a broader range of offered services, including differentiated services such as after-work events, technical meetings, postal services, mobility services and product and service design (GAUGER et al., 2021). These services influenced the behaviour of users, as well as motivated them to be part of a Coworking space (BOUNCKEN et al., 2020). Therefore, Coworking spaces aim to attract startups and new ventures by offering low prices and rental concessions to mitigate transaction costs (BERBEGAL-MIRABENT, 2021), while

offering a combination of tangible and intangible services, as well as networking opportunities. for skills development and competence complementation (BOUNCKEN et al., 2021; FIORENTINO, 2019; STEFKO & STEFFEK, 2017). The integration of resources drives the co-creation of value among the different participants of the entrepreneurial ecosystem, connecting contexts, relationships, and initiatives (CHANDLER & VARGO, 2011; GOERMAR et al., 2021), resulting in complex and dynamic configurations of exchange, mutually beneficial for different stakeholders (VARGO et al., 2017).

Gauger et al. (2021) analyse trust in the buyer-seller relationship created between startups and Coworking spaces and observe that, during their evolution, startups demand different resources to develop and expand their business models. Resources offered by the Coworking spaces allow startups to focus on their fundamentals to seek for competitive advantages and the maturation of their business models (APPEL-MEULENBROEK et al., 2021). Startups in early stages have few financial resources and seek possibilities to reduce the cost of space and the effort to learn, while startups in more advanced stages seek to gain visibility and create networks with buyers, investors, and venture capitalists, with available resources for expanding venture operations.

2.4 Results of the narrative literature

Literature review revealed six major categories of services, which are co-created between startups and Coworking spaces with the integration of multiple social and economic resources (VARGO & AKAKA, 2012; VARGO et al., 2017). General aspects of each category will be presented in this section, and the preliminary list of related services will be complemented and presented in the next section.

a) Physical Infrastructure

Services in the physical infrastructure category include physical workspaces available for users (KOJO & NENONEN, 2016), incorporating individual workstations, shared work areas, and social spaces for interactive activities (CAPDEVILA, 2019; PITTAWAY et al., 2020; RICHARDSON, 2017; SPINUZZI et al., 2019). Additionally, physical infrastructure services combine low and high technology elements and differentiate Coworking spaces from their indirect competitors such as bookstores, cafés, and libraries (BOUNCKEN et al., 2020; DI MARINO et al., 2018). Users who access these services through pre-registration usually pay according to use and can be rented on a daily, weekly, or monthly basis (BOUNCKEN et al., 2021).

b) Digital infrastructure

Digital infrastructure services include services that support the management of Coworking spaces routine and provide creative and cooperative digital work environments for the production and distribution of knowledge (PITTAWAY et al., 2020). Although these services were already relevant for the community and other actors in the Coworking spaces ecosystem, their importance has increased significantly after the pandemic, as a result of the growing need for communication, collaboration, and co-creation of value in digital contexts (BOUNCKEN et al., 2021; GOERMAR et al., 2021).

c) Community

These are services that promote the development of informal relationships and experience sharing among Coworking spaces users. Community services are offered by the Coworking spaces and allow coworkers to be simultaneously connected, encouraging members to collaborate and create new projects (BERBEGAL-MIRABENT, 2021; RICHARDSON, 2017). These services allow multiple, flexible, and autonomous exchanges of knowledge, in an open and bidirectional way (BOUNCKEN et al., 2020; GAUGER et al., 2021; RESE et al., 2022).

d) Networking

Services in the networking category encourage members to develop relationships and collaborations with different external actors in the entrepreneurial ecosystem and with market users to increase networks (FIORENTINO, 2019). Services in this category can be offered by the Coworking spaces or outsourced with Coworking spaces partners. Services in this dimension include events, national and international networking with different actors in the ecosystem, continuous management of communication channels, and providing professional services (CAPDEVILA, 2019; GANDINI & COSSU, 2021).

e) Acceleration programs

Acceleration services are usually outsourced, provided in partnership with startup accelerators that run training projects and provide contacts with venture capital agents (BOUNCKEN et al., 2020). Services in this category include coaching, training, consulting, mentoring, and accessing venture capitalists and business angels (GOERMAR et al., 2021). Acceleration programs are designed for the development of innovative business models, allowing participants to improve their skills, and help them find new investment opportunities, fundraising and commercial relationships with other actors in the ecosystem (CAPDEVILA, 2019; KOJO & NENONEN, 2016; SPINUZZI et al., 2019).

f) Projects

This dimension of services has the objective of immersing entrepreneurs in the entrepreneurial ecosystem and facilitating their involvement in the search of solutions for complex problems, brought by the private sector and by universities, with focus on the development of innovative solutions (BOUNCKEN et al., 2021; DI MARINO et al., 2018; RICHARDSON, 2017; SPINUZZI et al., 2019). Services in the project category involve different stakeholders for the production and dissemination of innovative solutions for complex problems and the coordination of joint projects with regional companies (BOUNCKEN et al., 2020; FRAIBERG, 2017; GAUGER et al., 2021).

3. METHODOLOGY

3.1 Netnography

The Data collection protocol designed for this research included the execution of different netnographic initiatives. Netnography is a qualitative approach, developed to investigate behaviors, relationships, and experiences inside online communities (KOZINETS, 1998). The application of netnographic techniques requires the immersive participation of the researcher in the community of interest, allowing the identification of patterns of communication, relationships, and exchanges in digital contexts (BARRATT & MADDOX, 2016), as well as the analysis of relevant behaviors of users from these relevant communities (BELZ & BAUMBACH, 2010). Netnography improves data collection, allowing the researcher to become an active part of the community (WU; PEARCE, 2014). For this, we developed our researcher's reliable identity for working with social networks. This identity enabled the attraction, connection and interaction with Coworking spaces managers, as well as with startup founders, resulting in interviews and the application of research questionnaires.

Netnography includes three main stages (BARRATT & MADDOX, 2016; KOZINETS, 1998): preparation, for identifying the digital channels of interest, as well as for designing the research instruments; field research, for the entry, engagement with the community and exit, promoting the identification, classification, and analysis of information in accordance with previously elaborated protocols; and production and dissemination of the knowledge acquired in these initiatives. Websites and social networks were chosen, including Facebook, Instagram and LinkedIn. The websites allowed us to identify the services offered. On the other hand, the

social medium also allows the researcher to identify the level of interaction and engagement that entrepreneurs have with each service. The selection of these channels allowed the researcher to track the posts asynchronously of the different contents over time, as well as to map the virtual communities of interest.

In each of the initiatives, netnographic research involved the identification of the services of the Coworking spaces in the websites and the active participation of the researchers in the social networks used by the Coworking spaces for the promotion of services and engagement with participants. Websites revealed startups that work with the Coworking spaces, virtual services offered by the Coworking spaces and how community members access these services, including networks of collaborators, educational programs, relationships with potential investors, mentoring platforms, as well as access to communication channels, where updates on spaces, announcements of resources, events, face-to-face operations, and job openings are posted. Regarding the analysis in the online media, the most relevant social networks analyzed, observing the promotion of events such as conferences, challenges, panels, and workshops, as well as for the diffusion of relevant knowledge for the participants, including papers, blogs, reports, podcasts, and news.

3.2. Case studies

Following the recommendations of Eisenhardt (1989) and Yin (2014), the exploratory case study approach was selected, considering structured protocols, including procedures for secondary data collection and for the preparation, conduction, and analysis of interviews and observations, considering complementary data sources obtained in multiple case studies, aiming to reinforce obtained evidences to guarantee the required scientific robustness and rigor. The case study is suitable for this research because of its ability to synthesize the most relevant specificities about emerging and transitory phenomena (CAPDEVILA, 2019; SPINUZZI et al., 2019). To guarantee the relevance and diversity of the sample, six distinct Coworking spaces located in the city of São Paulo were selected for the development of this research, including three public Coworking spaces, managed by universities or state agencies, and three private Coworking spaces, managed by private companies. Due to the transformation caused by the COVID-19 pandemic, this method was applied considering two distinct moments, the first in a predominantly face-to-face, pre-pandemic context, conducted in Coworking spaces 1,2,3 and 4, and the second in the predominantly digital context, during the pandemic case studies in Coworking spaces 4,5 and 6 were conducted. Table 2 presents the selected Coworking spaces.

Table 2
The selected Coworking spaces

Coworking spaces	Owner-ship	Fee	Selection process	Startup stage
1	Public	No fee	No selection process	Initial stages (customer discovery and validation)
2	Public	Monthly plan	Yes, with focus on promising startups	Startups with validated MVP
3	Public	No fee	No selection process	All stages
4	Private	Monthly plan	Yes, with focus on promising startups	Mature startups (customer creation and company building)
5	Private	Monthly plan	Yes, with focus on promising startups	Mature startups (customer creation and company building)
6	Private	Monthly plan	Yes, with focus on promising startups	Startups with validated MVP

For this, research activities included the development of the research questionnaire, the

development of the semi-structured script for the interviews, the definition of the procedures for approaching Coworking spaces managers, including the presentation of the research and the invitation for the interviews, the collection of secondary data of the Coworking spaces, the conduction of the interviews with managers of the selected Coworking spaces, the application of the questionnaire with startups' coworkers that reside in the studied Coworking spaces, data collection from observations conducted in loco and remotely, the transcription of the interviews, the validation of the obtained material with the interviewees, the development of individual cases narratives, the cross-case analysis considering the triangulation of collected field data and the theoretical framework structured from the literature review,

Finally, the results obtained with the process were analyzed through triangulation of information considering primary and secondary sources and the theoretical framework developed through the narrative literature review, as recommended by Eisenhardt (1989) and Yin (2014). According to Eisenhardt (1989), cross-case analysis enables the identification of patterns and internal correlations among cases, thereby enhancing the qualitative robustness and reliability of the research results.

4. RESULTS AND DISCUSSION

Considering the obtained results from the literature review, field research aimed to evaluate which of the services previously identified were effectively relevant to startups in the context of Coworking spaces, making possible the observation and interpretation of the object of study in a real environment (GUO et al., 2019; YIN, 2014).

Coworking spaces services are real-time processes that enable experiences with the combination of many different activities, organized to satisfy the needs of customers and add value to different stakeholders. Providing good services becomes increasingly fundamental to the success of organizations thanks to flexible working practices (DI MARINO et al., 2018; ECKHARDT et al., 2019). Startups are defined by Blank and Dorf (2012) as organizations constituted to search for a replicable and scalable business model and by Ries (2011) as human institutions, created with the aim of developing new products and services in extreme uncertainty conditions. Startups initial phases are classified by Blank (2013) into four stages: customer discovery, when founders transform ideas into hypotheses about business models, create "minimum viable products" to test possible solutions and understand customer needs; customer validation, when the startup continues to test its hypotheses aiming to validate the effective interest of customers with concrete orders and effective product experimentation; customer creation, when the product is mature enough to go systematically to the market; finally, in the scaling phase, the organization refines its operations and scales its transactions (ASAMOAH et al., 2021; CHENGBIN et al., 2022).

The obtained sample was characterized by the predominance of mature startups when compared to nascent startups, corroborating with the evidence presented by Gauger (2021) and by Appel-Meulenbroek (2021), who stated that nascent startups have lower demand for Coworking spaces services when compared to mature startups. Figure 1 presents the previously identified services, prioritized in accordance with the identified interests of the analyzed startup founders and Coworking spaces managers.

Figure 1
Coworking services, prioritized according to startups interest.
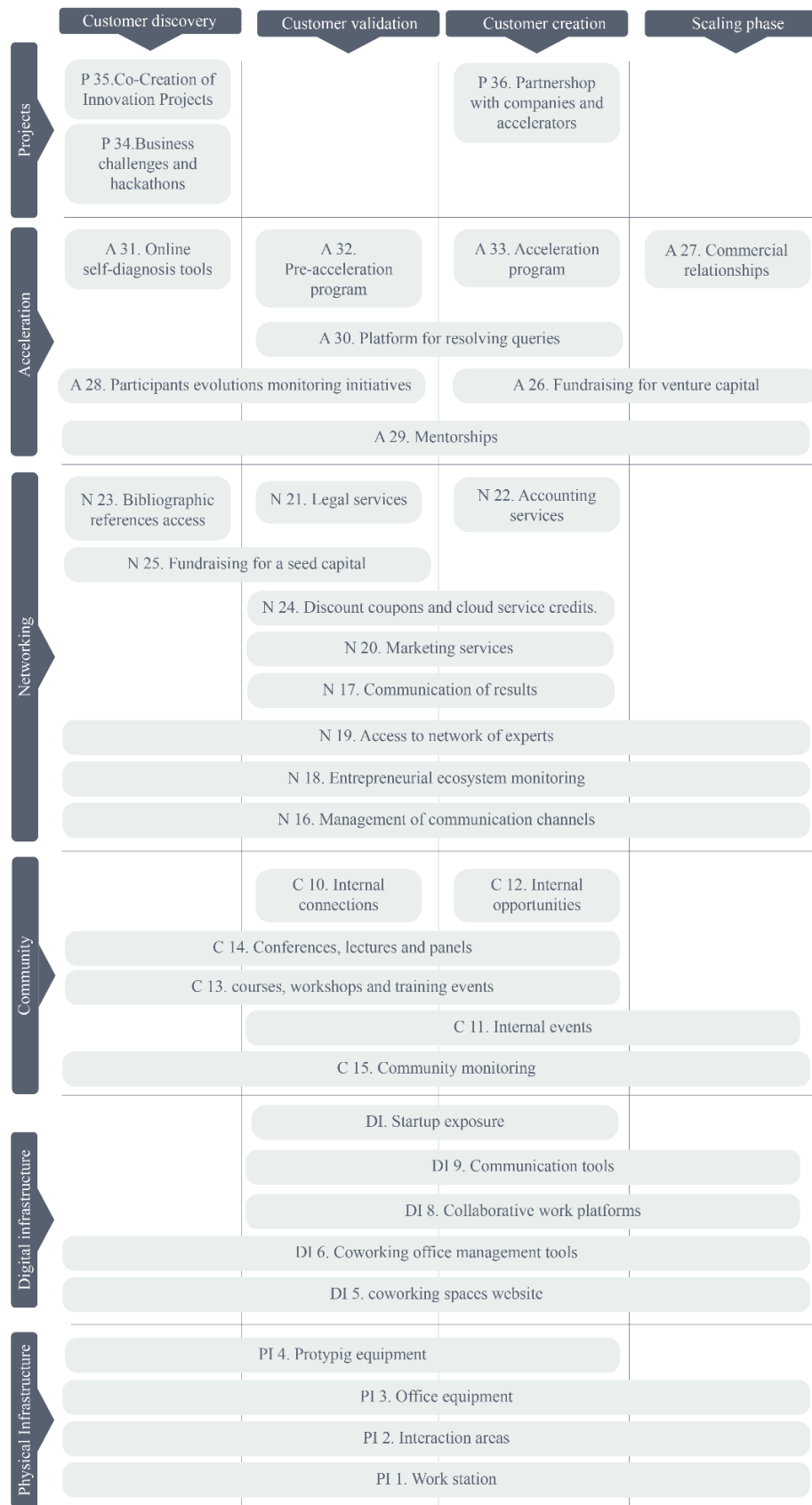
4.1 Most relevant services for startups in the customer discovery phase

Obtained results evidenced that the most relevant objective for this category of startups is to gain access to the entrepreneurial ecosystem to obtain a complete entrepreneurial experience, both in physical and digital contexts, initiating their entrepreneurial journeys (BOUNCKERN et al., 2021; CAPDEVILA, 2019; GOERMAR et al., 2021; PITTAWAY et al., 2020). In this context, entrepreneurs routinely access different Coworking spaces environments to obtain greater visibility and to gain access to diversified resources (APPEL-MEULENBROEK et al., 2019). Because of the initial moment of the startup, entrepreneurs prefer accessing free spaces and digital platforms to communicate with different actors of the ecosystem and involve themselves with entrepreneurial communities. The second most relevant objective for this category of startup is gaining access to specialised knowledge and resources to develop the idea and create the first versions of the minimum viable products, including participation in courses and training and accessing networks of experts and mentors. Finally, entrepreneurs in this stage also look for deeper immersions in the entrepreneurial ecosystem with the participation in business challenges, hackathons, and with the development of innovation projects in partnership with external companies. These programs promote the visibility of the startups to companies, investors, and accelerators.

4.2 Most relevant services for startups in the customer validation phase

Results obtained with the literature review, netnographic research, analysis of the answers of questionnaires, and interviews with entrepreneurs and Coworking spaces managers evidenced that stage 2 startups (customer validation phase) aim to access resources to improve their value propositions and business models, integrating services and promoting the maturity of the startup. In this context, attending pre-acceleration programs is an effective initiative (PITTAWAY, 2019). In the physical spaces, entrepreneurs access mainly meeting rooms and private rooms to test and to validate minimum viable products, and to meet potential investors and customers. In this stage the accessibility of physical spaces are considered essential (APPEL-MEULENBROEK et al., 2020; SPINUZZI et al., 2019). In turn, physical interaction areas and online events promoted by the Coworking spaces allow entrepreneurs to expand their networks and to connect with other entrepreneurs, external companies, and investors, accessing resources, gathering knowledge, and sharing experiences (BERBEGAL-MIRABENT, 2021; RICHARDSON, 2017). Finally, stage 2 entrepreneurs also attend mentorships to improve business models, strengthen team formation, improve corporate presentations, and to obtain guidance for raising financial resources.

4.3 Most relevant services for startups in the customer creation phase

Startups in the customer creation phase (stage 3) have as a priority strengthening the visibility of their products and services in the entrepreneurial ecosystem to attract customers, investors, and potential partners (GAUGER et al., 2021), and accessing Coworking spaces paying small fees, saving resources for the future challenges that will be faced by the startup (BERBEGAL-MIRABENT, 202; BLANK, 2012). Similarly to stage 2 startups (customer validation phase), stage 3 entrepreneurs also look for mentorship and training to continue the refinement of business models and to develop new forms to obtain investments, such as crowdfunding. However, in this stage, the specialization of the Coworking spaces became relevant since the access to strategic partners that may be interested in buying products and

services marks the beginning of the systematic sales for the startup.

4.4 Most relevant services for startups in the scaling phase

The triangulation of the obtained results revealed that stage 4 startups focus on competitiveness and startup growth, promoting the visibility of services and products, looking for commercial relationships with distinct participants of the entrepreneurial ecosystem, improving operational efficiency, and integrating resources. The flexibility in the use of spaces, enabled by distinct types of rental contracts, promotes the search for well-located spaces since they promote products and services among potential customers, raise the awareness of investment funds and scale commercial relationships in sustainable forms, attract customers, promoting investments, and enabling startup competition in the market (FIORENTINO, 2019; SCHMIDT, 2019; STEFKO & STEFFEK, 2017).

5. CONCLUSION

Coworking spaces services and entrepreneurial needs changed during the pandemic. In the pre-pandemic context, motivations of entrepreneurs in relation to Coworking spaces were mainly related to the use of physical spaces; however, during the pandemic, digital platforms expanded frontiers, promoted access to new contexts, and increased competition, resulting in a greater variety of innovative products and services. However, digital contexts include a much higher diversity of users, so it is essential for Coworking spaces to better understand the motivations and needs of entrepreneurs, to continuously improve services, and to promote networking, social interactions, and knowledge exchange. The speed of change in this new context makes it necessary for Coworking spaces to provide specialized services, adapted to the ever-evolving needs of entrepreneurs. Thus, the co-creation of new services adds value and results in competitive advantages. Among the mapped services, collaborative platforms that promote networking and sharing also allow the monitoring of communities and the analysis of obtained results, evidencing the need for managers to develop new social digital competencies. Consequently, hybrid infrastructures, including physical and digital services, are currently the most appropriate alternative. In national and international entrepreneurial ecosystems.

Value creation is potentialized with the integration of distinct resources from many different fonts. For entrepreneurs, the importance of being part of the entrepreneurial ecosystem and gaining visibility has become essential, so Coworking spaces have increased partnerships with different actors of the ecosystem, including companies, government, universities, investors, research institutions, incubators, and accelerators, moving Coworking spaces from shared workspaces to leaders of open innovation ecosystems. Although connections and partnerships have increased during the pandemic, they still remain unexplored in the literature.

The diverse and intense interactions among startups, entrepreneurs, Coworking spaces managers, and the different actors of the ecosystem result in complex networks of value co-creation. Thus, in this new context, value co-creation between startups and Coworking spaces is the result of the multiplicity of interactions between actors. Services mapped in this research with the triangulation of information obtained from different sources, including a systematic review of the literature and field research conducted before and during the pandemic evidenced the most relevant Coworking spaces services, that were analyzed according to the stage of evolution of the startup. Ecosystem and mentoring services and pre-acceleration programs to test initial hypotheses related to the startup's value proposition.

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