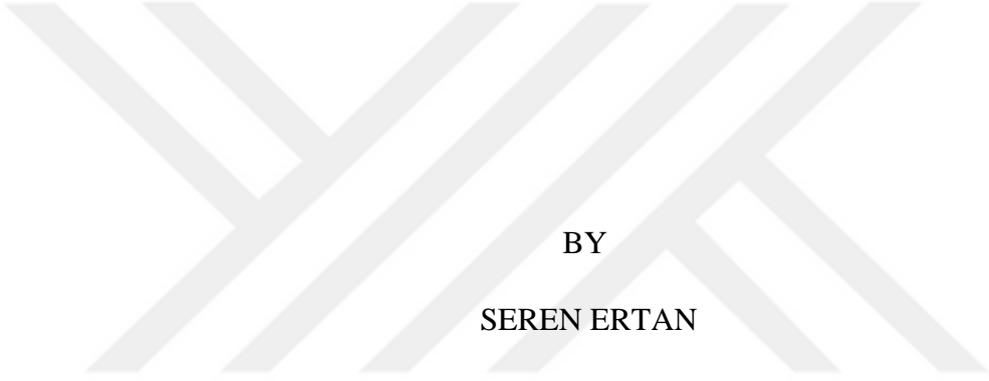


COLLABORATIVE WORKING SPACES: PROJECT ECOLOGIES AND
MEANS OF INTERACTION AND COLLABORATION

A THESIS SUBMITTED TO
THE GRADUATE SCHOOL OF NATURAL AND APPLIED SCIENCES
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**COLLABORATIVE WORKING SPACES: PROJECT ECOLOGIES AND
MEANS OF INTERACTION AND COLLABORATION**

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ABSTRACT

COLLABORATIVE WORKING SPACES: PROJECT ECOLOGIES AND MEANS OF INTERACTION AND COLLABORATION

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Industrial revolutions through time changed the nature of work and triggered a shift from a 'service' economy towards a knowledge-based economy that is derived from information and ideas. This shift, which was concerned with organizing data and products, to a 'knowledge' economy that relied on worldwide information and communications network, brought along the necessity of reconsidering work practices and concepts. Changing work practices caused organizations to become more agile and flexible towards constant reorganization for profit and customer demands, and less dependent on hierarchy. Work turned into time-pressured, team-based collaborative tasks rather than individual efforts.

With the changing work practices, the shared workspaces that accommodate knowledge workers from various backgrounds and provide conditions for innovation through co-working and collaboration increased.

The aim of this study is to understand the potential of co-working spaces' influence on facilitating collaboration and to offer a brief regarding the fundamentals of collaboration in coworking spaces. The thesis examines two cases that have different features such as the social interactions they enable, collaboration models they accommodate and industries they serve (Atölye for creative business and CoZone for

technological entrepreneurship) where coworkers work together with the assistance of varying collaboration strategies.

Examination of the cases relies on the interrelated aspects of collaboration that are extracted from the theoretical background research about co-working space characteristics and collaboration. With this examination the thesis provides an insight regarding the current conditions and future prospect of collaboration in coworking spaces.

Keywords: Flexible Working, New Ways of Work, Digital Nomad, Mobile Worker, Collaboration, Shared Workspaces, Knowledge Sharing Dynamics, Collaborative Workspaces, Coworking Spaces, Knowledge Workers, Interaction Strategies, Project Ecologies, Network Reputation

ÖZ

İŞBİRLİKÇİ ÇALIŞMA ALANLARI: PROJE EKOLOJİLERİ, ETKİLEŞİM VE İŞBİRLİĞİ

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Zaman içindeki endüstriyel devrimler çalışma kavramının doğasını değiştirmiş, bilgi ve fikirlerden elde edilen enformasyona dayalı bir ekonomiye doğru kaymaya neden olmuştur. Veri ve ürünleri organize etmekle ilgilenen 'hizmet' ekonomisinden dünya çapında bilgi ve iletişim ağına dayanan 'bilgi' ekonomisine geçiş, iş pratiklerini ve kavramlarını yeniden gözden geçirme gerekliliğini beraberinde getirmiştir.

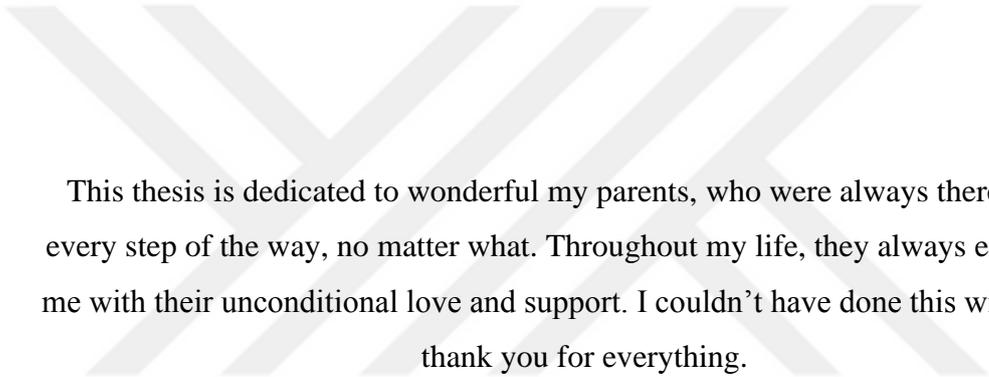
İş uygulamalarının değiştirilmesi, kuruluşların kar ve müşteri talepleri için sürekli yeniden yapılanma ve daha hiyerarşiye daha az bağımlı olma konusunda daha çevik ve esnek olmalarına neden oldu. Çalışmalar bireysel çabalardan ziyade sonuç odaklı, zamana bağlı, takım iş birliğine dayalı işlere dönüştü. Değişen iş uygulamalarıyla birlikte, çeşitli geçmişlerden gelen bilgi çalışanlarını barındıran ve ortak çalışma ve iş birliği yoluyla inovasyon için şartlar sağlayan ortak çalışma alanları arttı.

Bu çalışmanın amacı, ortak çalışma alanlarının işbirliği üzerindeki etkisinin potansiyelini anlamak ve ortak çalışma alanlarındaki işbirliğinin temelleri hakkında derleme bilgi sunmaktır. Tez, çalışma arkadaşlarının çeşitli işbirliği stratejilerinin yardımı ile birlikte çalıştıkları, sağladığı sosyal etkileşimler, barındırdıkları işbirliği

modelleri ve hizmet ettikleri endüstrileri (yaratıcı işler için Atölye ve teknolojik girişimcilik için CoZone) gibi farklı özelliklere sahip iki örneği incelemektedir.

Vakaların incelenmesi, birlikte çalışma alanı özellikleri ve işbirliği ile ilgili teorik arkaplan araştırmasından elde edilen işbirliğinin birbiriyle ilişkili yönlerine dayanır. Bu inceleme ile tez, çalışma koşullarında mevcut şartlar ve gelecekteki işbirliğinin gitişatı hakkında bir fikir edinmektir.

Anahtar Kelimeler: Esnek çalışma, Yeni Çalışma Biçimleri, Dijital Göçebe, Mobil Çalışan, İşbirliği, Paylaşımlı Çalışma Alanları, Bilgi Paylaşma Dinamikleri, İşbirlikçi Çalışma Alanları, Ortak Çalışma Alanları, Bilgi İşçileri, Etkileşim Stratejileri, Proje Ekolojileri, Ağ Sosyal Ağ İtibarı



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CHAPTER 1

INTRODUCTION

With the 4th Generation Industrial Revolution (Industry 4.0), the rise of automation and digital developments is now generally accepted to increase the need for experts working in the area of automation and digital technology, while reducing the need for human expertise in the manufacturing and manufacturing industries. Accordingly, occupations in office-administrative and production lines are predicted to constitute the basic categories that will be excluded from employment until 2026 (Wilks and Sousa, 2018).

After the first industrial revolution, factories and workforce concepts that were located at the center of the economy have been replaced by specialized work environments, intellectual production, and information industries (Esmailpoorarabi et al., 2017). The nature of work before the period of Industry 4.0 increasingly failed to respond to the needs of the everchanging economy. Working is said to lose its dependency on time and place, and as a result of this mobility, the need for a fixed location or space to work is believed to be irrelevant. (Gibson, 2003) With the network environments that allow knowledge workers and industries to locate wherever they want, the boundaries between work and private environments blurred (Oldenburg, 1999).

The communications of information industries and employees have started to rely mainly on digital interactions which caused workers to be affected by the physical isolation and lack of work-life balance in their “electronic cottage” (Toffler 1980). Due to the absence of coworkers, individuals miss out on the highly effective ways of problem-solving that can be provided by collaboration and face-to-face interactions that the development of innovation and ideas feeds on (Boden and Molotch 1994; Oksanen and Ståhle 2013; Storper and Venables 2004). Therefore, shared workspaces

that accommodate knowledge workers from various backgrounds and provide conditions for innovation through co-working and collaboration emerged and increased.

This thesis focuses on these mentioned shared collaborative workspaces resulting from changing working practices with the knowledge economy.

In this context, firstly the industrial revolutions' effects of the economy, working conditions and environments, the qualities sought in the workers and the adaptation of the working places will be examined. Then, the spatial characteristics of the new working practices and the spatial qualities of both previous workspaces and current work environments will be reviewed. Afterward, practices of work collaboration that accompanies the co-working concept will be examined through a literature review about the definition of collaboration and its relations with coworkers and the spatial qualities of a place. With the guidance of this research, a multi-case study will be used to explore the collaborative co-working spaces' influence in facilitating collaboration.

1.1. Objectives

With the changing work practices, shared workspaces that accommodate knowledge workers from various backgrounds, different disciplines, and provide conditions for innovation through co-working and collaboration, increased. The research objective of this thesis is to provide a brief of varying aspects of collaboration and gain insight regarding the potential of the co-working spaces' effects regarding the emergence of collaboration in current work environments and propose a future implementation of potential collaboration and coworking types and spaces.

1.2. Research questions

The main research question of this thesis is:

How does a community based shared collaborative workspace that tends to specialize in an industry field affect different means of collaboration in the co-working space?

To be able to answer the main research question, several sub-questions are formulated:

- What are the common features of a co-working space?
- What are the spatial characteristics of a co-working space?
- What are the user characteristics of co-working spaces?
- What are the interaction types between coworkers?
- What is the definition of collaboration?
- Who are the collaborators?
- How do they collaborate?
- What are the strategies adopted to ensure collaborations?
- Where does collaboration happen?
- How does collaboration emerge between coworkers?
- What are the spatial factors that affect collaboration?

1.3. Methodology

To answer the main and sub-research questions, this study starts with a critical overview of the literature on the evolution of office spaces and the emergence of contemporary work concepts. Within those work concepts, the main concern has been on the co-working concept and the features that give rise to workplaces that host coworkers.

Afterward, to investigate the question about the relation between the characteristics of a co-working space and collaboration, the definition of collaboration between coworkers has been investigated. These examinations contributed to the construction of a brief of interrelated aspects of collaboration that are examined to see how they attempt to influence one another and to describe their dynamics and internal structures.

These interrelated factors are conceptualized in two main layers. The first layer is dedicated to the direct link between coworking spaces and primary collaboration factors such as;

- Who are the collaborators?
- How do they collaborate?
- What are the strategies adopted to ensure collaborations?
- Where does collaboration happen?

The secondary layer of the factors is more elaborated aspects of collaborations which are not directly related to the coworking space features, such as the importance of trust and network reputations, the emergence of project ecologies and impromptu interactions.

Since the aim of the study is to gain insight through real-world examples with the expectation of this insight to involve critical contextual conditions (e.g., Yin & Davis, 2007) the data that are necessary to examine the relationships between these collaboration aspects are deprived with the assistance of a multiple-case study. A multiple case study, just as the single case study is one of the variations of the same method of inquiry which is described by Yin as;

“... an empirical inquiry that investigates a contemporary phenomenon (the “case”) in depth and within its real-world context, especially when the boundaries between phenomenon and context may not be clearly evident.”

The intention behind the use of multiple case study method, which is to benefit from it to understand the relationships between coworking space’s influence on interrelated aspects of collaboration, is aligning with scholar’s explanation regarding the scope of a case study method.

“The essence of a case study, the central tendency among all types of case study, is that it tries to illuminate a decision or set of decisions: why they were taken, how they were implemented, and with what result.” (Schramm, 1971, emphasis added)

The study process includes analysis of documentation such as floor plans, visual documentation of the space, observations, and semi-structured interviews. Analysis of floor plans with visual documentation of the space which focused on capturing settings that collaboration accrued, observe behaviors the behaviors of individuals, teams, and staff members. After this observation part, which allowed observing the coworker's natural behavior pattern, semi-structured interviews conducted to gain further insight into those behaviors.

1.4. Limitations

The specific research findings are gathered from co-working spaces in the cities of Ankara and İstanbul. The generalization of the current characteristics of the employees and collaboration levels between coworkers might differ according to geographic and socioeconomic contexts.

Another limitation is the quantity and quality of the case selection. The researcher opted to only focus on two spaces that accommodate co-working. Increasing the number of different cases could have achieved a more in-depth perspective on the collaborative nature of co-working environments. The duration of the observation is also related to the quality of the research. The researcher had limited time for each facility for observation and interviews. The time restriction might affect the results. It could be possible to witness more within a more extended period.

The current context of the research has been dependent on observations of the researcher and interviews with management, staff, and individuals of the studied co-working settings. It was assumed that the interviewees are objective with their answers; however, the factor of observation might affect their behavior patterns and could cause bias comments in order to make a positive impression. In order to minimize this limitation researcher, lead the interviews with more open-ended questions so that the individuals had the opportunity to share their personal experiences and opinions similar to a conversation.

CHAPTER 2

LITERATURE REVIEW

This thesis focuses on shared collaborative workspaces resulting from changing working practices with the knowledge economy. In this context, this chapter is dedicated to the theoretical background of the changing aspects of work, current work environments, coworking spaces, and collaboration.

In the first section, the industrial revolutions' effects on the economy, working conditions and environments, the qualities sought in the workers and the adaptation of the working places will be examined. Then, the spatial characteristics of the new working practices and the spatial qualities of both previous workspaces and current work environments will be reviewed.

Afterward, practices of work collaboration that accompanies the co-working concept will be examined through a literature review with the definition of collaboration and its relations with coworkers and the spatial qualities of a place.

2.1. Changing aspects of work

2.1.1. Economic growth and employment

The first industrial revolution started with the invention of mechanical production systems that use water and steam power by the end of the 18th century. During this era, hand production methods, or one-person jobs, that were performed by artisans were replaced by machinery that required less artisanal skills but a higher number of workers to operate (Benedikt Frey et al. 2013; Kusmin 2012). According to the same sources, the increased use of machinery aimed to reduce the work time, and as a result, artisans' workshops evolved into factories that facilitate production on a larger scale.

Thus, the emerging need for factory workers introduced employment opportunities in the production sector.

The second industrial revolution introduced significant industrial developments and technological innovations, such as the assembly line, mass production, the paper machine, the typewriter, public transport and planes, usage of steel, electricity, the invention of the telephone and the telegraph networks. The invention of networks became the foundation of modern communication systems. This changed the nature of economies as well, once localized economies opened up to the new markets and locations with the development of transportation and communication systems. “From the middle of the nineteenth century, the expansion of industrial, commercial and transportation enterprises also generated a growing demand for financing, which led to the establishment of limited companies”(Çimen, 2008). The growth in all sectors of the economy, such as banking, railroads, insurance, retailing, oil, and the telegraph industries, triggered a change in work styles and workspaces; work lost its seasonal quality, standard working conditions such as eight-hour workday emerged and complex tasks were divided into the subtasks. In order to handle the subtasks such as order processing, accounting, and filing documents, another line of job emerged. The office work became widespread, and the middle-class, white-collar worker, who conducts general office tasks, became essential. (Çimen, 2008)

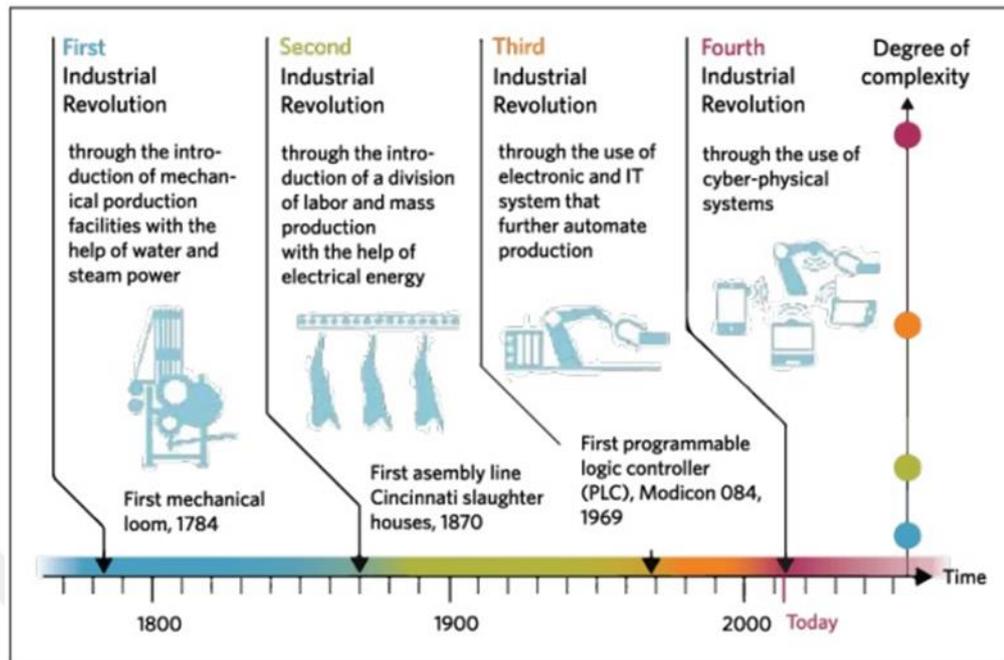


Figure 2.1. The four Industrial Revolutions (Source: DFKI,2011)

The third revolution, also known as the digital revolution, started with the rapid adoption of electronic and information technologies 1970s (Figure 2.1). The revolution gave rise to the automation of production in factories, telecommunications, the internet, usage of personal computers, and cell phones. This digital revolution fostered the conversion of analog technologies into a digital format. With the new developments, previous office concepts “became unsatisfactory as the importance of communication, information technology (IT) and flexibility emerged” (Gülden 2015).

The 4th Generation Industrial Revolution (Industry 4.0) started in the 2000s, taking automation even further and introducing technological developments such as Smart Factories, the Internet of Things (IoT), Smart Industry and manufacturing, Cloud computing, Big data, Virtual Reality (Kusmin 2012). These technological developments entailed by Industry 4.0 and its related technologies are facilitating autonomous, integrated, hyperconnected production systems and forming self-organizing factories. Manufacturing companies, suppliers and customers will be linked on a shared Internet of Things (IoT) platform that allows for connecting and

tracking asset performance in real-time, as well as for integrating production and consumption processes (Leurent et al. 2018). For instance, artificial intelligence can process a significant amount of data to increase efficiencies and inform accurate decision-making.

Along with improvements these technologic developments give rise to the term disruptive technology which was initially conceptualized by Professor Clayton M. Christensen at the Harvard Business School. (Ebersold & Glass, 2015). The term describes the new technological innovations replacing an existing technology rather than just providing upgrades. (Ebersold & Glass, 2015).

For example, an Australian engineer Marc Pivac has developed a fully automated bricklayer robot (Hadrian) that can lay 1,000 bricks per hour, workday and night without breaks and build 150 homes in a single year. The robot uses 3D computer-aided design (CAD) to minimize waste and claims to provide accuracy down to the millimeter. The machine creates a CAD drawing to detect the location and dimensions of every brick before it cuts the brick, sets it up with a 28-meter-long telescopic boom, and secures the placement with mortar (Wang 2015).

Another example could be the sewing robot LOWRY, developed by SoftWear Automation. This robot works as an assembly line, carrying out various tasks such as fabric handling, pick & place operations, and sewing. It uses a “high-speed vision system to precisely track and prevents distortion of fabric – giving the robot a much higher level of precision and accuracy than its human counterparts.” (Grossman, 2019). The company claims that eliminating the need for human labor both reduces the costs and the time necessary to complete the sewing tasks.

As seen from the examples, the automation technologies and digital developments have a considerable influence on all sectors of the economy but especially on manufacturing. For instance, the advanced robots/computers that can perform a range of routine physical activities can automate more than 60% of all manufacturing activities according to the McKinsey Global Institute (Leurent et al. 2018).

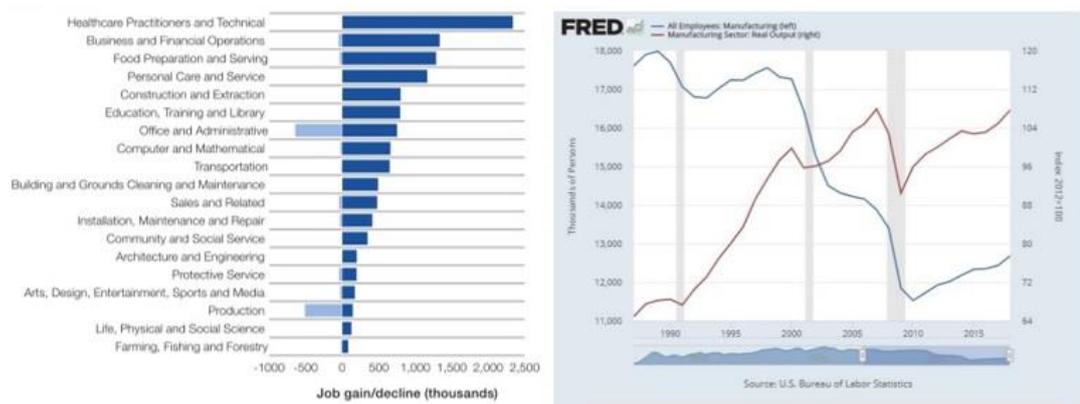


Figure 2.2. Job gain/decline and Manufacturing graphic (Source:U.S. Bureau of Labor Statistics)

These disruptive technological developments began to take over the place of physical workers by offering a high-quality end product, faster and with lower cost and caused physical labor to lose its dominance over the economy, eventually giving rise to technological unemployment(Figure 2.2). This statement is supported by the Bureau of Labor Statistics as well. According to their forecast, (Table 2 1) the highest rate of job disruption by 2026 will be in manufacturing and production job families in the labor market with occupations such as Processing Machine Operators, Sewing Machine Operators with 511,000 jobs expected to be displaced. (World Economic Forum, 2016).

Table 2.1. *Projected US job changes by 2026 (Source: US Bureau of Labor Statistics)*

Job family	Gender breakdown in 2016 (%)		Employment (thousands)		Change in employment 2016–2026 (thousands)		
	Female	Male	2016	2026	Increasing jobs	Declining jobs	Net change
Office and Administrative	66	34	22,621	22,730	751	-642	109
Sales and Related	46	54	15,088	15,523	477	-41	436
Business and Financial Operations	51	49	13,578	14,865	1,334	-48	1,286
Food Preparation and Serving	52	48	13,436	14,688	1,286	-33	1,252
Healthcare Practitioners and Technical	66	34	12,917	15,246	2,339	-10	2,330
Transportation	16	84	10,266	10,907	650	-9	640
Production	25	75	8,926	8,558	142	-511	-368
Education, Training and Library	62	38	8,528	9,317	793	-4	789
Construction and Extraction	3	97	7,157	7,955	800	-1	799
Personal Care and Service	55	45	6,352	7,516	1,165	-1	1,164
Installation, Maintenance and Repair	5	95	5,729	6,111	411	-29	383
Building and Grounds Cleaning and Maintenance	24	76	5,619	6,109	490	0	490
Computer and Mathematical	29	71	4,765	5,402	660	-23	638
Protective Service	24	76	3,419	3,573	196	-42	154
Architecture and Engineering	16	84	2,689	2,886	197	0	197
Community and Social Service	61	39	2,523	2,866	346	-3	343
Arts, Design, Entertainment, Sports and Media	40	60	2,421	2,567	172	-26	146
Farming, Fishing and Forestry	20	80	2,045	2,113	81	-14	67
Life, Physical and Social Science	42	58	1,311	1,436	125	0	125
Total	37%	63%	149,369	160,368	12,416	-1,437	10,979

Technology-based unemployment shifted the manufacturing-based neoclassical economy to one that privileges innovation and the generation of knowledge (Esmailpoorarabi, Yigitcanlar, and Guaralda, 2018). Factories and physical labor that were once the heart of the economy after the first industrial revolution left their places to the specialized work environments, intellectual labor, and knowledge industries. The change in the industry generated the necessity of adaptation for the employee profile and their skills.

2.1.2. The ever-changing workforce of economy

The changes in the industry, declining needs for routine-based job families and new technological developments had an impact on worker skills in demand within their generations. Currently, all the generations in the demographic structure of workers have a diverse set of skills, work ethics and values, interaction styles, and expectations from work and life-work balance (Gülden, 2015).

2.1.2.1. Generations of workers in ever-changing economy

There are currently four generations in the workforce that work together in the market: Veterans/Traditionalists, Baby Boomers, Generation X, and Generation Y. While it is challenging to define generations precisely, the features of generations (Table 2.2) are perceived as a “collective set of attributes, behaviors, core values and experiences” (Delcampo et al., 2011; Underwood, 2007).

Table 2.2. *Generation Characteristics (Source: Hammill, 2005)*

	GENERATION Y	GENERATION X	BABY BOOMERS	VETERANS
CORE VALUES	Realism, confidence	Scepticism, fun, informality	Optimism, involvement	Respect for authority
WORK ETHICS & VALUES	What’s next, multitasking, entrepreneurial, tolerant, goal-oriented	Eliminate the task, self-reliance, sceptical, want structure and direction	Workaholics, work efficiently, personal fulfilment, desire quality	Hard work, sacrifice, duty before fun
WORK IS	means to an end, fulfilment	difficult challenge, a contract	exciting adventure	obligation
INTERACTIVE STYLE	Participative	Entrepreneur	Loves to have meetings	Individual
MESSAGES THAT MOTIVATE	Work with other bright and creative people	Do it your way, forget the rules	You are valued	Your experience is respected
WORK & FAMILY LIFE	Exact balance	Balance	No balance, work to live	Work, work, work

Traditional Generation, 1922–1945

Traditionalists are also known as the Silent, Veteran, Mature, GI, Senior, and Builder generations (Hicks & Hicks, 1999; Lancaster & Stillman, 2005; Martin & Tulgan, 2002; Meredith, Schewe, Hiam, & Karlovich, 2002; Smith & Clurman, 1997; Strauss

& Howe, 1991; Zemke et al., 2000). Traditional workers lived through the Great Depression and World War II.

Baby Boomer Generation, 1946–1964

Baby Boomers are also referred to as Boomers (Hicks & Hicks, 1999; Lancaster & Stillman, 2005; Martin & Tulgan, 2002; Meredith et al., 2002; Smith & Clurman, 1997; Strauss & Howe, 1991; Zemke et al., 2000). Baby Boomers lived through the assassination of President John F. Kennedy and joined the workforce in time for great success. This was between the mid-1960s and the end of the 1970s.

Generation X, 1965–1980

Generation X are also known as Xers, Gen X, Thirteenth generation, Baby Busters, Post-Boomers (Hicks & Hicks, 1999; Lancaster & Stillman, 2005; Martin & Tulgan, 2002; Meredith et al., 2002; Smith & Clurman, 1997; Strauss & Howe, 1991; Zemke et al., 2000).

Generation Y, 1981–2000

Generation Y is also known as Nexters, Millennials, Generation 2001, Nintendo generation, Internet generation, and N generation (Hicks & Hicks, 1999; Lancaster & Stillman, 2005; Martin & Tulgan, 2002; Meredith et al., 2002; Smith & Clurman, 1997; Strauss & Howe, 1991; Zemke et al., 2000). Generation Y is the youngest generational cohort in the workplace.

The people that work in co-working spaces and their expectations from an organization such as “workplace culture, the variety, fun, training, management style, and flexibility,”(Gülden, 2015) are continuously changing. This might be associated with businesses’ rethinking their working practices and adapting their work environments accordingly (Controls, 2010). As the generation that has been exposed to technological advances during their formative years these Digital Natives are prone to nomadic work practices opposed to previous generations are Digital Immigrants

who migrate to the latest technology (McCrindle, 2010; Palfrey & Gasser, 2008; Gulden, 2015).

The lack of related studies in the literature that focuses on the workplace for generations in Turkey seems to be a disadvantage for gathering sample data. The reason for this could be the differentiation in the definition of generations. For instance, Baby Boomers and Traditional Generation in the literature are affected by historical events such as the Great Depression or the assassination of President John F. Kennedy. Since these occurrences are not directly related to Turkey; therefore, it might not be possible to say these generations are showing the same characteristics of Turkey in that period. The most similar generations could be Generation X and Generation Y because of the impact of technology on them. Even though there is still a lack of age groups and generations that uses co-working spaces in Turkey, there is a study that constructed a survey that tries to gather information mostly from parts of the world but mostly from Turkey. This study will assist this thesis to have general data about characteristics, choice of company, travel/location, ways of working, workplace from the respondents.

Table 2.2. Current generations' perceptions and expectations of workplaces (retracted from Glden 2015)

Workplace Survey Report	
Characteristics	98% have 24/7 internet access. 76% spend more than 5 hours a day connected. 25% spend even more than 12 hours. 58% think they are tech-savvy (experienced and well-informed about technology) while 36% think they are in the middle.
Choice of Company:	The respondents want work-life balance. The work should bring quality to their lives. They are eager to learn new things, thus they want to work in a place where they can add more and more to their knowledge. Their colleagues are their motivation at work. Money only plays the 5th role in their
Travel / Location:	Even though the major part (32%) still wants to use their car, 26% want the workplace so close to be able to walk. 72% prefer their workplace to be located in an urban setting.
Ways of Working:	88% want to choose where they work. Flexibility is needed on the place of work. 77% prefer mobile working style in which they work in various locations (home, cafe, park, etc.). 81% want to be able to work whenever they want. Flexible hours would make the work-life balance possible. 73% prefer working in flexible hours in which they don't have a fixed start and end time, but a minimum number of hours to do every week. They prefer to be flexible with a certain time limit to reach. While 40% prefer working in a team, 37% prefer both in a team and individually. While 77% prefer working away from office, 54% want to have their own control over choosing it. Thus, that would help them to have a perfect work-life balance. While 31%'s preference of working away is an open space such as park, beach or square; 30% prefer cafe. While 69% want to work on the move at least 2 hours a day, 37% prefer even at least 4 hours.
Workplace:	96% would like their workplace to have corporate identity. 68% prefer working in minimalist spaces with natural lighting (71%) and neutral colours (62%). While 58% would rather see the office as a place to work, 42% see it as a place to meet. That balance in the responses would be considered. Top three reasons to go to the office even though they don't need are to be part of team work (22%), to be informed (19%), and to interact (18%).

As seen in Table 2 3, the workforce prefers to have a choice on where and how they work, such as participating in a mobile working style in which they work in various locations or flexible workplaces. They are more interested in the quality of the workspace rather than their income.

2.1.2.2. Changes in the critical skills of workers

The ever-changing technologies, the increasing interest in automation, the loss of relevance of physical strength necessary for routine jobs, and the skills in demand generations are changing as well. Since new economy basis on knowledge, information, and ideas; the workforce had to adapt to the concept of perspective skills (Table 2 4) such as complex problem solving, critical thinking, creativity, people management, coordinating with others, emotional intelligence, judgment and decision making, service orientation, negotiating and cognitive flexibility (Wilks and Sousa 2018). These skills that are the foundation of the new economy, work practices, and

interactions between coworkers, are still not possible to re-create by algorithms. Leurent et al. (2018) link this re-creation enigma to the challenging task of articulating ‘common sense’ which is necessary to “function in human social settings.” (Leurent et al., 2018)

Table 2.3. Skills (Source: Wilks and Sousa 2018)

Critical thinking and problem solving	Asking questions is the basis of critical thinking. It is necessary to ask questions to solve a problem, to get answers that allow critical analysis and questions about what is causing the problem.
Collaboration in networks and leading by influence	Increased focus on global collaboration. Leadership of a team implies leading by influence and not by authority - group influence, alliance building towards a common goal.
Agility and Adaptability	Increased focus on global collaboration. Leadership of a team implies leading by influence and not by authority - group influence, alliance building towards a common goal.
Initiative and Entrepreneurship	Development of a sense of initiative and entrepreneurial skill. Entrepreneurs try to find workers who consistently seek new opportunities, ideas and new strategies for business growth.
Effective oral and written communication	Communicating clearly is an extension of clear and logical thinking. To be able to present an argument persuasively. To inspire others. To capture in a concise way the essentials of communication. Get to promote oneself or promote a product / service
Evaluating and analysing information	Learning to access and select valid information in the digital world. Knowing how to evaluate the source and evaluate the content of the information and what information is up-to-date.
Curiosity and imagination	Curiosity is a powerful search engine for new knowledge and innovations. It is necessary to stimulate the imagination to create new knowledge. Students need to be encouraged to ask questions and seek answers. Thinking "out of the box" needs to be considered with the same level of importance as physics or math.

Boden (2003) states that even if an algorithm could be written involving a database of knowledge similar to humans, creativity is also challenging to replicate. The creative processes require a rich archive of knowledge, artistic values, and the ability to making combinations of ideas that “make sense” (Boden, 2003). However, artistic values that change over time and vary across cultures cannot be described clearly enough to be encoded (Boden, 2003). Since technological solutions cannot overcome this challenge yet, occupations that require a high degree of creative intelligence is expected to depend on humans in the next decades (Leurent et al. 2018).

2.1.3. The shift in work practices

Modern technologies changed the idea of work and caused a shift toward a knowledge-based economy that is derived from information and ideas, similar to how the developments that created a new line of jobs during the first revolution and manufacturing in the 1970s. The shift from a 'service' economy, which was concerned with organizing data and products, to a 'knowledge' economy that relied on worldwide information and communications network brought along the necessity of reconsidering work practices and concepts (Worthington,2012).

Table 2.4. *Shift in organizational logic typical of NWW Ideology (Source: Kingma,2018)*

Table 1. Shift in organizational logics typical of NWW Ideology (derived from Derix 2003; Veldhoen 2005).

DIMENSION	FROM	TO
Supervision	Control based	Trust based
Decision-making	Rules	Values
Relationships	Formal (hierarchical)	Informal (equivalence)
Focus	Product	Process
Information storage	Paper	(digital) Database
Information use	Bringing information (to workplace)	Retrieving information (on workplace)
Knowledge	Acquiring	Sharing
Performance	Individual	Collaborative
Interaction	Physical	Mediated
Coordination	Space	Time
Management	Content	Conditions
Power	Directives	Empowerment
Sense-making	Conventions	Collective learning
Workplace	Office based	Activity based
Reward system	Time based	Output based
Space	Closed	Open (transparent)
Boundaries	Strict	Blurred
Buildings	Passive	Active ('smart')
Time	Slow (delay)	Fast (instant)
Structure	Continuity	Change
Dominance	Space-time	Technology
Everyday life	Work-segregation	Work-life balance
Implementation	Top-down	Bottom-up
Design	'Functional' (form-follows-function)	'Creative' (function-follows-form)
Basis of action	Designated desk	Hot-desking
Field of action	Organization	Network
Meaning of work	Instrumental	Expressive

Organizations became more agile, more adjustable towards constant reorganization for profit and customer demands, and less dependent on hierarchy (Harris, 2015). The importance of social skills and dependence on technological competence became inevitable in order to meet customer demands and keep up with the competitive market. Work turned into time-pressured, team-based collaborative tasks rather than

individual efforts (Table 2 5) (Harris, 2015; Kingma,2018). The time spent in office without efficiency, replaced with the expectation of results (Harris, 2015; Kingma,2018). Working is said to lose its dependency on time and place, and as a result of this mobility, the need for a fixed location or space to work is believed to be irrelevant. (Gibson, 2003)

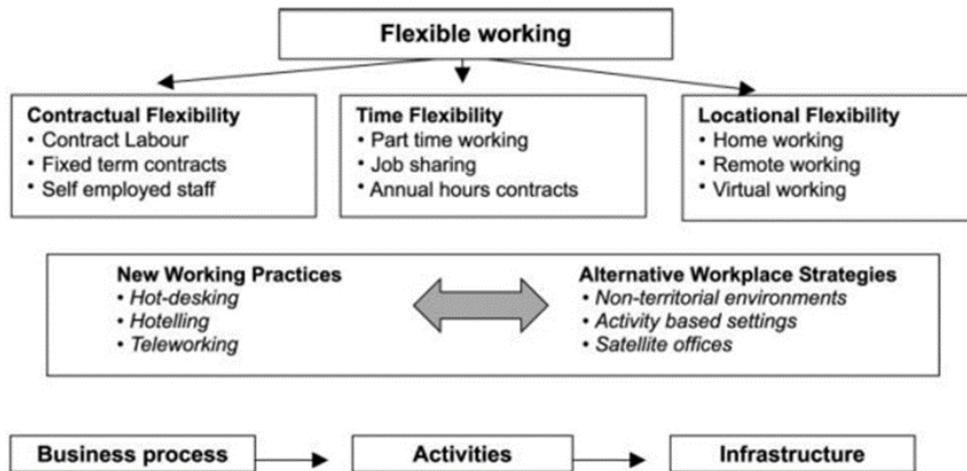


Figure 2.3. Flexible working (Source: Gibson, 2003)

The increasing impact of the Information and communication technologies (ICT), the growth of information networks changed the essence of workstyles into “new ways of working”, “smart working”, “flexible working” (Figure 2.3), “activity-based working” and “agile working”, which describe more mobile, technology-enabled working practices (Harris, 2015; Gibson, 2003). These new working practices are characterized by a combination of temporal and spatial flexibility (e.g., Baane et al., 2011; Blok et al., 2011).

2.1.4. Adaptation of workplaces

As a result of many factors such as the changes in the industry, the shift towards a knowledge-based economy, the changes in the employee qualification, the altered idea of work practices, workplaces had to reconsidered according to the new developments as well.

Initially, according to the changes in the industry during the first industrial revolution, the middle-class, white-collar worker who conducts general office tasks became essential. Complex office tasks were divided into the subtasks, such as order processing, accounting, and filing documents, this fragmentation of tasks caused a hierarchical structure between various departments. Because of the hierarchy among employees, owning a private office became a status symbol. These changes also influenced the workplaces' layout designs. The open plans in which the employees settled in rows and the private offices where the auditors could observe these workers became widespread. This white-collar factory concept, also known as Taylorism, became the foundation of specialized office spaces and work environments (Çimen 2008, Gülden 2015).

The third revolution, also known as the digital revolution, led to the prominence of automation in the use of telecommunication, internet, personal computers and mobile phones in factories with the rapid adoption of electronic and information technologies. Accordingly, the Taylorist office layout has become inadequate as the importance of communication, information technology (IT), and flexibility has increased (Gülden 2015). At first, the concept of Taylorism was replaced by the office landscape, also known as the Bürolandschaft, but soon lost its popularity due to phone calls and complaints and disturbances related to the lack of privacy resulting from the conversations and movements of other employees (Gülden 2015). This dissatisfaction turned the open plans first into cellular spaces and then into secretarial pools surrounded by private offices (Gülden 2015; Çimen 2008; Sanborn, 2015).

In order to achieve the flexibility and efficiency, the workplace design first embraced a combination of cellular offices and open plans known as a combi-office and then Herman Miller's Action Office design, an open-plan system with cubicles (Gülden 2015). By the mid-1980s, with the increasing use of personal computers, offices had to accommodate electronic needs such as cabling and services along with the care for user comfort for privacy, climate control, daylight, outside view.

With technological developments such as the internet, e-mail, mobile phones, laptops; knowledge industries and workers mainly rely on digital interactions emerged, and the workers became free of place and time. (Gülden 2015; Esmaeilpoorarabi, Yigitcanlar, and Guaralda 2018) With the network environments that allow knowledge workers and industries to locate wherever they want, the boundaries between work and private environments blurred (Oldenburg, 1999).

Even the “Digital Nomads”, that are described as a mobile knowledge worker equipped with digital technologies to work ‘anytime, anywhere’ (Kleinrock 1996), freelancers or self-employed members of the creative industry, are affected by the physical isolation and lack of work-life balance in their “electronic cottage” (Toffler 1980). Due to the absence of coworkers, individuals miss out on the highly effective ways of problem-solving that can be provided by collaboration and face-to-face interactions that the development of innovation and ideas feeds on (Boden and Molotch 1994; Oksanen and Ståhle 2013; Storper and Venables 2004).

It is argued that even without the collaboration between workers, the presence of others, and the idea of “working alone together” is a necessity. (Liegl 2014). Therefore, there is an inevitable need for space, whether it is a co-working environment, a café, or a designated workplace, that is arranged in a way that allows the workers to perform work-related activities. This inevitable need for space turned office concept into a place that brings colleagues together for networking, interacting, knowledge sharing, mentoring, and collaborating. Numerous companies left the idea of owning real estate as their workplaces today because of the shift in focus from “managing buildings” to “managing people.” As a result, the “flexible,” “hotel-style” qualities of workspaces were highlighted, wherein a high level of service and experience to the worker, or “guests,” are provided (Harris 2015).

There has also been the emergence of terms that can be seen in Table 2.6 such as fix desks and flex desks, hotdesk, and flexible working practices such as home working,

teleworking, mobile working, hot-desking - hotelling, virtual team working and non-territorial working (Laing, 2006; Raymond & Cunliffe, 2000, Gulden 2015).

Table 2.5. *Flexible working practices (Retrieved from Gulden, 2015)*

Flexible working practices	
Homeworking	People work mainly from home while still sometimes visit the main office
Teleworking	People work in office style from a remote location such as home or a local center while most work is conducted by telephone and jobs and assignments are performed from a distance mostly over a network.
Hot desking – Hotelling	People share workstations over time by several individuals within the main office space where workstations can also be bookable and are often located in a team or special zones in the office building
Virtual team working	People work together virtually as teams across different geographic locations using technology to communicate and share work via teleconferencing, video conferencing, and virtual private networks as technology allow going further in terms of sharing files across locations, and they can be edited by others in real time.
Mobile working	People spend most of their time traveling and working from different locations without a permanent main office while communicating and working by using mobile phones with 3G and GPRS; wireless internet enabled laptops, personal digital assistants (PDAs) and such handheld devices that combine computing, telephone/fax, and networking features.
Non-territorial working	People work within the office using a range of shared and communal spaces, such as sharing workstations in a team environment instead of having one desk per person.

2.1.4.1. The Evolution of the office

This section of the literature review is dedicated to the examination of previous office layouts, in order to understand the workspaces' adaptation to the changing work practices. The spatial solutions that are examined in the section are the Taylorist open plan, landscape office, combi office, and the action offices.

2.1.4.2. The Taylorist Open plan

This white-collar factory concept is also known as Taylorism was the implementation of Frederick Taylor's theories in the workplace (Rassia,2017). Taylor's visions for

breaking down complex tasks into repetitive activities caused the spatial organization to adapt to the work which became “task-focused” (Hascher et al. 2002). With this focus, socializing started to be perceived as a waste of their corporate employer’s time, so in order to avoid that workplace turned into open-plan rows of desks(Figure 2.4). These rows of workers were observed by supervisors who were usually located in a separate room (Rassia,2017).

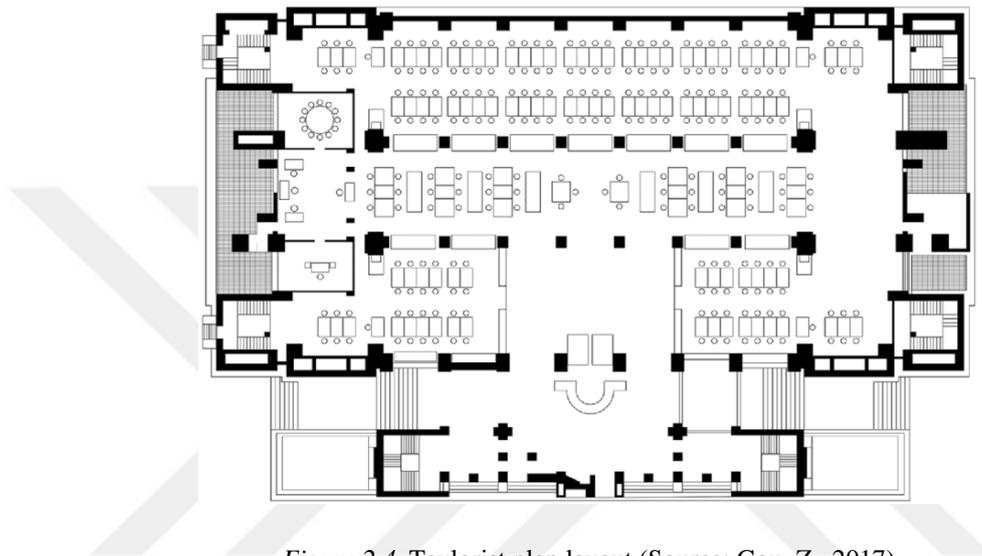


Figure 2.4. Taylorist plan layout (Source: Gou, Z., 2017)

2.1.4.3. Landscape (Bürolandschaft)

The third revolution, also known as the digital revolution, led to the prominence of automation in factories in the use of telecommunications, internet, personal computers and mobile phones with the rapid adoption of electronic and information technologies. This revolution has transformed the analog into the digital. The Taylorist office concept has become inadequate for a new type of flexibility office equipped with new information, communication, and technologies (Gülden 2015). Therefore, the concept of Taylorism was replaced by the office landscape, also known as Bürolandschaft (Figure 2 6).

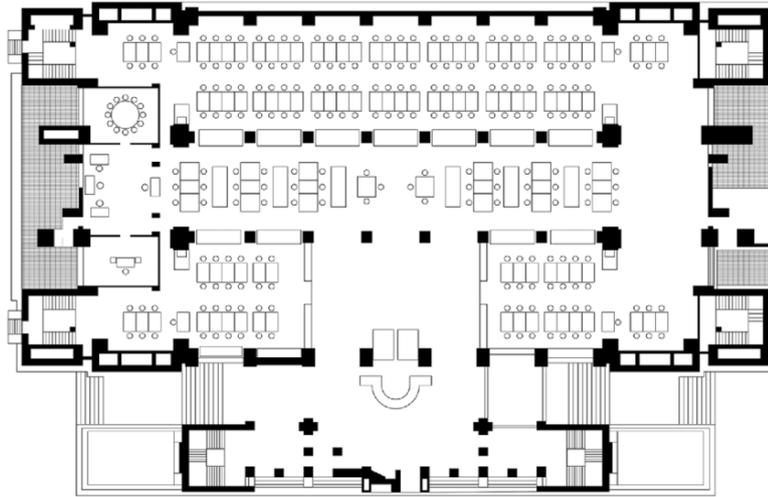


Figure 2.5. Bürolandschaft of GEG Versand Kamen Binası (Source: Worthington,1997)

Office landscape(Figure 2.5) developed in the early 1970s by the Quickborner Team of Germany. Similar to an open plan layout this concept also required a sizeable deep floor plan layout a, except the lack of rigid geometric arrangements. Floor plans were designed to be flexible and able to reflect internal organizations and respond to organizational changes at any time. Organization of the workspaces that were determined according to the workflow process within the separate organizations included spaces where informal communication takes place, such as meeting places, relaxation areas, or recreation areas.

In contrast with the constant supervision by the managers, as in the Taylorist plan, employees were able to move without hierarchical constraints. However, due to complaints such as high noise level, poor lighting, lack of visual communication and natural ventilation and the lack of privacy, the concept lost its popularity (Gülden 2015, Çimen 2008, Duffy et al., 1976)

2.1.4.4. The Combi Office Plan

In the 1960s, it has been understood that the previous office concepts have become unsatisfactory as an outcome of the spatial flexibility resulting from the increasing use of ICT. The development of work environments from the 70s to the 90s is affected by the use of these technologies and their impact on work styles.

Increasing the ergonomic quality of the office interiors also emerged in this era. These changes transformed the offices to be more workflow-oriented group spaces and led the formation of a new office layout called combi office (Figure 2.6), which is a combination of private cellular offices and shared open spaces for working groups or teams. (Van Meel, 2000; Negin, 2018).

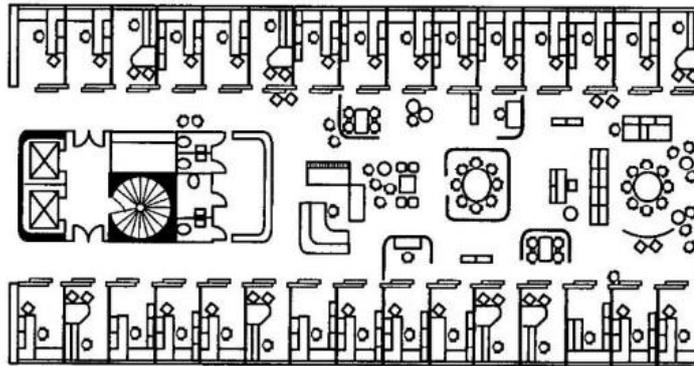


Figure 2.6. Combi-plan layout (Source: Duffy et al., 2012)

2.1.4.5. The Action office

Following the development of the open office, a new design idea was developed by Robert Probst in the USA, called the Action Office (Figure 2.7) for Herman Miller. This design was thought of as a set of parts that could respond to different responsibilities of office work and to address the contradiction of privacy and communication. The design has been formed by modular units so that employees can select and adapt different parts according to their changing needs. Soundproofed and portable panels and the stacked vertical pieces also helped create privacy while still preserving the sense of openness. Due to the flexibility in the selection of parts that can be hung on panels, the design gave users the idea of creating a personal office. Office furniture has not been conceptually addressed by anyone as an effective factor in the organization and business process before. After the Action office concept, other

furniture manufacturers have created products that can be used for this concept as open office planning (Worthington,1997; Çete, 2004).



Figure 2.7. Action Office (Source: Dezeen)

2.1.5. Current work environments

Since the traditional workspaces are becoming somewhat inadequate to fulfill the needs of the current economy new work environments started to emerge. This section is dedicated to the mentioned environments that accommodate knowledge sharing dynamics between workers such as incubators, accelerators, hackerspaces, makerspaces, fablabs, living labs and lastly coworking spaces.

- **Incubators**

Incubators are spaces where companies and startup businesses are supported to “incubate” potentially disruptive ideas that can be helped to grow and developed from an initial stage.

Their objective is to provide groups of entrepreneurial ventures or start-ups with workspaces for limited duration, with assistance by mentors that guide them through various stages of the process.

These places that provide programs that include coaching, networking, tools, infrastructure, and funding available for entrepreneurs are usually regulated by public-private alliances such as universities, companies, and non-profit organizations. These alliances are usually concerned with promoting the industry and the creation and improvement of projects that involve social models, sustainable projects, and the latest technologies.

The Incubation spaces are often, though not necessarily, located inside buildings, technology centers, and institutions that aid ventures. Spaces can include wet labs, dry labs, and office space.

- **Accelerators**

Accelerators are evolving innovation spaces where a group of experienced business owners, investors, and start-ups work together to develop their projects through a short but intensive program, for a limited period such as three to four months. They usually gather projects in more advanced stages where the business owners already have experience and look to increase the momentum of the company's development through an intensive program. (Miller & Bound, 2011)

This developing concept of an accelerator can be virtual, but they are usually attached to a physical space, such as a co-working space or incubator, or a space on its own. This interest in accelerators is rapidly growing. For example, "In the United States, recent Brookings' analysis found that accelerators grew from 16 to 170 programs between 2008 and 2014". Another example shows that "accelerators grew from 18 to 59 programs between 2010 and 2014" In the United Kingdom.

- **Hackerspaces**

Hackerspaces can be defined as community-operated physical workspaces that operate on the principles of hacker ethics (Himanen 2002; Levy 2001; Farr 2009). They are driven by an open culture that allows people to share their interest in technology through a peer-to-peer approach. They can enhance the development of distributed networks and social bonds where they work on their projects together and learn from each other. (Bauwens 2005).



Figure 2.8. Hacker space examples (Source: Google images)

Emerging from the “counter-culture” (Grenzfurthner & Schneider 2009), hackerspaces (Figure 2.8) can be located on a various set of places, “where a community of enthusiasts sharing a common motivation.” (Schlesinger et al. 2010). Although along with a non-specific physical space, the hackerspace community interacts through internet network. For example, there is an informal volunteer network called a “hackerspaces.org” that maintains community services such as “...a wiki for everyone who wants to share their hackerspace stories and questions, mailing lists, XMPP services, a blog, and a feed aggregator...”. (hackerspaces.org, 2019). From the wiki part on this site, it is possible to reach a list of 2322 hackerspaces including 1421 active and 359 planned ones. Though it is an ongoing process where community

member updates the status of hackerspaces themselves. Therefore, numbers on the wiki are everchanging(Figure 2.9).



Figure 2.9. Hackerspaces around the world (Source: Wiki.hackerspaces.org, Accessed 13 Mar. 2019)

There are also events and projects sections available for geographically distant people with the same interests to easily find each other, work on their projects, and socialize through events such as International Open Hackerspace Day 2019 or hackathons. Wiki.hackerspaces.org. (2019).

Maker Spaces

Since there is no definitive definition of a ‘maker space’ made by scholars that are different from the online resource; website www.makerspace.com, this study accepts the maker space definition according to the website's explanation;

“... a collaborative workspace inside a school, library, or separate public/private facility for making, learning, exploring, and sharing that uses high tech to no tech tools. These spaces are open to kids, adults, and entrepreneurs and have a variety of maker equipment including 3D printers, laser cutters, CNC machines, soldering iron, and even sewing machines ... It’s more of the maker mindset of creating something out of nothing and exploring your own interests that’s at the core of a makerspace ...

Makerspaces are also fostering entrepreneurship and are being utilized as incubators and accelerators for business startups. “(Makerspaces.com, 2014_2017)

A study about the emergence of makerspaces points out that the definitions are mostly related to the activities such as build, create, ‘make meaning’, risk-taking, craft, experiment, collaborate, explore, socialize, dream, fail, problem-solve, innovate, share and play instead of figuring out a precise definition of makerspace. It would be better think of it as a “physical space, operated collectively, in which people do things in accord to the spirit created for space.” (Eaves and Harwood, 2018). The study states the importance of the Venue due to the role of shaping the learning of those engaged in the space.

Makerspaces have emerged in a wide range of established venues (Figure 2.10) such as public libraries (Boyle et al., 2016), schools (Blikstein, 2013), universities (Barrett et al., 2015; Burke, 2015) and museums (Bevan et al., 2015). This reflects the increasing attention to the potential of public spaces to attract members of the local community. They aim to enable co-creation and knowledge sharing (Neves and Mazzilli, 2013) as well as for professional development (Paganelli et al., 2016) and entrepreneurship (Mortara and Parisot, 2016, 2017).

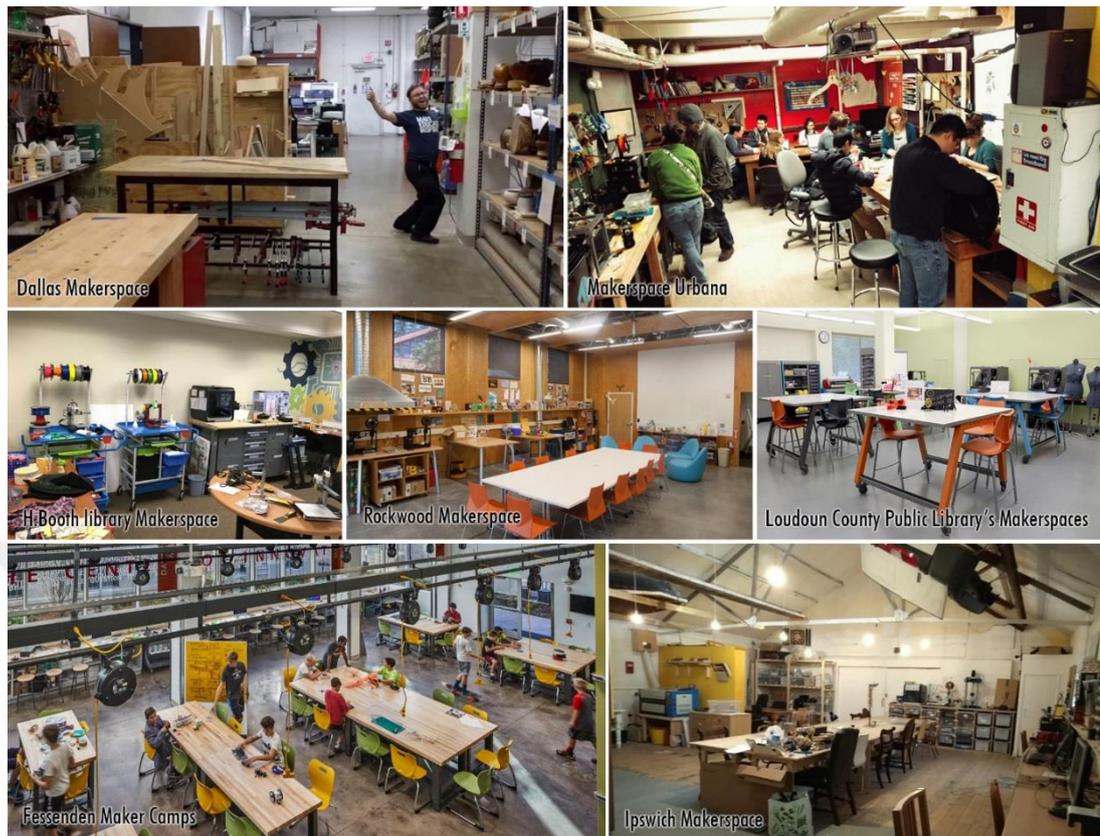


Figure 2.10. Makerspace examples (Source: Google images)

Though the majority of makerspaces are not limited to their venue, they are a part of an online virtual environment as well (Davies, 2017), such as websites, social media pages, and wikis. (Eaves and Harwood, 2018). Along with the interactions in the online environment, some events are associated with makerspaces such as hackathons and Maker Faires (Johnson and Robinson, 2014; Komssi et al., 2015; Criado and Ota'rola, 2016).

- **Fablabs**

Fablabs are small-scale workshops that were initially designed as prototyping platforms for local entrepreneurship but have expanded to universities and higher education facilities to provide complementary hands-on training. Fablabs are part of the fablab program from the Massachusetts Institute of Technology (MIT). Fablabs have to subscribe to the fablab charter and have to offer public access to their facilities.

The fablab program has a fablab academy to train and accredit its managers and a network of collaboration (global fablab network).

Fablabs (Figure 2.12) are quite similar to makerspaces, but they have standard requirements that follow the principles laid out in the MIT charter, including a minimum set of tools for fabrication and an accreditation program for fablab managers.

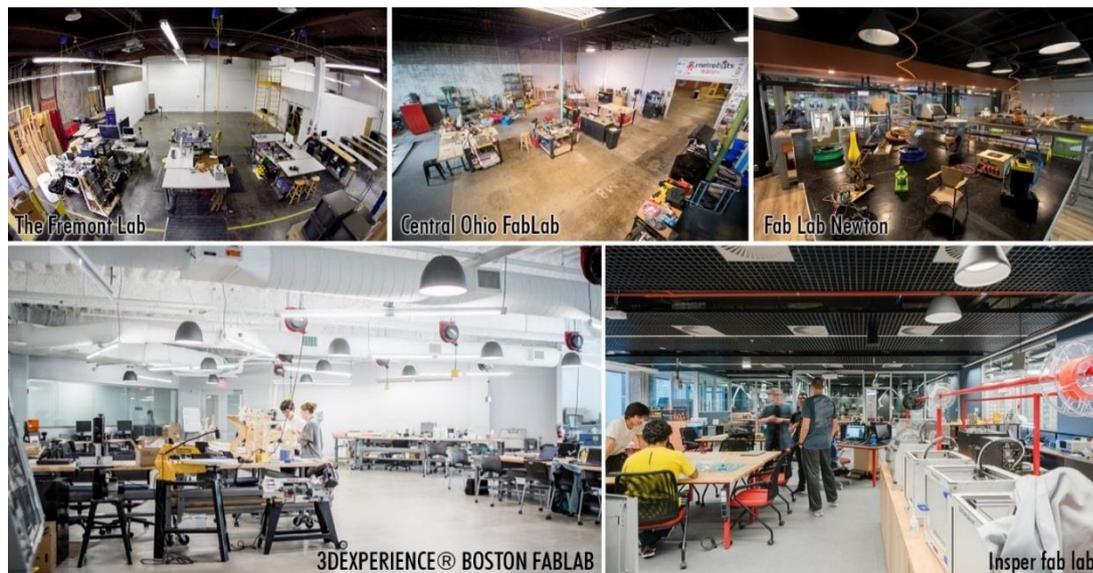


Figure 2.11. Fablab examples (Source: Google images)

- **Living labs**

While there had been "accidental mentions" of the term living lab before, the actual emergence of the concept is developed by MIT's Prof William (Bill) Mitchell. He used it to describe a purpose-built lab where the routine activities and interactions of daily domestic life can be monitored and documented for further analysis. His definition mostly described spaces where participants who volunteer for a research project live in, similar to a temporary home. These labs had a primary focus on testing and adapting new technologies based on their fit with everyday habitats. However, over the years, the concept has evolved. Currently, there is no laboratory setting

involved; instead, these living lab experiments or tests that users are studied or involved in their daily home environment (Figure 2.12).



Figure 2.12. LivingLab examples (Source: Google images)

Now there is an international federation of benchmarked living labs in Europe and worldwide called The European Network of Living Labs (ENoLL). This federation founded in November 2006 and now has 440 historically recognized Living Labs including 170 active members in the network. It is possible to find all the members from the ENoLL website and contact them.

Along with technology and networking, all members can work together despite being located far away from each other. There are also OpenLivingLab Days, which is the annual meeting of the global Living Lab community, formally the ENoLL Summer School. This event includes interactive sessions, workshops, discussion panels, and off-site visits. These events aim to allow participants to acquire firsthand experience from the experts on the subject and to enable network connections between Living Lab members.

Now according to The ENoLL, “Living Labs (LLs) are defined as “user-centered, open innovation ecosystems based on systematic user co-creation approach, integrating research and innovation processes in real-life communities and settings.” Moreover, a study related to living labs defines them as real-world environments that focus on user-centered research and user co-creation to accelerate innovation processes (Almirall & Wareham, 2008). LLs operate as mediators between “citizens, research organizations, companies, cities, and regions for joint value co-creation, rapid prototyping or validation to scale up innovation and businesses.” (ENoLL).

ENoLL’s website states that Living Lab environments have five core elements:

- Active user involvement (i.e., Empowering end-users to impact the innovation process thoroughly)
- Real-life setting (i.e., Testing and experimenting with new artifacts "in the wild")
- Multi-stakeholder participation (i.e., The involvement of technology providers, service providers, relevant institutional actors, professional or residential end-users)
- A multi-method approach (i.e., the combination of methods and tools originating from a.o. Ethnography, psychology, sociology, strategic management, engineering)
- Co-creation (i.e., Iterations of design cycles with different sets of stakeholders).

ENoLL AREAS OF WORK

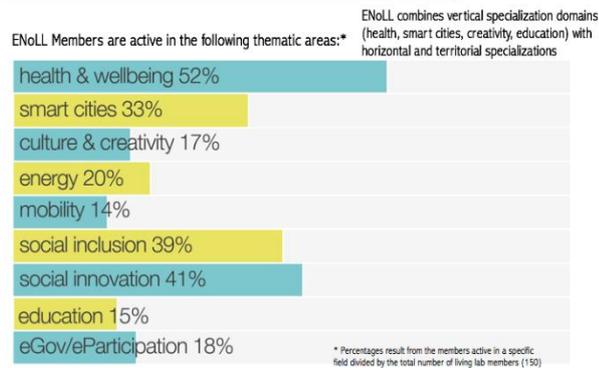


Figure 2.13. Living Lab work areas (Source: ENoLL.com)

Living labs have flexible approaches and have been employed for academic purposes in universities and city governments to form local communities of innovation, companies to develop products. Although there are no specific requirements, the standard minimum elements of a living lab are (i) a methodology for product development through user-centric design, (ii) space, (iii) a community of users, and (iv) a vacillator/management structure. These practice-driven open innovation environments work on various areas such as smart cities & regions, health & wellbeing, culture & creativity, energy, social inclusion, mobility, social innovation, education, and government. Some of these living labs have evolved, similar to co-working spaces, into tech-innovation community management centers, becoming innovation hubs, and coordinating the local ecosystem.

- **Co-working Spaces**

Co-working spaces can be described as third places that focus on work specifically. These membership-based collaborative workspaces facilitate informal encounters and social interactions. The spaces usually offer alternative work settings such as shared desks, fixed desk or private offices for diverse groups of freelancers, remote workers, digital nomads, and other independent professionals. Along with work settings, these shared workspaces provide provided essential office services, internet connection,

usually at least one open-plan space, a shared kitchen area, and meeting facilities. The memberships can involve a daily, weekly, monthly, or yearly plan. (Salovaara, 2015; Kojo and Nenonen, 2016; Ondia, Hengrasmee and Chansomsak, 2018; Schopfel, Roche and Hubert, 2015)

2.2. Conceptual Prospect for Co-working

2.2.1. History of Co-working

Even though the traditional sense of co-working originates in 2005 in San Francisco, co-working is not a new term. In 1995 first hacker place, which was one of the first examples of co-working spaces in the world, C-base founded in Berlin as an embodiment of the term. In 1999 DeKoven introduced the term "co-working" again as a method that would facilitate collaborative work. During the adaptation of the method, he realized that the isolation and hierarchy between people and businesses prevented them from "working together as equals" (Foertsch and Cagnol, 2013). Therefore, he constructed his method with the purpose of enabling collaborative work through a non-competitive approach while allowing people to work on their own projects. Around that time, 116 West Houston launched a work club that aimed to accommodate the creative industry in NYC. According to an interview with its founder John McGann, the work club was showing indications of a co-working space in 2004 with mentions of community, energy, people working together. That same year, 42 West 24 another space which was run by a software company opened. This example became another initiative for flexible workspaces by offering flexible desks for individuals and teams with flexible renting options. In 2002 Schraubenfabrik in Vienna, in 2004 Hutfabrik opened and operated under the first local network of co-working spaces Konnex Communities. In 2005 the first official "co-working space" opened in San Francisco at Spiral Muse as a reaction to business centers that lack social environment such as Regus and the barren work life at a home-office. The founder of the San Francisco co-working space Brad Neuberg stated that with the lack of communication and community, working in one of the serviced offices was just a

way to save costs. Space “offered five to eight desks two days a week, free wifi, along with shared lunches, meditation breaks, massages, bike tours, and strict closing time of 5.45 pm” (Foertsch and Cagnol, 2013). The San Francisco co-working space lasted a year before being replaced by the Hat Factory in 2006.

During that time another kind of co-working environment which is called Hub started in London which later on developed by a franchise network on five continents with more than 40 other co-working spaces. Thereat in Germany, of the first cafés that offered free internet access and allowed people to work on their computers as guests opened. The café called St. Oberholz and its visitors were mentioned in the book, which describes the new ways of work that initiated by the usage of internet and people started to work at co-working spaces. The book called “We Call It Work - The Digital Bohemians or intelligent life beyond fix employments” (Friebe & Lobo, 2006) become a part of the co-working movement.

During 2006 the first full-time space co-working space The Hat Factory opened, The Co-working Wiki and the first “Jellies” which describes “occasional meetings where a small group of people comes together to collaborate within an informal atmosphere” (Foertsch and Cagnol, 2013) started.

In 2007 the "co-working" term started to appear more and more in Google's database. In the same year, "9to5" the first conference that discussed new forms of work and "digital bohemians" held in Berlin.

In 2008 the first unofficial co-working meet-up organized, a program called Co-working Visa, which is a voluntary agreement among many co-working spaces to provide members an opportunity to visit other spaces for free, launched. In 2008, there were about 160 co-working spaces worldwide, by the end of 2012 the number multiplied and reached more than 2000 co-working spaces worldwide. However, this number is usually individually opened and has no branches. The first chain of co-working initiatives began in California in late 2011 with the Nextspaces (Foertsch and Cagnol, 2013). Turkey also joined this trend in 2011 with the opening of Turkey's

first co-working space Ideapool in İstanbul. Even though the franchise closed down the co-working trend continued to move forward with other co-working spaces such as Urban Station. Whether in Turkey or in worldwide, the number of co-working spaces is increasing. As it was reported by the global co-working survey (Figure 2.14) 1.7 million people are expected to work in approximately 19,000 co-working spaces around the world by the end of 2018.

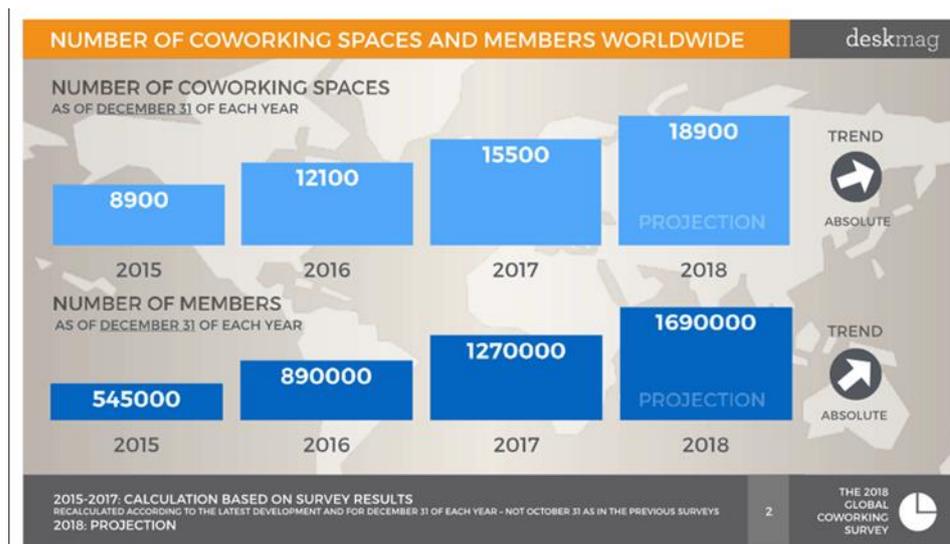


Figure 2.14. 2018 Global Co-working Survey (Source: Deskmag)

2.2.2. Characteristics of co-working environments

Many co-working spaces differ in ambiance, amenities, location, client profiles; therefore, it is difficult to determine specific characteristics for the definition of the term. Furthermore (Spinuzzi, 2012) claims that since co-working is a highly collaborative, inter-organizational, and fluid occurrence, even the latest definitions will differentiate further as co-working becomes more common. Currently, co-working wiki, which is a free, community-owned, and operated resource describes co-working as:

“The idea is simple: independent professionals and those with workplace flexibility work better together than they do alone. Co-working spaces are about community-building and sustainability. Participants agree to uphold the values set forth by the

movement's founders, as well as interact and share. We are about creating better places to work and as a result, a better way to work.” (Co-working.org)

This web-based resource and several other studies in literature remark the same core values originated with Citizen Space, that co-working spaces share, such as collaboration, community, accessibility, sustainability, and openness. (The Co-working Wiki, Citizen Space 2007; Hillman 2011; Co-working.org 2012, Kwiatkowski & Buczynski, 2011). In the book “I’m Outta Here: How Co-Working Is Making the Office” Co-working spaces are defined as spaces that “combine the best parts of an office environment- community, collaboration and access to the right tools - with the benefits of working at home or working for yourself - convenience, flexibility, autonomy.” (Sundsted et al. 2009). Co-founder of the Citizen Space Tara Hunt describes co-working as an experience of ‘accelerated serendipity’ (Yeung 2008; Hunt 2009, Waters-Lynch et al. 2016)

Co-working spaces are depicted as “welcoming” and “comfortable”, highly accessible “third places” (Oldenburg, 1989) where people can work alone or in a group, learn, read, eat and drink, connect to the world, socialize, share ideas, become part of an extended community and social networks (Schopf et al., 2015). For example, Moriset (2014) refers to co-working spaces as hybrids of ‘telecentres,’ ‘business centers’ and ‘startup incubators’ with the social aspect of Oldenburg’s third-place concept. He states that “These hybrid open community and workspaces foster the sharing of resources, skills, creativity, expertise, and knowledge.” Deparois et al. (2010) define these hybrid workspaces according to four characteristics, including physical attributes (space) such as “socio-professional,” “economics,” and “community culture.” The first aspect highlights the information flow, resource sharing, flexibility, and mobility factors that allows simulation of creativity. The second one, “economics” on the other hand describes the cost-reduction as a motivation for people to join a co-working space. Last but not the least culture more specifically “community culture,” which indicates community-driven by sharing as a principle working on collaborative projects.

Since it is difficult to pinpoint a precise definition, it is more beneficial for this study to explore the differentiating characteristics of co-working spaces (Deparois et al., 2010).

For instance, several studies in the literature regard co-working spaces more than physical workplaces. Kojo and Nenonen, (2016) differentiate co-working spaces according to their business models (such as profit and non-profit ones), level of user access (such as public, semi-public or private) and affordance. According to the article, non-profit business models include public offices that are accessible for everyone, every day without a fee such as libraries, third places such as cafeterias that require purchasing of services and collaboration hubs that run by organizations for a particular interest group. Profit business models, on the other hand, consist of co-working hotels that offer shared office space with a limited lease and services. These models include incubators and shared studios where an organization or entrepreneur can rent its workplace with a flexible lease as well though that might require tenants to fit the existing community or being employed by a specific organization. (Kojo and Nenonen, 2016).

A Turkish article examines co-working spaces in three categories, such as services, spatial organizations, and design features of the spaces. They look into alternating work settings, spatial relations, material usage, color choices, furniture choices. (Öztürk and Koramaz 2018)

Ross and Ressia (2015) argue that four aspects make a co-working space appealing such as flexible working conditions that are conscious of economic reality, the attractiveness of working somewhere other than home or corporate office, opportunity for social interaction and opportunity for collaboration. Another study conceptualizes the co-working space characteristics in 7 factors such as type of lease contract, accessibility of the location, the layout of the space, diversity of tenant, reception without a host and hospitality (reception but no host), events and atmosphere and interior aesthetics (Van de Koevering, 2017). There are also classifications, which are

focusing on collaboration and community (Buksh and Davidson, 2013) and the scale of the place (Brinkø et al., 2014) collaborative utilization of space and workplace as a service (Laing, 2013)

All the classifications aside, just as Schopfel et al. (2015) state “Often, a co-working space will be conditioned by a particular business, an economic activity such as software development, multimedia or audiovisual design, with companies and start-ups...”. These factors, without the consideration of co-working spaces’ focused business area and community, by themselves are not enough to conclude characteristics of the space. (Schopfel et al., 2015)

Every co-working space offers specific equipment such as (3D) printers, Wi-Fi access, membership plans, work settings, preferred location, events, spatial characteristics, user profiles, solutions for collaborative relations and network connections. (Schopfel et al., 2015)

2.2.2.1. Spatial characteristics of co-working spaces

Since in knowledge work, openness, collaboration, interaction, and community are crucial, some co-working spaces might emphasize activities and offer tools that increase the emergence of these values. These co-working spaces take consideration of the relationships and collaboration among their users (Buksh and Davidson, 2013; Parrino, 2013) while determining the features of their physical environment as well. Van Meel and Vos (2001) states that these co-working spaces or the “new offices” that are transparent, open, playful aims to enhance productivity, flexibility, creativity, and interaction (van Meel et al., 2010). The conventional physical design of a co-working space is an open plan layout with shared workspaces. Along with the shared workstations, in order to enable interaction between coworkers (Kojo & Nenonen, 2014; Schöpfel, Roche, & Hubert, 2015; Spinuzzi, 2012; Sykes, 2014). The layout includes a combination of informal and creative spaces (Orel, 2015).

However, not all co-working spaces provide similar features or space types because the attributes of the space could vary according to the preferences of users and the

target business sectors. For instance, according to a study, while some co-workers prefer a home-like interior over a modern one, others with a higher education level are more likely to favor a more professional work environment with modern interior (Weijs-Perrée et al., 2019). Along with the different interior design decisions, the activities that take place in the work environments are crucial attributes that shape the workspaces. It appears that most of these “new offices” embrace the activity-based workplace (ABW) as an office concept. This concept allows people to choose their preferred workstation, which is most convenient for their current activity from the viewpoint of functionality (Appel-Meulenbroek et al., 2011).

It is possible to observe the importance of activities that take place in the workspaces in other studies along with the behaviors and work modes that enable said activities as well (Table 2.6).

Table 2.6. *Co-working space characteristics (Source: Weijs-Perrée, et al. 2019)*

Table 1. Overview of the literature that mentioned co-working space characteristics.

	Deijl (2011)	Deskmag (2012)	Deskmag (2013)	Fuzi et al. (2015)	Fuzi et al. (2014)	Gandini (2015)	Kojo and Nenonen (2014)	Leforestier (2009)	Merkel (2015)	Moriset (2013)	Parrino (2015)	Spinuzzi (2012)	Spreitzer, Bacevice, and Garrett (2015)	Sykes (2014)
24-h access								×						
Co-working host						×	×		×			×		
Access to tools, resources and network	×	×	×	×	×		×							
Atmosphere and interior aesthetics	×		×	×	×		×		×	×				
Collaborative spaces					×		×	×					×	×
Concentration rooms		×			×		×	×				×	×	
Diversity of tenants			×		×								×	
Event spaces							×	×						
Flexible (shared) workspaces				×	×	×	×	×				×		
Flexible lease contract	×	×	×	×	×		×		×			×		×
Good accessibility (e.g. car and public transport)		×	×											
Kitchen areas	×						×						×	×
Meeting rooms							×							×
Networking events and workshops	×		×	×			×				×		×	
Open layout							×						×	×
Virtual platform					×		×				×			

For instance, Oksanen and Stahle (2013) are mainly interested in the establishment of connections and networks in workspaces and their relations to spatial solutions. They present “collaboration and communication, enabling spaces” as a part of their framework which facilitates the emergence of networks and social capital. They state that shared physical spaces and spatial settings that encourage interaction are

beneficial for knowledge sharing dynamics as well as their motivation and improving their abilities. The framework they developed includes five space types such as; collaboration and communication enabling space, modifiable space, intellectual space, attracting space and value reflecting space. Another study Ondia et al. (2018), uses a behavior setting, which is defined by the collective actions of people concerning the physical environment, in order to divide the co-working environment into various spaces, such as, workstations, informal seating spaces, and breakout spaces. In the article, it is argued that “a behavior setting involves a particular layout of the environment, a recurrent activity, and a synapomorphy or a congruent relationship between the two.” Therefore, in order to observe the relation between behavior and physical settings firstly they aim to understand the similarities, differences, and variance between various spaces, by describing the physical features of spaces that offer specific behavioral reactions. They investigate two co-working spaces by using behavioral observations. As a conclusion, they found seven types of spaces: workstation, informal seating area, breakout space, kitchen/coffee, reception desk, printer/copy, and circulation route. (Ondia, Hengrasmee & Chansomsak, 2018).

2.2.2.2. Characteristics of user groups in coworking spaces

According to the related literature, co-working spaces that focus on creating a community to foster networking, host a heterogeneous group of coworkers (Spinuzzi, 2012; De Vries & van de Besselaar, 2013). Many studies emphasize the importance of the user profile and community for coworking spaces. For instance, Capdevila (2014) claims that “coworking is about creating a community” (p. 14) and later on, in another article (2015) defines community as a fundamental differentiating feature of coworking spaces that separates them from serviced offices along with its knowledge sharing dynamics. Another study by Kenline (2012) also highlights the notion of community while defining coworking as a “community-based sociocultural ecosystem of exchange where a network of people are linked together by shared social networks and shared resources.”

Some studies expand the formation of a community by the involvement of the curation process and selection of like-minded participants (Capdevila 2014, Bilandzic 2013) with shared purposes and working behaviors (Moriset 2014; Capdevila 2013; Garrett et al. 2014). Rus & Orel (2015) examines the concepts of communities further and uses Adler & Heckscher's (2007) typology of communities which are based on the distinction between *Gemeinschaft* and *Gesellschaft* the relationship characterization by Tönnies, (1935), to adapt coworking. While *Gemeinschaft* represents relationships that are based on blood relations and were focused inward in medieval towns, *Gesellschaft* stands for an idealized and artificial construction of *Gemeinschaft* that "remain united despite all separating factors." Adler and Heckscher (2007) discuss the involvement of trust in these relationships and states that while the inward-focused relations rely on "thick" trust, the latter articulates around "thin" trust. Rus & Orel (2015) takes these previously studied relationships that conceptualized around "values, trust, and orientation to others" to consider and develop new criteria for collaborative communities. As a result, they suggest three factors such as "structure and division of labor, nature of coworker–manager relationships, and nature of coworker–coworker relationships" for the formation of the communities. Rus & Orel (2015) they highlight the interdependent work processes, activities coordinated in accordance with a shared goal, and reliance on interdependent expert contributions.

These communities that form around shared goals can consist of various user types from different professional status (Figure 2 12), education levels, or professions. For instance, several studies state that the target groups of co-working spaces are often associated with freelancers and self-employed workers (Garrett, Spreitzer, & Bacevice, 2017; Johns & Gratton, 2013; Moriset, 2013), which are often perceived as similar concepts. Although according to a study, 'self-employed workers' implies a larger number of business types than freelancers. Where freelancers often work in the creative sector such as journalism, communication or design, self-employed workers can be seen as independent lawyers, accountants, or work in sectors such as

construction, transport, or healthcare. (Van de Koevering, J., 2017). Along with freelancers and self-employed workers, multiple studies mention entrepreneurs, extended workers, small and medium-sized enterprises (SMEs), students, small firms, large firms, employees of large firms as a focus group of workers. (Capdevila, 2013; Fuzi, 2015; Gandini, 2015; Merkel, 2015; Moriset, 2013; Parrino, 2015; Spinuzzi, 2012; Sykes, 2014).

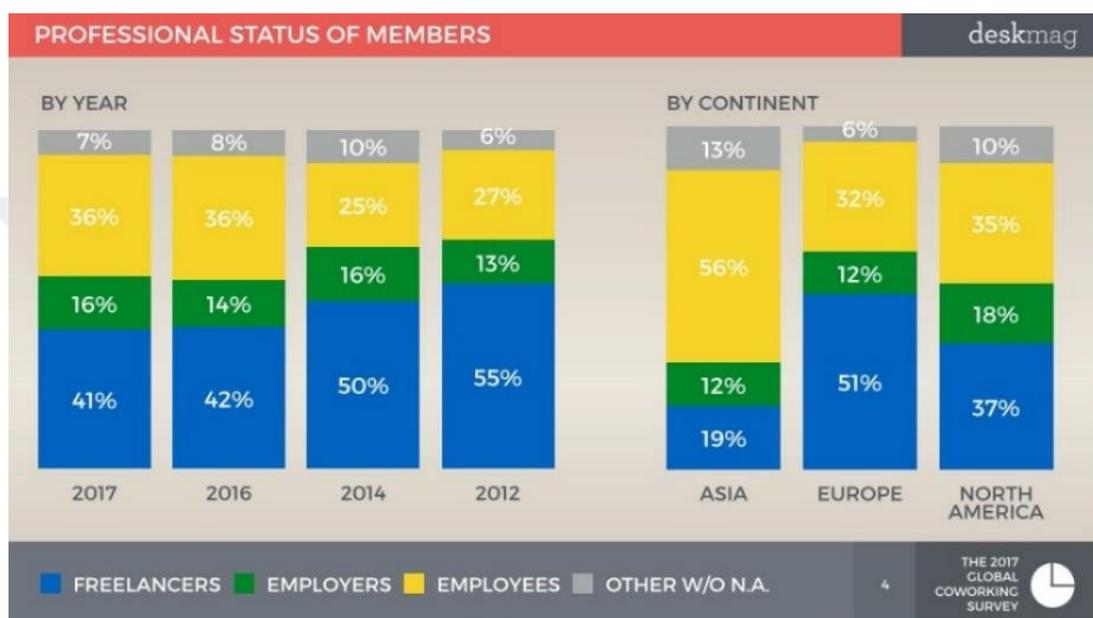


Figure 2.15. Professional status of members (Source: Deskmag)

According to a research by Deskmag (2017) (Figure 2.15) the list of sectors that prefer co-working spaces include information technology (IT) (programming, software engineering, web development); PR, marketing, sales, advertising, communication; writing; consulting; business development (incl. founders); design (graphics, web, products, gaming); research (science, data, analytics); project management (events, community, culture); education; higher management education; translation; accounting; art; other. For instance, according to another survey distributed among co-working spaces in Milan, it appears that both ‘traditional intellectual professionals’ that work in the creative industry such as architects and designers and the ‘digital professionals’ such as community managers or social media content producers are part

of the user profile. (Colleoni and Arvidsson, 2014; Gandini, 2015). It appears that in the study, co-working spaces that participate in the survey do not show indications of a preference towards a specialized profession. (Colleoni and Arvidsson, 2014; Gandini, 2015). Although that tendency towards a multi-functional set of competencies seems to be changing, an article that examines the upcoming trends, states that the operators of co-working spaces anticipate more co-working spaces to focus on particular niches. Moreover, through these specializations, the co-working spaces are expected to differ significantly from the competitors. (Foertsch, 2018).

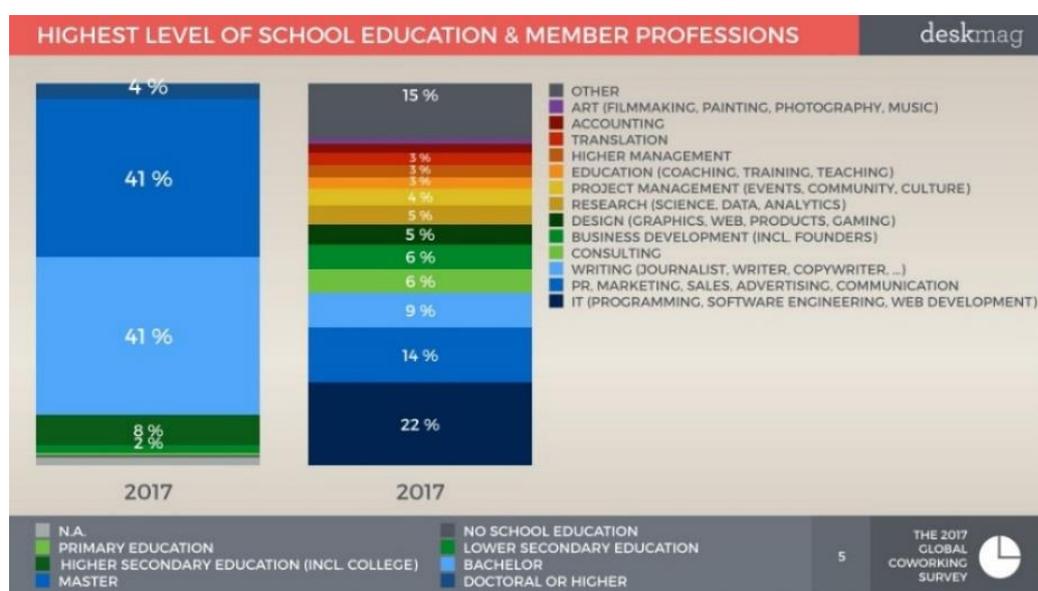


Figure 2.16. Professions of members (Source: Deskmag)

It appears that differences in the workers’ age, gender, education levels, occupation, or the time they spent at the office influence their preferences towards various aspects of workspaces (Figure 2.16) (Rothe et al., 2011) For instance, according to a study, the user profile who spends their working time at the office emphasis the work environments’ ability to reflect the image and values of the organization. (Rothe et al., 2011; Weijs-Perrée et al.,2019). It also influences the preferred location of the co-working space, membership types, choice of transport (i.e., car, bicycle, walking, public transport) and their motivations for choosing a co-working space.

Several studies discuss the motivations of coworkers. For example, Weijs-Perrée et al. (2019) give an overview of the literature until 2015 on user motivations. According to that table, Deskmag (2012) states that rental costs while Capdevila (2013) prioritize the location of the co-working space. Deskmag (2013) mentions feeling a part of a community, and Fuzi (2015) inspirational and dynamic atmosphere. A more recent report of Deskmag (2017) also supports the insight that the tendency toward preferring a social and enjoyable atmosphere is essential. Other than that, it appears that interactions with others and the community are the most crucial factors for respondents to work in a co-working space.

2.2.2.3. Interactions between coworkers

The co-working spaces emerged as a result of the necessities which working at home or a café could not provide. The physical isolation, the blurred boundary between private and professional life, and the lack of social interactions were the main reasons for the increasing demand for these work-oriented third spaces. (Waber & Lindsay, 2014). Even the established definitions of co-working spaces (Spinuzzi, 2012; Moriset, 2013; Capdevila, 2014) and the literature related to the user motivations (Kojo & Nenonen, 2014; Sykes, 2014; Hillman, 2011) support the notion that any form of interaction is crucial.

In addition to the benefits of overcoming the isolation, face-to-face interactions provide opportunities for knowledge exchanges and creations as well. Face to face interactions requires that two, or more people to physically co-present in an environment where they can use visual and physical means of communication in order to interpret and co-create tacit knowledge (Asheim et al., 2007 Jubitana 2017; Salavisa, Sousa & Fontes, 2012). It is argued that creative clusters that are a part of the user profile of co-working spaces generate flows of information usually referred to as ‘buzz’ (Storper & Venables, 2004), or ‘noise’ (Grabher, 2002). This ‘buzz’ which does not require investments other than ‘by being there,’ continuously contribute and benefit from the information, news, and rumors that are shared within the local

communication network (Bathelt et al., 2004). This contribution assists creative workers to retrieve information about opportunities and job openings in their local surroundings and provides opportunities for new knowledge creation through collaborations (Capdevila, 2014). As it is stated in several studies that the process of knowledge creation is not solely a result of the ‘solitary genius’ (Brown, 2017; Bathelt et al. 2004); on the contrary, it usually involves interaction between various actors that possess different types of knowledge.

Along with the knowledge sharing, these interactions are beneficial for coworkers’ expectations of establishing professional relationships and expanding their network of potential collaborators and clients (Moriset, 2014; Gandini, 2015; Merkel, 2015). For instance, a study about co-working spaces in Milan transmits the data from the interviews about coworkers’ aim for choosing a co-working space which is the construction of a network of contacts and obtaining a reputation in the professional scene (Colleoni and Arvidsson, 2014; Gandini, 2015). According to the same study, it is indicated that majority of workers expanded their network of clients (61%) and collaborators (62%) as a result of being in a co-working space that enables interdependence among workers (Colleoni and Arvidsson, 2014; Gandini, 2015).

In order to emphasize suitable conditions for the emergence of relationships and collaboration among their users through interactions co-working spaces implement various strategies. (Buksh & Davidson, 2013; Parrino, 2013). Some of them organize events such as business presentations, weekly seminars, exhibitions, project or product reviews, debates, conferences or brainstorming sessions (Spinuzzi, 2012; Joachim, et al. 2015) which are mostly are designed to bring people together, to create a community and to support and foster synergy between people. Some of the co-working spaces associated with managers, hosts, or coordinators (Huwart et al., 2012), who are mostly considered as people who have an influence on knowledge creation dynamics among coworkers. These co-working hosts are assigned to create a pleasant atmosphere to stimulate interaction, networking, and collaboration between coworkers (Fuzi, 2015; Weijjs-Perrée et al., 2019). Other than organizing events that can

foster the formation and enhancement of relational ties they could also be responsible for selecting coworkers to be a part of a community based on their resemblance in the background with other coworkers (Jubitana 2017). So that coworkers can share experiences, resources in a community-driven environment and learn from each other and celebrate each other's successes (Moriset, 2013; Waters-Lynch & Potts, 2017; Sykes, 2014; Weijs-Perrée et al., 2019).

Several studies in literature explore the interaction strategies in co-working spaces. For instance, Cabral & Van Winden, (2016) conceptualize four strategies to foster interaction such as "Co-working space manager as a connector," "Regulating the mix of workers," "Interior design for interaction" and "Tools for networking." Penn & Hillier (1992) prioritize the role of the spatial layout of space in knowledge creation and innovation. Their research focuses on the spatial patterns of laboratory environments which affect movement patterns. They argue that these movement patterns result in knowledge exchange when people pass each other's workstations. (Penn & Hillier, 1992). Torre, A., & Rallet, A. (2005), on the other hand, states that the information interactions and knowledge exchange are often misinterpreted. They claim that the interactions are related to various types of proximity, not only the physical one that they refer to as localization. Therefore, they offer categorization of four types of proximity such as, "Geographical proximity" which facilitates or strengthens relationships, "Cognitive proximity", "Organizational proximity" (coordination of knowledge), "Social proximity" (socially embedded relations on micro-level) and "Institutional proximity" (rules and regulation) (Torre, A., & Rallet, A. 2005).

This differentiation between factors that alter the formation of interaction is also related to the types of interactions that exist in a co-working space. A study about sources of social support at co-working spaces explores social interaction between coworkers. The study instructs participants to think of three situations, a casual/short interaction, medium-length interaction, and more extensive interaction and explain the content of their interactions. As a result, they extract four categories from the answers;

informal social interactions, exchange of information, instrumental support, and collaboration.

Table 2.7. *Interaction types (Retrieved from Gerdenitsch et al., 2016)*

Informal social interactions:	On a basic level, coworkers reported encounters when they greet other coworkers and have short conversations over coffee or cigarettes and over lunch.
Exchange of information:	This category includes social interactions that are explicitly work-related. Coworkers describe work-related conversations with other coworkers, but also their engagement in official networking activities in their co-working space. During lunchtime and coffee breaks, coworkers get to know the projects other coworkers are working on. Besides updating each other on current projects and networking, coworkers also reported discussing potential collaborations or planning common activities (workshops).
Instrumental support:	Coworkers reported asking for or providing help in terms of feedback, brainstorming, and coaching. In contrast to information exchange, these statements are about situations in which workers report helping each other in a concrete task. <u>With regard to feedback</u> , coworkers reported asking for feedback or providing support for problems.
Collaboration:	Besides providing feedback, brainstorming, and coaching, coworkers also engage in collaborations with one another, both paid and unpaid. They reported working together on an idea or ask others to take over some tasks. One described recruiting someone in the space to do some paid work.

While discussing the interactions between users of a coworking space, it is not rational to ignore the role of trust, which is essential for all kinds of interactions from sharing knowledge among coworkers to receiving feedback. The assumption of the member's commitment to a safe environment, with the aim of min risks of knowledge leakage or opportunism, originates from the term 'networked reputation'(Glückler & Armbrüster, 2003) and swift trust. These 'networked reputations' (Glückler & Armbruster, 2003) are based on the recommendation of acquaintances or trusted collaborators when there is an absence of personal experience with their potential coworkers. This means that `who you know' is perceived as crucial as `what you know' (Grabher, 2002). 'Swift trust' on the other hand, essentially the notion that mainly enables the interactions during collaborations. Swift trust reflects the conditions people see each other under a professional roof, rather than individuals due to the

shorter project cycles' inability to “develop personalized trust based on shared experience, familiarity or social coherence.” (Grabher, 2004).

2.3. Conceptual Prospect for Collaboration

2.3.1. Definition of Collaboration

The conceptions of a collaboration mostly “emphasize shared goals, shared activity, or joint production” (Lewis, 2006). Some of the scholars conceptualize the term through the duration of the act such as a temporary activity (Stohl & Walker, 2002; Gould et al. 2002, Wilczenski et al. 2001) or as a regular and an ongoing activity practice (Breu & Hemingway, 2002; Lesser & Storck, 2001; Wenger & Snyder, 2000). For instance, Salopek divides collaboration into four categories depending on two variables, the time and place (Figure 2.17).

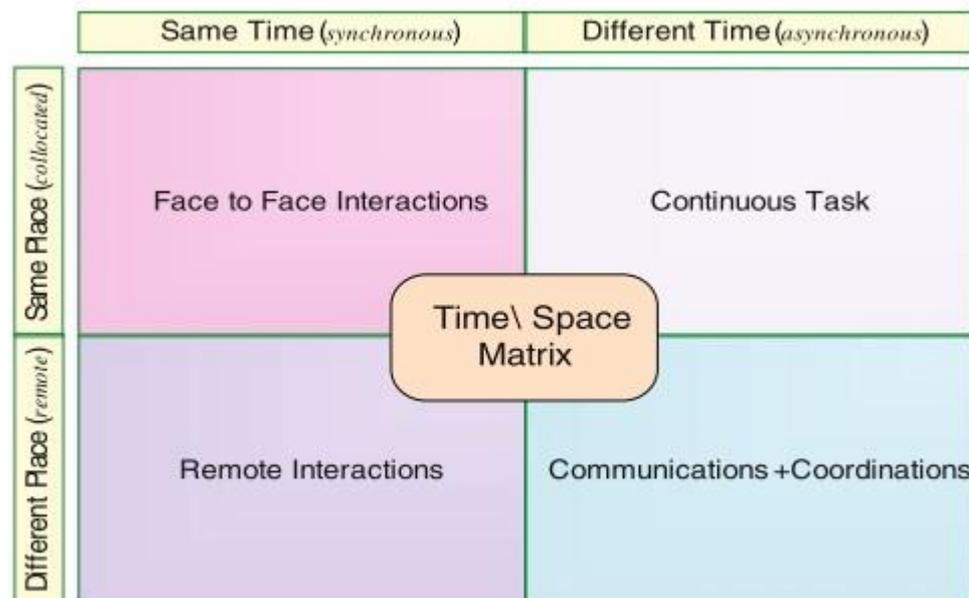


Figure 2.17. Collaboration types (Source: Morabito, 2014)

Some scholars focus on the initial conditions of participators, their interests, or the processes. For example, Keyton and Stallworth (2003) identify collaboration “as a

temporarily formed group with representatives from many other primary organizations” (p. 236). Stohl and Walker’s (2002) defines it as “involving autonomous stakeholders with varying capabilities, and including resources, knowledge, and expertise which is directed toward individual goals and mutually accountable innovative ends” (p. 240). Another source Lewis, (2006) underlines the views related to the individual impact on collaboration with; “some scholars conceive collaborative interaction as a means to satisfy individual goals through a joint process with a concurrent shared goal or purpose. For other scholars, collaboration concentrates solely on shared goals without consideration of individual goals” (Lewis, 2006, p. 222). It is also possible to approach the idea of collaboration as a relationship between participators such as Chrislip and Larson(1994);

[Collaboration] is a mutually beneficial relationship between two or more parties who work toward common goals by sharing responsibility, authority, and accountability for achieving results.

There are also some disagreements about the vagueness of the term definition in literature. According to the book “Collaboration: What Makes It Work. A Review of Research Literature on Factors Influencing Successful Collaboration” (Mattessich & Monsey,1992) there is a differentiation of the usage of the term between practice and academic setting. The literature review of the book indicates that the term ‘collaboration’ is often related to 'cooperation' and 'coordination. The book describes each term as;

“Cooperation is characterized by informal relationships that exist without any commonly defined mission, structure, or planning effort. Information is shared as needed, and authority is retained by each organization, so there is virtually no risk. Resources are separate as a reward.

Coordination is characterized by more formal relationships and understanding of compatible missions. Some planning and division of roles are required, and communication channels are established. Authority still rests with the individual

organizations, but there is some increased risk to all participants. Resources are available to participants, and rewards are mutually acknowledged.

Collaboration connotes a more durable and pervasive relationship. Collaborations bring previously separated organizations into a new structure with full commitment to a common mission. Such relationships require comprehensive planning and well-defined communication channels operating on many levels. Authority is determined by the collaborative structure. Risk is much greater because each member of the collaboration contributes its own resources and reputation. Resources are pooled or jointly secured, and the products are shared.”(Mattessich & Monsey,1992)

It appears that while, the majority of scholars separate their phraseology, in reality,” ‘collaboration’ is commonly interchanged with ‘cooperation’ and ‘coordination.” (Mattessich & Monsey,1992).

“Collaboration is more than simply sharing knowledge and information (communication) and more than a relationship that helps each party achieve its own goals (cooperation and coordination). The purpose of the collaboration is to create a shared vision and joint strategies to address concerns that go beyond the purview of any particular party.” Chrislip and Larson(1994)

On the other hand, as a contrast to the efforts of providing a definition, several studies in the literature apply the term without establishing a clear definition (Austin, 2000; Bouman, 2002; Stone, 2000). For instance, Loughran(1981) focuses on the characteristics of collaboration under three headings, such as purpose, structure, and process.

Table 2.8. *Characteristics of collaboration (Source: Loughran,1981)*

Characteristics of Purpose:	Groups collaborate because they wish to use the combined effort of many different people in order to accomplish group goals. Collaborative means are particularly appropriate for purposes requiring high levels of innovation and creativity.
	Individuals join collaborative groups in order to meet deep seated needs for social interaction and self actualization.
Characteristics of Structure:	Collaboration takes place in a small group setting. The size of the group is small enough to permit high levels of interaction among members. Additionally, group membership is relatively stable during the period of collaboration.
	The collaborative small group exists in a larger organizational and societal context and is highly influenced by the context. The context that is most supportive of collaboration fosters equally small group autonomy and organizational interdependence.
Characteristics of Process:	Collaborative processes are goal directed and foster high levels of productivity. Processes such as clear structuring of work, emphasis on supervision and evaluation, and attention to planning enhance the likelihood that tasks are accomplished, that the quality of products and services is high, and that staff members perform competently.
	Collaborative processes are synergistic in that they meet both individual and group needs simultaneously. Key group processes such as leadership and decision making are exercised in ways that provide equally for group accomplishment and individual satisfaction. The process of working synergistically will lead at times to high levels of conflict as members negotiate needs and to high levels of cooperation.

Even though there are various definitions, perceptions, and models of collaboration, the literature mostly agrees on the importance of the term for coworking. However, it is not wise to discuss collaborations separated from their contents and their organization in practice.

These acts of collaboration that often represent goal-focus temporary relationships for joint production, are often coordinated in the form of projects. The end product of the said projects does not need to interpret as a material result; they could be services, ideas, or new knowledge that lead to innovation or even processes. These projects with the various end results are conceptualized as ‘temporary systems’ due to their existence durations. These collaboration forms rely on the ‘project ecologies’ (Grabher, 2002b; 2003) which provides an organizational arena that enables necessities such as resources, organizational networks between partners and the physical environment until the completion of the specific project. Grabher (2004) explains the relationship between ‘project’ and ‘project ecology’ with an analogy of

perception tests where individuals expected to see both vase and human figures in the image. Grabher (2004) states that similar to the understanding process of the image that goes beyond perceiving foreground and background, the relationship between temporary projects and ‘project ecology’ is a constant state of switching back and forth. The interdependencies between temporary collaborations, organization networks, and institutions individual identities, values, and loyalties are constantly reconstructed with the new projects. (Scarborough et al., 2003; Grabher 2004)

2.3.2. Collaboration among coworkers

Even with the contrary views of definitions, the interpretation of collaboration is mostly coherent. Creating, on the other hand, is a multidimensional process as a result of integrating “different contexts and managerial challenges” with social engagement. Several studies inquire about the factors and aspects that guide the collaboration. For instance, Mattessich & Monsey, (1992) provide six categories that affect collaboration such as; environment, membership, process/structure, communications, purpose, resources. Stallworth (1998) identifies four elements as crucial to achieving a favorable outcome of a collaboration: shared goal, member interdependence, equal input of participants, and shared decision making. Another study by Marcelo F. Castilho and Carlos O. Quandt (2017) mentions 10 factors in their study such as; flexibility risk exposure, trust, congruence of objective, ease of access to information and people, leadership endorsement, open communication, commitment, joint creation availability; fault tolerance, autonomy, self-sufficiency and sharing interests.

Majority of the studies established factors that revolve around the participants of the collaboration act such as the necessity of the communication between them, their input, trust (Castilho and Quandt 2017), “coherence in participants’ understanding of the problems they are facing” (Hardy, Lawrence, and Phillips 2006), shared goals and interests.

However, collaboration might change along with the contributor because even though the participants share some common points, people who work together to contribute

to the collaboration are not required to come from similar work fields or backgrounds, which is usually the case for co-working spaces where people from various disciplines are working together with the motivation of collaboration. For instance, Maccoby (2006) mentions three kinds of collaboration, such as; within a department, across departments, and collaboration between and among companies. The author associates the first category, collaboration 'within a department' with traditional teamwork where coworkers are parceling out tasks to people who have to work interdependently. The second category 'across departments' indicates an occasion where experts from different disciplines collaborate in order to achieve a common purpose, such as developing a product or solving a problem. The last but not least is the 'collaboration between and among companies' "ranges from co-production to supply chains to partnerships to inter-firm networks." Another study by Spinuzzi (2012), which is one of the most cited papers on co-working, detects two distinct configurations in the expectations of coworkers regarding collaboration: 'the good neighbors' and 'the good partners' models. The first one 'good neighbors' is where coworkers "work together alone" focussing on their tasks, alongside others; but collaborate in order to build a community within the co-working space. Which means they perceive collaboration as a separate activity from their work. Whereas in the 'good partners' model "emphasizes collaboration among its members on common projects. Community is born out of work collaboration." Rus & Orel, 2015).

The emergence of any model of collaboration requires high levels of interactivity, not only within teams but also across traditional boundaries (Maccoby, 2006). Since every organization or individual have their own background, approach and goals (Hardy, Lawrence & Phillips, 2006; Waddock, 1989), participants must first engage in conversations that uncover and establish shared interest(s) (Hardy, Lawrence, & Phillip, 2006) before deciding whether or not to partake in collaborative actions (Austin & Seitanidi, 2012). The study by Hardy, Lawrence, and Phillips (2006) elaborate this argument by suggesting a framework about conversations that culminate in a collaborative action process. They explain that;

“[C]ontinued conversation is necessary if collaborative action is to ensue. Accordingly, our framework highlights the manner in which different actions follow from different types of collaborative conversations between organizational representatives. (p. 102)”

Their framework consists of four types of collaborative conversations that are deemed as necessary in order to maintain collaborative action. This typology includes conversations that:

- demonstrating shared interest,
- enabling partnership identification,
- establishing coherence in meaning and understanding, and
- conversations that allow partners to contribute to and carry out collaborative action successfully.

2.3.3. Collaboration and the physical environment

In order to ensure constant communication for collaboration, the work environments should offer spaces that encourage face-to-face interactions among coworkers and provide opportunities for different work types. (Kraut et al., 1990; Mill, 1997; Isaacs et al., 1997; Stryker, 2004; Mejia et al., 2007; Mittleton, 2009; Duffy et al., 2010; Bilandzic & Foth, 2013)

According to the literature review, these spaces are not necessarily obliged to designed for solely collaborative work such as team or meeting rooms; they can also provide opportunities for potential collaborative work and casual interactions. As Mittleman (2009) pointed out, “[collaborative] spaces are rarely designed for single-purpose activities...most spaces are expected to serve multiple programmatic use requirements” (p. 290). Along with the activity, it could also be challenging to separate the collaboration from other range of interactions with a precise boundary. Therefore, several studies that examine collaboration also mention the contribution of different communicative behaviors or routines (Heerwagen et al., 2004; Hardy, Lawrence, &

Grant 2005; Beech & Huxham, 2003; Koschmann, 2013). For instance, while Heerwagen et al. (2004) discuss collaboration along with two other dimensions: awareness and brief interaction. Brager et al. (2000) present impromptu interactions and casual meetings, as well. Both studies (Table 2 10) regard these further interaction types as collaboration opportunities and offers features that correspond to physical aspects of the space such as proximity, short walking distances, central position, physical, visual and aural access (Heerwagen et al. 2004)



Table 2.9. Collaboration and collaboration potential

	Authors	Interaction Types	Features and attributes of space	
Collaboration potential	Brager et al. (2000)	Impromptu interactions	<ul style="list-style-type: none"> • They are centrally located, visual open, and have connections to many other spaces and to key organizational contact points (Hillier, 1996). • They are located relative to the main corridors, which increases awareness of others and accessibility of the space. • They are not located adjacent to private offices where people are doing concentrated work because the noise from conversations is likely to be distracting. • They provide support for spontaneous ideation (Allen, 1973). For instance, white boards may be used to line hallways in certain areas that have high traffic and are likely to be casual meeting areas. Pull-away enlargements of the hallway would facilitate this without blocking movement by others. 	
		Casual meetings	<ul style="list-style-type: none"> • The meeting areas are centrally located and at key intersections where people are likely to pass by (Hillier, 1996). • They have a good balance of visual access so that people can see out and enclosure to support privacy and encourage conversation (Appleton, 1975). • They have comfortable, movable tables and chairs that can be used by individuals or groups (Whyte, 1980) 	
	Heerwagen et al. (2004)	Workplace awareness	Involves knowing what is happening in the surrounding space as well as the meaning of events and actions. Processing of this information is primarily through peripheral channels and is used to maintain an on-going knowledge of others' locations, activities and intentions (Weiser and Brown, 1996; Gutwin and Greenberg, 2001).(Dynamic task environment. Sense of urgency. Need to share information and get feedback rapidly. High need for transparency of tasks and operations to support coordination)	<ul style="list-style-type: none"> • High visual access into surrounding spaces • High aural access to surrounding spaces • Proximity to others / Shared information displays
		Brief interaction	Includes functional communications (e.g. fact checking, passing on information and asking questions) as well as social interactions such as quick personal exchanges, bantering and joking. These types of interactions typically last less than 1 minute (Reder and Schwab, 1990). (High need for coordination. Dynamic task environment. Time pressure. High task uncertainty. Multidisciplinary work groups. Need for rapid assimilation of new information. High demand for innovation)	<ul style="list-style-type: none"> • High visibility into work areas • High visibility into and from individual workstations • Location of workstation on primary circulation path • Physical access from multiple areas • Circulation systems that funnel movement rather than disperse it
				<ul style="list-style-type: none"> • Proximity of workers to one another • Location of natural meeting places on key corridors

Table 2.10. *Collaboration and collaboration potential (Continued)*

	Authors	Interaction Types	Features and attributes of space
<p>Collaboration</p>	<p>Brager et al. (2000)</p>	<p>Collaboration</p> <p>Involves more intensive interactions and meetings that occur over a longer period of time and which primarily involve team members. Collaboration is not a single event; it is a gradual unfolding of shared understanding and shared work processes toward a common goal (Schrage, 1998).</p>	<ul style="list-style-type: none"> • Spaces can be “taken over” by the team for the duration of its life. The work spaces of high performance teams often display team information, goals, concepts, data, progress toward goals, stories, slogans, etc. (Katzenbach and Smith, 1999).
			<ul style="list-style-type: none"> • The space supports “distributed cognition” and shared knowledge. The display items on vertical surfaces and other artifacts in the room are used to hold the team’s shared memory. These displays help to shift attention from individual knowledge and work to the team’s joint work and products (Norman, 1993; Pea, 1993; Schrage, 1995).
			<ul style="list-style-type: none"> • Teams will have “convivial tools” available for their use. According to Schrage, such tools are crucial for true collaboration. They include sketches, diagrams, maps, white boards, models, loose parts, and other artifacts that can be used to develop shared understandings and shared mental models that are necessary for collaboration.
			<ul style="list-style-type: none"> • Such areas also contain all the tools necessary for “documenting, analyzing, designing and building prototypes. This type of area make sit easier for people to analyze problems together, build prototypes, and discuss their individual and group inspired ideas” (Majchrzak and Wang, 1996).
			<ul style="list-style-type: none"> • Nearby spaces provide high acoustical privacy and ability to control distractions when team need to work by themselves (Brill and Weidemann, 1999).
			<ul style="list-style-type: none"> • If individual, concentrated work is not as important to the specific kinds of tasks, then having workstation layout that permits people to see one another’s to share tasks easily and to provide assistance as soon as soon as problems arise (Majchrzak and Wang, 1996).
			<ul style="list-style-type: none"> • Team members are co-located, providing opportunities for frequent face to face communication (Allen, 1973).
			<ul style="list-style-type: none"> • The team space is separated from other areas to protect confidentiality of work, and to keep meeting noise from spreading into other spaces and distracting occupants. Alternatively, the individual team spaces could be acoustically treated to reduce noise transmission into the space

Table 2.11. *Collaboration and collaboration potential (Continued)*

Collaboration	Heerwagen et al. (2004)	Collaboration	<p>involves two or more people working together over time to produce a joint product or other outcome (Kraut et al., 1990). Collaborations can be long-duration interactions (e.g. problem-solving sessions or demonstrations) that last many hours as well as short-duration interactions that last just a few minutes. Short collaborations often occur spontaneously, for instance, to discuss the importance of new information or to explore preliminary ideas that are later developed (Kraut et al., 1990).</p>	<p>Bullpen or pod</p> <p>Group members need to share information continually rather than through group meetings; frequent interaction between neighbors is desirable.</p>	<p>Workstations clustered together No partitions or barriers within the group May have partitions surrounding the group</p>
				<p>Informal teaming spaces</p> <p>Group members often need to meet spontaneously for discussion and problem-solving, but most work is still done alone in individual workstations. Group members are collocated</p>	<p>Individual workstations Tables and chairs or lounge-type furniture located within easy reach of private workstations; moveable screens or partitions May have white boards, computer connections</p>
				<p>Non-territorial, high-mobility office</p> <p>Precipitating conditions unclear; may be most beneficial when work tasks clearly need different kinds of spaces and when work is largely paperless</p>	<p>Different types of workspaces (individual, group, enclosed, open) No personal, dedicated individual workspace Mobile technologies</p>
				<p>Radical collocation project room</p> <p>High need for interaction to reduce time to complete group products; highly interdependent work and need to track group progress on multiple tasks</p>	<p>Enclosed room with large groupwork table Individual computer stations for team members working continuously in the space Multiple telephones plus telephone conferencing capability White boards and tack boards External spaces for individual, concentrated work</p>
				<p>Extreme collaboration project room</p> <p>High need for interaction to reduce time to complete group products; group has highly interdependent and parallel tasks; high need for sophisticated technology supports and access to shared databases</p>	<p>Enclosed room with open, individual workstations (no visual barriers), High visual and aural access High level of technological supports ^ performance modelling and simulation tools, information visualization, multiple interactive graphic displays, Display walls</p>

Some of the studies, benefits from themes that have emerged in the literature of collaborative design and use them as discussion factors. For instance, Stryker and Santoro (2012) examine a hypothesis about the significance of placing common areas in strategic positions to "act as centers of gravity" (Allen & Henn, 2007) in order to ensure the increase of interaction, communication, and collaboration opportunities. In order to assess the statement, they offer three factors such as a) headcount density b) workstation visibility c) collaborative opportunity.

"Headcount density" was measured in terms of the number of organizational members located within 10 meters of one another. "Workstation visibility" factor is required for workstation visibility from main areas as well as the overall openness in the workspace. Lastly "collaborative opportunity" defines the number of formal or informal contact places (conference rooms, coffee bars, copy rooms, vending machines, elevator lobbies) located within a 25-meter radius of the target individual's workstation. (Coetsee, 2015; Stryker and Santoro, 2012). Another study by Lamb and Shraiky (2013) conceptualize the design of collaborative spaces around flexibility "the ability to modify or change the design features of a defined space", visual transparency/proximity "the ability to have a direct line of vision and access to instructors, peers and classroom technology for interactive and collaborative work", technology and environmental infrastructure. Many of these factors above are supported by several other studies in the literature. For instance, the proximity factor is examined by González-Ibáñez et al. (2013). They regard communication as "one of the essential components of collaboration" (p. 1165) and claim that physical proximity has a tendency to increase spontaneous interactions which occurs through impromptu encounters between co-workers as they move around a workplace. Another study, Ondia et al. (2018) analyzes four different knowledge work modes focus, socialize, learn, and collaborate. They associate this collaborate mode with user proximity and visual contact by using the term Proxemics, which was authored by Edward T. Hall. This term Proxemics studies individuals and groups' communication through their

utilization of space and identifies four distances or zones in which people interact, such as intimate, personal, social, and public distances:

- Intimate (0–0.45 meters) is that zone immediately surrounding a person’s body. This zone is the most private, and it is reserved for physical and emotional interactions.
- Personal (0.45–1.2 meters) is that zone within which a person only permits close friends or fellow workmates with whom personal conversation is necessary
- Social (1.20–3.60 meters) is that zone within which a person seeks to make social contacts temporarily. It is utilized for conversing with somebody who is an outsider or not well known.
- Public distances (3.60–7.50 + meters) is that zone within which a person does not seek direct contact with others. It is utilized for public speaking, such as addressing a crowd

Along with proximity, visual transparency/ accessibility factors are crucial for collaboration since high visibility of workstations promotes communication between team members (Stryker, 2004). The high visibility also perceived to be beneficial for a newly established business to gain exposure to other coworkers, ‘overcome their liability of newness’ (Ebbers, 2014) and establish network connections by interactions especially if they have a desk in the open workspace where more people can work together (Jubitana, 2017). Even though innovation and collaboration thrive on communication and interactions that come along with high visibility and access, that does not mean collaborative activities do not require any dedicated spaces. Collaborative activities seek a variety of physical that spaces support both interactions, focused work, formal planned, and informal meetings (Hua et al.2010). For instance, Brager et al. (2000) state that “Teams need ‘team spaces’ because team members need to meet frequently, and often in unplanned sessions, facilities should devote more space to group work areas and group tools and should have team members co-located to enhance ease of meeting.” These team spaces also need to provide high acoustical

privacy so that it is possible to limit distractions while the team is working on a project (Brill and Weidemann, 1999). The spatial configurations' ability to facilitate collaboration could be assisted by tools or furniture such as using whiteboards for keeping ideas concepts visible to passersby and setting thinking spaces as well. For instance, movable furniture and walls are beneficial for reconfiguring seating arrangements for small group meetings, presentations and allowing a range of interaction configurations and individual workstations. (Jubitana, 2017; Lamb & Shraiky, 2013).

2.4. Highlights of the literature review

This section of the thesis is dedicated to the fundamental notions and highlights of literature reviews and their relations to the case studies. Each chapter provides another notion of co-working spaces and collaboration; therefore, it suggests another critical point. The first important part that is extracted from the literature review is the change in work practices. More mobile, technology-enabled working practices such “flexible working” “activity-based working” and “agile working emerged (Harris, 2015; Gibson, 2003). Work turned into time-pressured, team-based collaborative tasks rather than individual efforts (Harris, 2015; Kingma,2018). With the more flexible work practices working is said to lose its dependency on time and place, and as a result of this mobility, the need for a fixed location or space to work is believed to be irrelevant. (Gibson, 2003). This temporal and spatial flexibility of current work practices led the thesis to discuss Oldenburg's third-place concept that focuses on work. The introduction of these third places that accommodate current work practices led case selection process to evolve around the coworking spaces.

The essential role of user profile and communities for coworking spaces:

Since the work practices cannot be separated from the workers, another key point becomes the users who spend time in the coworking spaces. As seen from the literature review, many studies emphasize the importance of the user profile and remark the significance of community for coworking spaces. (Capdevila, 2014; Kenline, 2012)

Some studies expand the formation of a community by the involvement of the curation process and selection of like-minded participants (Capdevila 2014, Bilandzic 2013) with shared purposes and working behaviors. The case analysis examines the user profile of each coworking space and aims to determine if the focused work industries of the spaces influence the user profiles.

Importance of impromptu interactions and chance encounters:

Another key finding of the study is the importance of any kind of interaction between coworkers because of the increasing demand for coworking spaces, or third spaces originates from physical isolation. (Spinuzzi, 2012; Moriset, 2013; Capdevila, 2014) Along with overcoming lack of socialization, face-to-face interactions provide opportunities for knowledge exchanges and creations which enable innovations and collaborations as well. Face to face interactions requires that two, or more people to physically co-present in an environment where they can use visual and physical means of communication in order to interpret and co-create tacit knowledge (Asheim et al., 2007 Jubitana 2017; Salavisa, Sousa & Fontes, 2012). It is argued that creative clusters that are a part of the user profile of co-working spaces generate flows of information usually referred to as 'buzz' (Storper & Venables, 2004), or 'noise' (Grabher, 2002). This 'buzz' which does not require investments other than 'by being there,' continuously contribute and benefit from the information, news, and rumors that are shared within the local communication network (Bathelt et al., 2004). This contribution assists creative workers to retrieve information about opportunities and job openings in their local surroundings and provides opportunities for new knowledge creation through collaborations (Capdevila, 2014). These interactions are beneficial for coworkers' expectations of establishing professional relationships and expanding their network of potential collaborators and clients (Moriset, 2014; Gandini, 2015; Merkel, 2015).

Significance of collaboration in coworking spaces:

Many studies emphasize the significance of collaboration in coworking spaces by stating that the process of knowledge creation is not solely a result of the ‘solitary genius’ (Brown, 2017; Bathelt et al. 2004) on the contrary, it usually involves interaction between various actors that possess different types of knowledge. Therefore, collaboration is perceived as a key to organizational effectiveness in an increasing number of work contexts – from service and policy-making organizations to scientific research and development groups (Kraus, 1980; Beyerlein et al., 2003). Another source Lewis, (2006) underlines the views related to the individual impact on collaboration with; “some scholars conceive collaborative interaction as a means to satisfy individual goals through a joint process with a concurrent shared goal or purpose.

Collaboration is more than simply sharing knowledge and information (communication) and more than a relationship that helps each party achieve its own goals (cooperation and coordination). The purpose of the collaboration is to create a shared vision and joint strategies to address concerns that go beyond the purview of any particular party, Chrislip and Larson(1994)

While creating a shared vision, the collaboration also serves as a means to reduce alienation in coworking spaces, improve efficiency, and enable coworkers to adapt to fast-changing environments.

Contribution of collaboration strategies:

Coworking spaces benefit from various strategies to foster interaction and collaboration, such as organizing events that can foster the formation and enhancement of relational ties (Jubitana 2017) or arranging physical environment and spatial layout of space to enable chance encounters and impromptu interactions. Since the coworking spaces this thesis examines also aim to enable knowledge exchanges, collaborations and interactions the existence of these several collective design decisions and strategies that coworking spaces adopt such as placement of common

social areas, visibility of coworkers and workspaces, privacy and proximity and alternative function settings and organized events examined in the case studies.

Role of Network reputation and Swift trust:

The previous research showed that the role of trust is essential for all kinds of interactions from sharing knowledge among coworkers to receiving feedback. The assumption of the member's commitment to a safe environment, with the aim of minimizing risks of knowledge leakage or opportunism, originates from the term 'networked reputation' (Glückler & Armbrüster, 2003) and swift trust. These 'networked reputations' (Glückler & Armbrüster, 2003) are based on the recommendation of acquaintances or trusted collaborators when there is an absence of personal experience with their potential coworkers. This means that 'whom you know' is perceived as crucial as 'what you know' (Grabher, 2002). 'Swift trust' (Meyerson et al., 1996) on the other hand, essentially the notion that mainly enables the interactions during collaborations. Swift trust reflects the conditions people see each other under a professional setting, rather than individuals due to the shorter project cycles' inability to "develop personalized trust based on shared experience, familiarity or social coherence." (Grabher, 2004). The role of trust and network reputations have taken into consideration while examining the case studies. The differentiation between the selected cases such as user profiles (individual or company), work areas of coworking spaces (creative or entrepreneurship), the curation process of members, how members were introduced to each other and collaboration models that coworkers adopt specified for both cases. The analysis of the cases questioned if the factors related to the user groups had any influence on the trust bond and therefore, on the interactions between coworkers. The existence or the lack of trust is also considered during the examination of physical environment as well. The different relations between coworkers are expected to change the privacy levels both between coworkers and the outsiders.

Involvement of collaboration contents and durations:

Another key finding of the literature review is the importance of the collaborations, their contents, and their organization in practice for coworking. These acts of collaborations that often represent goal-focus temporary relationships for joint production, are often coordinated in the form of projects.

The emergence of Goal-focus Temporary systems/relationships and Project ecologies:

These projects with the different end results are conceptualized as ‘temporary systems’ due to their existence durations. These collaboration forms rely on the ‘project ecologies’ (Grabher, 2002b; 2003) which provides an organizational arena that enables necessities such as resources, organizational networks between partners and the physical environment until the completion of the specific project. The interdependencies between temporary collaborations, organization networks, and institutions, individual identities, values, and loyalties are constantly reconstructed with the new projects (Grabher, 2004). The case studies examine the collaboration types and possible results of collaborations such as projects for each coworking space and discuss the resources such as events, seminars or spatial arrangements said facilities could provide for the specific projects.

CHAPTER 3

CASE STUDIES

3.1. Case selection

This section is dedicated to providing information on the reasons behind the selection of cases and to the methods that assist the examination of cases.

As mentioned in previous chapters, the rising need for collaboration due to the changing work practices, led to the emergence of environments that accommodate knowledge sharing dynamics between workers through coworking such as incubators, accelerators, hackerspaces, makerspaces, fablabs, living labs and lastly coworking spaces. The study originated from the examination of these spaces in Turkey.

This part of the study started with searching for every space the researcher could detect through online research, which might enable coworking and turning the data into a table in order to navigate the case selection further.

Table 3.1. Co-working spaces in Turkey (Source: Author)

Co-working space / Case studies											
Name	Project Type	Location	Building Type	Project area m2	Space type	Plan	Management	User Profile	Access form web sites	Options/ services	Branches
01 Start-ups	incubator and accelerator	İstanbul							www.cowork7x24.com		
3Dörtgen	maker space	İstanbul					Private			3d design/printer/scanner, renting	
Açık İnovasyon Derneği	innovation center										
İTÜ NOVA TTO	Technology Transfer Office	İstanbul					İTÜ University				
Anadolu Vakfı							Academic				
ANAMED											
Ancowork	co-working	Ankara					Ankara University				
Ankara Üni Teknoknet		Ankara									
Archerson	co-working	İstanbul				unavailable	private			virtual office, co-working,	
Arçelik Garage	maker space						Private				
Argeda		Ankara					Atılım University				
Ashoka Türkiye											
Atom	incubation center	Ankara					Odtü/Teknoknet				
Atölye İstanbul	co-working space	İstanbul	renovation/ bomonti factory	700 m2	galeri ve etkinlik alanı, Workshop alanı, maker space, mutlak ortak alan, flex çalışma alanı (hotdesk), kalıcı çalışma alanı(fix desk), idari ofis, sınıf ve toplantı odaları	available	Private				
Başakşehir Living Lab	incubation center						Public				
Bee Venture		Ankara					Çankaya University				
Bilgi kuluçka merkezi	kuluçka merkezi	İstanbul	new building					sivil girişimci			
Bilgi Sosyal Kuluçka Merkezi	incubation center						Academic				
Bilkent Cyberpark	kuluçka merkezi	Ankara					TTGV				
Co-11 Sanayi	mimari kampüstür	İstanbul	Müstakil bina(mevcut mu yeni mi bilinmiyor)		Show area, architectural product library,200+ event space, 29 office 2 meeting room,2 seminar room, 2 presentation room, open co-working space	unavailable	Private		www.coworker.com		
coda offices	co-working	İstanbul									
Core Strateji											
Daire Coworking		İstanbul							www.cowork7x24.com		
DAM	co-working space	İstanbul	renovation		toplantı odası-1, toplantı odası-2, toplantı odası-3, hazır ofis-1, hazır ofis-2, hazır ofis-3, idari ofis, yönetici odası, koçluk odası, iş yemekleri, Dam'da odası, Meditasyon odası, Mimarlık ve tasarım, Mimarlık ve tasarım, performans alanı, ortak çalışma alanı & lounge, depo	available					
Dokuzbuçuk	co-working						Private				
Eğitim Reformu Girişimi											
Ekin Ön Kuluçka Merkezi		Ankara					Başkent University				
EKOIQ											
Endeavor Türkiye											In 19 locations of İstanbul
eOfis	co-working										
ERAI TURKEY	co-working	İstanbul									
Fablab İstanbul		İstanbul									
Fablab Kadir Has	fablab						university				
Fablab Özemiş		İstanbul									
Fabutopia							Private				
FBIC Angels											
Fikir Küpü	incubator										
Galata Business Angels											
Garaj	inkübatör	Ankara					TOBB				
Gazi Anahtar		Ankara					Gazi University				
GE Garages	maker space						Private				
Gelecekhane	maker space						Private???????				
GİRVAK											
Gnn Offices	co-working space	İzmir									
Habita	co-working space	İstanbul	renovation	650 m2		available	Private				
Hacettepe Üni Teknoloji Transfer Merkezi	kuluçka merkezi	Ankara					Hacettepe University				
Hacettepe Üniversitesi Kuluçka merkezi	Ar-ge	Ankara				available	Hacettepe Üniversitesi				
Hamdi Ulukaya Girişimi											
HayalET Kuluçka Merkezi	incubator						Academic				
Idea Kadıköy		İstanbul					belediye				
Ideapol Cowork	co-working										
Impact Hub İstanbul Ofisi	co-working space	İstanbul	renovation			unavailable					
Inno Campus	innovation programme	mobile									
İstanbul Institute of Design							Academic				
İşıkFab	fablab						university				
KSV Yenilikçilik Merkezi							Civil Society				
İmece	co-working										
Impact Hub İstanbul		İstanbul									
Inno Fablab											
İnzva	hackerspace										

Table 3.2. Co-working spaces in Turkey (Source: Author) (Continued)

İskele 47	maker space									Private										
İstasyon Tedü	incubation centers	Ankara								Academic										
İTÜ An Çekirdek	incubation centers									Academic										
İTÜ An Teknokent	incubation centers									Academic										
İTÜ Magnet	incubation centers									Academic										
Joint idea	co-working																			Life Works Labs KanyonLife Works Club Arnavutköy
Joker Ofisi	co-working	istanbul																		
KAGIDER	co-working space	istanbul							unavailable											www.cowork7x24.com
KAMARA	incubator									Initiative										
Kentsel Strateji	incubator																			
Kentsel Vizyon Platformu																				
Kıvılcım Endüstriyel tasarım merkezi																				
Koç Design Lab	maker space									Academic										
Koç University Incubation Center,	incubator	istanbul																		
Kolektif House	co-working space/startup	istanbul	renovation (factory)						unavailable	Private										Levent / Maslak / Şişhane
Konteyner Park	Ar-ge	Izmir	new building / konteyner	1000 m2	13 ofis,1 toplantı odası, hacker space, showroom,lab, incubator				available	Ege University	öğrenci									
Koperatif co-working	co-working	istanbul																		
Korino Co-working	co-working space	Izmir																		
KUSİF	?????									Academic										
KWORKS	co-working	istanbul																		
Le Büro Istanbul	co-working	istanbul																		
Levent Ofis	co-working	istanbul																		
Louis Vuitton Binası																				
Nişantaşı	servercop	istanbul																		
Maker Atölye	maker space									Private										
Maker Çocuk	maker space									Private										
Makerhane	maker space									Private										
Makers Ankara	maker space	Ankara																		
METU CO-WORKING & CAFETERIA	co-working space	Ankara	new building	7,175 m2					available	METU										
Mi Ya Se cafe		istanbul																		www.cowork7x24.com
Mikado	??																			
Moment bestepe	co-working	Ankara																		
Moveca	start-up platform	Ankara								Kirkinciöglu Grup										
m-spark																				
Nar kuluçka merkezi	kuluçka merkezi	Ankara							unavailable	Yıldırım Beyazıt University./ivedik osb										
NBRM																				
Neo Network Cafe		istanbul																		www.cowork7x24.com
NHabitat Kalkınma Derneği																				
Niüfer İnovasyon Merkezi	innovation center																			
NITGV																				
nuvEGE	incubator	Izmir																		
Ofis alsancak	co-working	Izmir																		
Okan Üniversitesi Sosyal Girişimcilik Merkezi																				
Olmadık Projeler Atölyesi		istanbul																		www.cowork7x24.com
Openfab Istanbul	fablab	istanbul						ders alanı(20 kişilik), 3d printer/laser area		Özyeğin University	Özyeğin Uni. Öğrenci/darı /akademik personel									www.coworkies.com
Originn	co-working space	Izmir																		
Ostim Teknopark		Ankara																		
Özyeğin Girişim Fabrikası	incubation centers									Academic										
Özyeğin Üniversitesi ES-LAB	inovasyon merkezi	istanbul	renovation	7,600 m2					available	Özyeğin University	öğrenci									
PAKT insight + imagination Plaza Cubes		Ankara																		
Red Bull Amaphiko																				
Regus Türkiye'de de 23 merkezi																				
SALT Araştırma										Private										
SAP Development Center		istanbul	renovation						available											
SB Corp Türkiye																				
Servercorp	co-working																			
SIX																				
SoGIP																				
Sosyal İnovasyon Merkezi																				
SosyalUp																				
SS360																				
Starters Hub	incubation centers									Initiative										
STARTERSHUB	startup	istanbul								Academic										
Studio-X										Academic										
Sucool	incubation centers									Academic										
SwissOffices	co-working	istanbul																		
Şehrine Ses Ver										Initiative										
Şener Özler Arşiv ve DBKümantasyon Merkezi										Private										

The spaces on the table are investigated through their websites, google search, and their ads and reviews on coworking sites. In order to get an insight, the researcher investigated their location in Turkey, whom they accommodate, the conditions of the buildings they are located in, events they organize or hosts and lastly checked whether it was possible to access their floor plans. However, during the research it was realized that not all of these coworking environments correspond to a physical place. Some of them settle into existing buildings or small rooms; some use empty hangars without a spatial arrangement or any changes, others use the space for limited, periodic activities or events rather than regular day to day basis. Therefore, examining the emergence of collaboration in those spaces and questioning the relationship of this formation with the architectural program proves to be rather challenging.

Consequently, in order to enable a more efficient case study, the researcher preferred to limit the work environments with the coworking spaces which adopts spatial solutions and collaborative strategies, and that could consistently be subjected to coworking and collaboration.

After the assessment of the initial review of the said coworking spaces in Turkey, two examples, that have different characteristics that enable observing the influence of coworking areas on the emergence of collaboration and to gaining an insight of current condition and future direction, are selected. The distinctive features of the facilities can be summarized as follows; these cases serve different sectors, accommodate different social interactions, work practices, and different architectural conditions. For instance, Atölye İstanbul is a representative of creative businesses that are located in a repurposed beer factory and CoZone that is representative of technological entrepreneurship located in a new building. It was also prioritized to ensure that these selected examples are available for observations and interviews.

After the further elaboration of the selected facilities, along with the evident distinctions, it was realized that some features of coworking spaces alter the facilities' position towards collaboration models. For instance, Atölye from creative businesses

leans towards Spinuzzi's (2012) Good Partners collaboration model where members work together on joint projects. Even the statement "We do not work side-by-side, we work together" emphasizes their preference towards the Good Partners model. On the other hand, CoZone with technological entrepreneurship mostly adopts Spinuzzi's Good Neighbours collaboration model (2012) where coworkers "work alone together" which is distinguished as a separate activity form building a community.

This realization led the research to inquire about what other aspects of collaboration are affected by coworking spaces. Therefore, the study focused on extracting information about the emergence of collaboration by benefiting from the previous literature on co-working and collaboration. Firstly, highlights of the literature review determined in the previous chapter; then from these highlights, an initial brief has been extracted which includes interrelated factors that deal with the questions regarding the various aspects of collaboration in coworking spaces. Even though the selected factors can be increased, in this study, the suggested brief consists of aspects below:

- User profile of the facility and potential collaborators
- Collaboration models
- Collaboration contents and durations
- Facilities' adopted collaboration strategies
- Network reputation and swift trust
- Impromptu interactions
- The emergence of Project ecologies

While some aspects of the initial brief preserved as their original stage, others elaborated more in order to acquire further detail.

Firstly, the "User profile of the facility and potential collaborators" aspect was discussed. Since co-working environments host people from different disciplines and professional backgrounds who might be working individually or as a part of a team, the target user group's occupations and their motivations for joining the coworking space might be an indication regarding their preference towards collaboration.

Therefore, the initial factor is provided with sub-categories that are extracted from the chapter of co-working space characteristics:

- User profile of the facility and potential collaborators
 - Occupation
 - Teams/individual
 - Motivations of users

Another factor the “collaboration models” did not require further articulation since the aim of this factor is to discover potential use of collaboration models these cases might enable.

The third factor, “Collaboration contents and durations” did not require further elaboration either since the researcher aimed to prevent limiting the collaboration contents and envisioned detecting more variety in content and durations.

The next aspect the “Facilities’ adopted collaboration strategies” on the other hand, turned into the more detailed category. The previous chapters showed that the co-working spaces implement various strategies (Buksh and Davidson, 2013; Parrino, 2013) to ensure convenient conditions for their users to engage and collaborate. One of the strategies that mostly preferred is the need for physical space that will enable the said interaction and collaboration between specific user groups. Therefore, the category presented as the “Physical environment.” The sub-categories of this factor extracted from the literature review of physical characteristics of co-working spaces and the spatial features that enable collaboration. For instance, the collaboration seeks a variety of spatial arrangements that support focused work, planned and informal meetings (Hua et al.2010) and spatial solutions that enable interactions such as social spaces. In order to provide more insight into the formation of this physical environment and its relationship with the facility’s focus and user profile. The thesis offers a category for “alternative functions of space”. These usage types can be identified as work, socialize, and circulation. The work category involves working together and working alone. This preference toward these models might change the

distribution of the workspace layout as well. The necessity of private workspaces, social areas, flexible open workspaces might vary or need for additional work areas might emerge.

Other factors allow one of the conditions for collaboration “ease of access to information and people” requires a direct link to the spatial layout of the space with factors such as visibility, privacy, and proximity. (Herweegagen et al., 2004). Lastly, “Centralization of the social spaces” factor emerges from the “centers of gravity” (Allen & Henn, 2007) which is benefited in order to aid the design decision for social area for people who share similar interests to communicate and interact with each other so that they can exchange knowledge and participate in collaborations. Since the emergence of relationships and any form of interaction is crucial to co-working spaces, (Kojo & Nenonen, 2014; Sykes, 2014; Gerdenitschet al., 2016; Hillman, 2011)

Another strategy that coworking spaces adopt is the “events” that provides favorable conditions for their users to engage and create network connection such as business presentations, weekly seminars, exhibitions, project or product reviews, debates, conferences or brainstorming sessions (Spinuzzi, 2012; Joachim, Roche, Hubert, 2015). Since these events are designed to bring people together and support collaborations between them, the “event” category is determined as one of the sub-categories that aid this study.

Last but not least, “Regulation of coworkers” added to the category since the previous research indicated that, the relationship between user profile and collaboration is also related to the facility managers' preference towards a curation process for coworkers.

With the sub-categories as additions, the “Facilities’ adopted collaboration strategies” factor evolved and gained potential which can be seen below:

- Facilities’ adopted collaboration strategies:
 - Physical environment
 - Alternative function settings
 - Visibility
 - Privacy and proximity
 - Centralization of social spaces
 - Events
 - Regulation of coworkers

The last three initial aspects of the brief, “Network reputation and swift trust”, “Impromptu interactions” and “The emergence of Project ecologies” have not divided into more in this study.

However, a new factor has been introduced under the title of “Locus of the facility” aimed to test the relationship with the location of the facilities and the members of the coworking spaces and its influence on collaboration.

After the elaboration of the factor, the primary suggestion of brief evolved and took its final shape. The final stage of the brief is listed below:

- User profile of the facility and potential collaborators
 - Teams/individuals/companies
 - Occupations
 - Motivations
- Collaboration models
- Collaboration contents and durations
- Facilities' adopted collaboration strategies:
 - Physical environment
 - Alternative function settings
 - Visibility
 - Privacy and proximity
 - Centralization of social spaces
 - Events
 - Regulation of coworkers
- Locus of the facility
- Network reputation and swift trust
- Impromptu interactions
- The emergence of Project ecologies

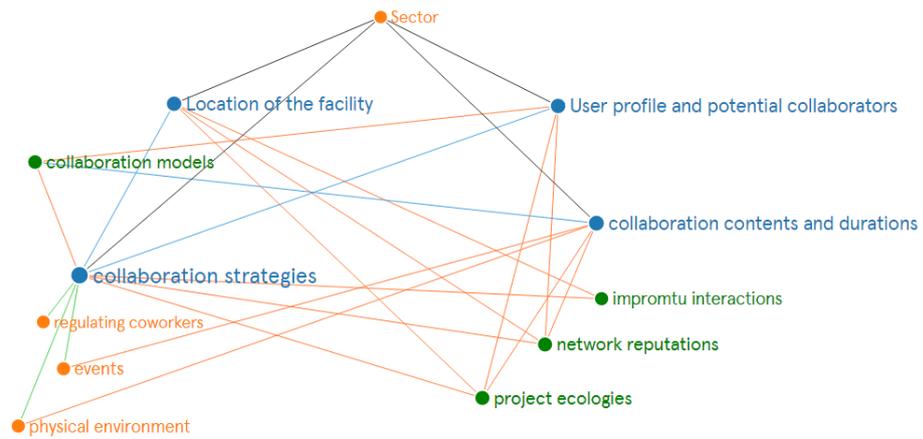


Figure 3.1. Interrelated aspects of collaboration (Source: Author)

After the final stage, the selected factors (Figure 3 1) in this study are decided to be examined within two layers. The first layer (Figure 3 2) revolves around factors that are directly affected by the sector and answers to these main questions below:

- Who are the collaborators?
- How do they collaborate?
- What are the strategies adopted to ensure collaborations?
- Where does collaboration happen?

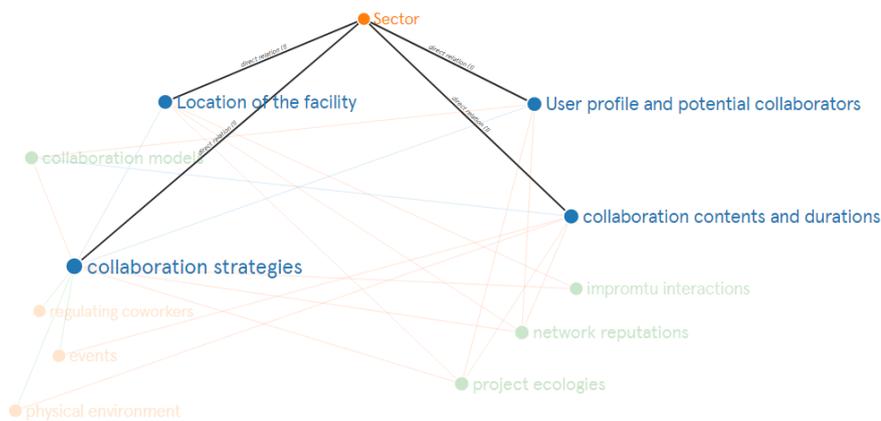


Figure 3.2. First layer of factors (Source: Author)

The second layer of collaboration factors that are expected to be influenced by the sectors is not directly linked to the sectoral focus of the facilities; instead, they are related to the first layer of factors.

The data about these facilities that are necessary to understand their features further is retrieved from the semi-structured interviews with managers, the observations of the researcher, and other resources including the Websites, the Instagram and Twitter, LinkedIn profiles related to the selected co-working space. The semi-structured interviews addressed issues such as:

- The community and the user profile,
- The factors that are crucial to selecting the location,
- The spatial layout decisions of the co-working space,
- The preference for workstations

The Websites and the social media accounts are used for following the events each co-working space hosts. The contents of the events are examined, and the relation between the sector and the events are gathered. Last but not least, the interactions of users and their preference toward workstations, which will provide an opportunity to understand the effect of a sectoral focus on physical environment and user preferences are observed and recorded during 2-day trips involving participant observation on the two sites.

3.2. Gathered Data

This section will be dedicated to the introduction of selected cases, will present the initial information extracted from interviews, online sources, and observations.

3.2.1. Atölye İstanbul

Atölye İstanbul is initially an academic spin-off project that is originated from the founders' ITP (Interactive Telecommunications Program in the Tisch School of the Arts at NYU) thesis on 'Transdisciplinary Design of Creative Community Spaces' in 2013 (Figure 2 1). The project that has ties with Stanford d.school which is human-centered design, and teaching institute for design and experiential learning, Stanford Change Labs, and New York University Tisch ITP. This project aimed to establish a “community-centered innovation platform” in İstanbul, Turkey. The first emergence of Atölye was conceptualized around the idea of “Build Community, Space Will Come.” Therefore, in order to reach people for creating a community, the project started with organizing pop-up workshops, one-on-one sessions with people from creative industries, large companies, small startups, and academia. According to their publication Reflections (2017), Atölye did not own any space or tools to provide workshops. Therefore, they rented or borrowed tools, and usually sought existing galleries, classrooms or meeting rooms such as the example of their 3D printer workshop in 2013 at Mixer Gallery in partnership with 3Dörtgen. Along with workshops they presented conferences including two TEDx Reset and TEDx Koç University, ran workshop-driven student competitions and hosted Banny Banerjee, Dan Klein, and Dale Dougherty. With these activities and social media involvement, they reached the community of 7.5K people on the virtual platform.

Since there was no physical space at the beginning, according to the interviews, approximately ten people core team of Atölye had to provide available spaces to work by themselves. The spaces they were able to offer, such as team member's apartments were not permanent solutions. The lack of a consistent physical space obstructed their work progress and restrained the opportunities to interact with the community they

created. In mid-2013 they established a 150 m² beta space fostering 20-people in Çukurcuma. They used the mentioned beta space to build community bonds and prototype their business model as a creative hub/a strategic design studio.

In January 2014, they were approached by the founders of Pozitif and Babylon with the “vision of repurposing the existing 12,000 m² Historical Bomonti Beer Factory (now entitled Bomontiada) into a cultural hub, hosting makers of music, food, craft beer, performing arts, design, and technology.”

According to the interviews, they both presented their ideas for their contribution to Bomontiada, although their expectations from the venue had altered to some extent. Because even though at the beginning of the repurposing process, the Bomontiada was envisioned as a creative hub with art galleries, studios now it is more of a commercial venue with cafes and restaurants.

Atölye liaised with the Bomontiada stakeholders and selected a 700 m², single-floor existing available space in the factory. After the construction completed in September 2015, Atölye moved their prototyped business plan into their current location. They state that their “abstract idea was gaining physical roots via the edifice.”

Atölye is initially a space where people from different disciplines and professional backgrounds are working together. However, they do not identify as a co-working or a maker space, mainly because they essentially provide income through working as a corporate business. Instead, Atölye currently defines itself as a ‘Transdisciplinary Innovation Platform,’ which is a combination of a “strategic design studio” and a “creative hub.” (Figure 3-2) This combination shapes the user profile with the emergence of the team and the community members as well. The “strategic design studio” consists of 5 sub-branches operated by the Atölye team members which are paid employees of the facility.

ATÖLYE

(Atölye = Community)

Strategic Design Studio

- Architectural Design
- Learning Design
- Organizational Design
- Service Design
- Business Development & Strategy

Creative Hub

- Community
- Prototyping Lab.
- Venue Sales & Sponsorship
- Communications
 - Like
 - Karma Lab.
 - British Council

Figure 3.3. Atölye's Organization

The architectural design team mainly focuses on projects for architectural competitions. Service design is one of the most crowded divisions of the Atölye who work with companies such as Akbank, TEB, and Hürriyet Emlak. They design the algorithms for UI (user interface) and UX (user experience). The business development & strategy department is responsible for the ventures of Atölye. One of them is “imece”, which is a social innovation platform. Another one is Toyi which designs game kits that allow children to turn objects around them into toys.

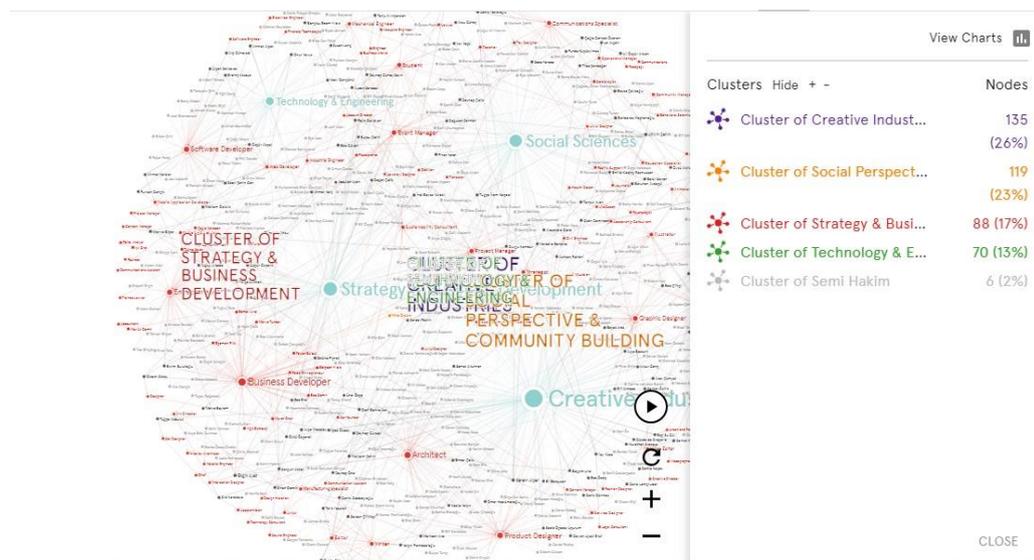


Figure 3.4. Atölye's Collaborations (Source: Graphcommons)

The Atölye team that consists of 45 employees is a part of the user profile along with the people who apply to be a community member. The total number of people that community (Atölye team and members) limits themselves is 150 their full capacity. The founders conceptualize this specific number based on their academic project research. They argue the people clusters engage more in sequences (5-15-50-150) known as "Dunbar's number." They believe that "most efficient knowledge sharing environments are being provoked when there are 15 people at most" and collaboration and interaction are more productive with 1 to 5 people.

The members of the community, including the Atölye team, have an average age of 30-35. Even though there are some older members, they are not addressed as "Bey" or "Hanım" (Mr. or Mrs.) due to the policy regarding the organizational hierarchy. According to the interviews and observations, the members seem to have a close relationship.

There are two types of membership plans that are offered for the community members. One is "Resident" which gives 30-day access to Atölye in a month with a fixed desk that one can use anytime and 10 hours for using the meeting rooms. The other one is called "Flex" offers a flexible workspace available ten days or entries a month with 3 hours for meeting rooms. The members are free to determine their work hours. It appears that Atölye is open 24/7 due to the provided access far ID cards but do not provide facility support after the evening apart from the events. For instance, if a community member states that they can only work at nights due to their demanding work hours during the day, they are allowed to stay at Atölye with some conditions. If a member prefers to work late, they are responsible for the facilities and their own security, condition of the coffee machine or turning the lights off when necessary.

According to the interviews with the community coordinator and the architect, the user profile of Atölye mostly consists of individuals rather than teams. This situation might be a result of the space capacity as well. Nevertheless, it appears that there are 2 to 3 people teams at most that are allowed to work at the facility.

At Atölye, it is not possible for people to work there solely based on their desire to be a part of a co-working space. Community members are considered as the talent pool for the business aspect of Atölye. Therefore, there is a curation process for the community, which is considered as a way of utilizing interaction potential with the selected people of the community. This community curation process consists of several criteria such as, professional recognition and experience, gender balance, disciplinary balance, their contribution to the community, collaboration and community engagement potential, %20 international people ratio and which gives an overall aspect of the user profile.

The members of the community are expected to have 2 to 4+ years of professional experience in their fields, with their own connections and network. When new members first join the Atölye, they are required to present their field of work with 101 sessions and share their experience with the community as a way to improve the existing knowledge dynamics. Students or new graduates are usually not preferred as coworkers due to the lack of experience, but they can work as interns under senior team members. They are also aiming for 1:1 gender ratio within the community with an equal number for male and female members. They state that when the number of one gender surpasses the other, they decline the new applications in order to keep the balance. For instance, so far in 2019, the women are seemed to be larger parts of the community. Therefore, Atölye is trying to equalize the ratio by recruiting new male applicants.

All the members of the community are expected to be a part of four main scopes such as Creative Industries Technology & Engineering Strategy & Business Development and Social Sciences & Community Building (Figure 3 2) in order to fit the requirements of the Atölye. For instance, if someone is a gym teacher, it is not plausible for them to be a part of the projects that the strategic design studio accommodates.

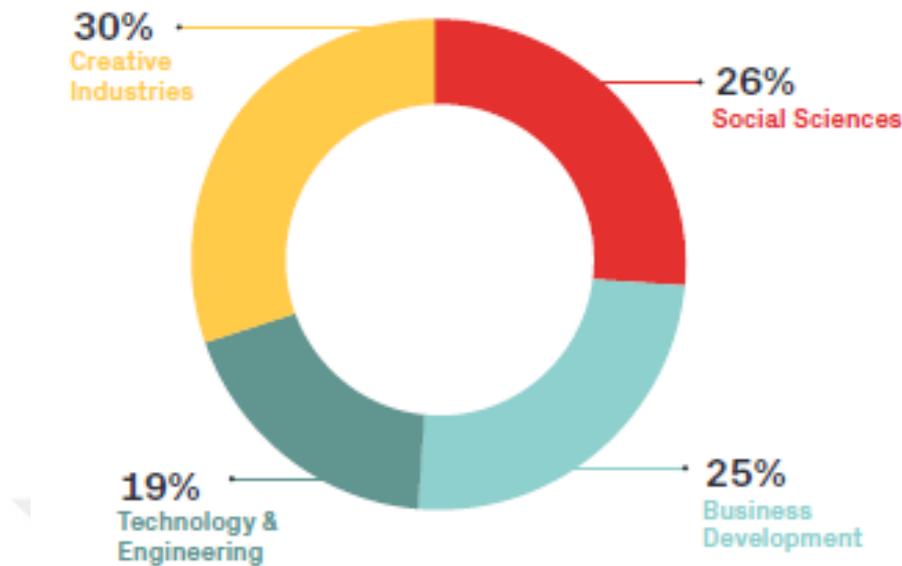


Figure 3.5. Main scopes (Source: Reflections, 2017)

- Creative Industries (Aimed 30%)

(Includes Designers: Product, Service, System, Graphic, UX/UI; Architects, Photographers, Videographers, Artists, Illustrators, Animators)

- Technology & Engineering (Aimed 25%)

(Includes Engineers: Computer, Software, Mechanical, Civil, Electrical-Electronics; Developers)

- Strategy & Business Development (Aimed 25%)

(Includes Entrepreneurs, Strategists, Business Developers, Advisors, Coaches)

- Social Sciences & Community Building (Aimed 20%)

(Includes Communication Experts, Sociologists, Researchers, Lawyers, Psychologists, Writers, Editors)

Other than the current community member, there are also a group of people that are connected to the Atölye through a digital platform. This other circle consisted of community members are called “alumni” and consists of people from different professions (Figure 3.6) who were once working with Atölye at some level. Even though it appears that the majority of them are currently living abroad, they are still in touch with Atölye.



Figure 3.6. Alumni professions (Source: graphcommons)

According to the interviews, the community members from various disciplines are expected to be present at the Atölye frequently. They believe that in order to provoke collaboration, it is important to have face to face interaction that can be achieved by being present at the Atölye physically.

During the first face to face meeting, the applicant and community coordinator arrange a schedule about the days they prefer to work. They use digital tools not solely to provide communication and network between the community but keeping track of the attendance rate as well. The community’s internet connection is directly linked to a virtual platform called “Nexus.” Every time a member connects to the internet through this platform, the community coordinator can follow the presence or absence of the member. Every 3 to 6 months, they evaluate the attendance rate, and if a member is not following their initial agreement for an extended period, they part ways.

Since there is a requirement to be present at the Atölye, it appears that the location of the facility which is in a close range with public transportation such as bus stops and the metro station is beneficial to the members who are accepted to the community.

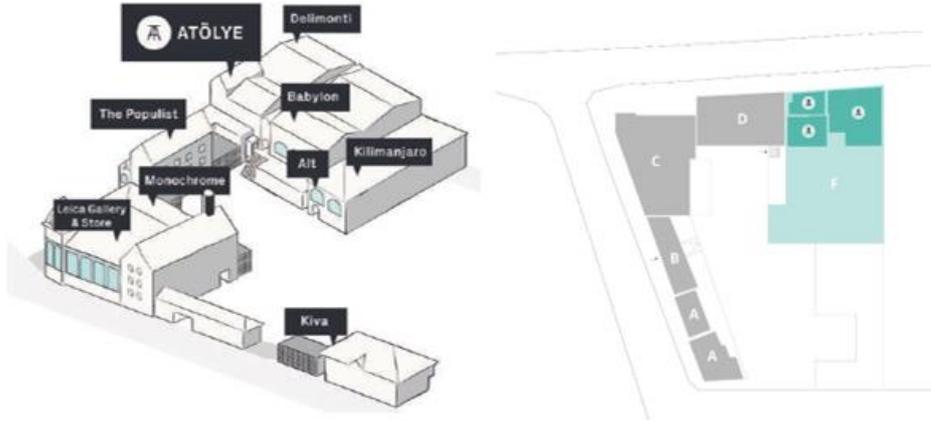


Figure 3.7. Atölye Venue (Source: Reflections. 2017)

Atölye İstanbul is located in the existing 12,000 m² Historical Bomonti Beer Factory in Şişli İstanbul. The venue (Figure 3.7) is now entitled Bomontiada into a cultural hub, hosting makers of music, food, craft beer, performing arts, design, and technology.” It seems like even though at the beginning of the repurposing process, the Bomontiada was visioned as a creative hub with art galleries, studios currently it is more of a commercial venue with cafes and restaurants. Interviews indicate that the location of the Atölye do not particularly affect the attention the facility receives. The events Atölye both organizes events and hosts are impactful to the emergence of the community.

In the “Reflections” (2018) publication, Atölye states that they organized 220 different events in 2017 (Figure 3 4) with the majority of them aimed to enable social interactions in their community such as Happy Hours, Yoga Sessions, Game Tournaments, Bring Your Own Blanket Movie Nights, Shamanic Rhythm Circles, Community Gatherings, Outdoor Activities. The rest of the events that are organized by focused on professional activities which aimed to enable community members to share knowledge regarding their professions. For instance, 101 Lessons intend to

create an opportunity for community members to share their expertise. Feedback Sessions is another event series where they share the process of the projects that they are currently working on and aim to receive feedback from the other community members who are from various professions. In addition to that, there are also Journal Sessions where they share their experiences from their professional travels and give highlights of the panels, workshops, and conferences they attend. Last but not least, Prototyping Workshops are organized in order to provide an opportunity to develop their practical skills.

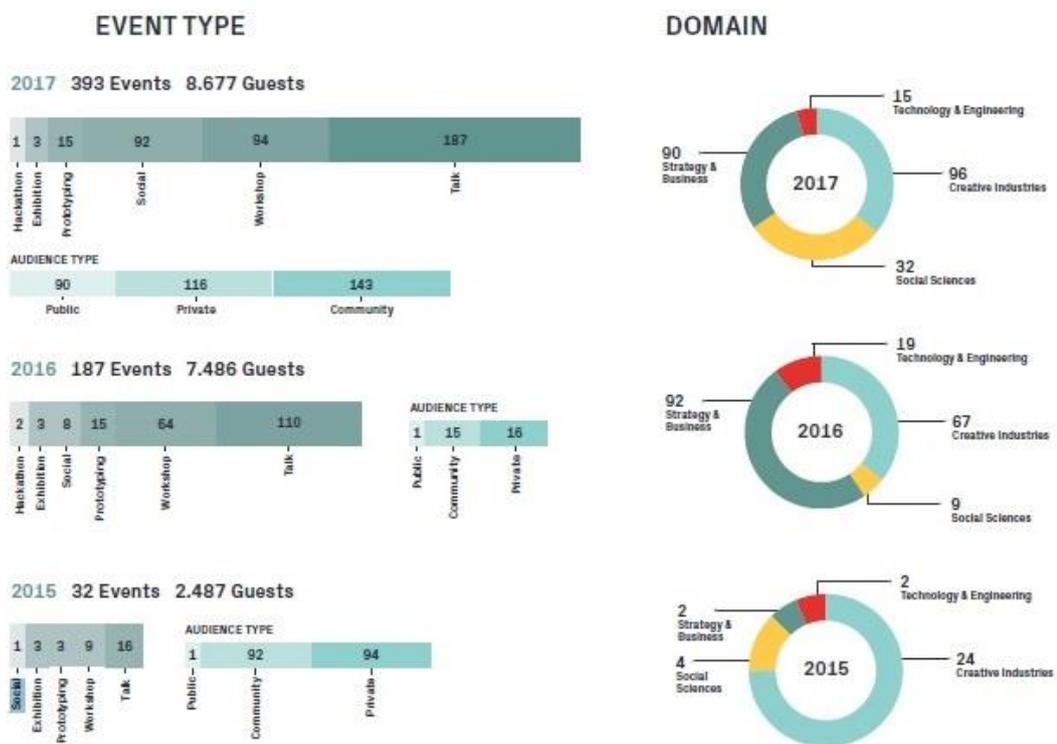


Figure 3.8. Atölye events (Source: Reflections, 2017)

According to the interviews, there are also events organized by community members that are open to the public. The content of these events varies due to current trends, the field of interest of the members; therefore, it is difficult to pinpoint the specific category they belong among the domain diagrams.

These events, both public and private, support the interactions that are emerging between guest and community members to initiate possible collaborations.

It appears that keeping track of these act of collaborations where members support each other in their projects or create a team and start a project is crucial to Atölye. For instance, there is an interaction cautions system that Atölye embraces, which is a way of encouraging collaborations. This system has “appreciation” and “depreciation” points for every member of the community, including the team. These points are correspondence to collaboration and “referral” terms, “which relates to when someone from the community refers to another community member to an outside project.” For instance, if a member collaborates with another one, both of them gain 20 points; however, if one does not contribute to any project for a long time, it counts as a depreciation point. The outcomes are evaluated every six months, and the member who holds the highest score is offered free membership for a month.

They state that they are documenting the collaborations that emerge under the roof Atölye and map them through a digital platform called Graph Commons (Figure 3 5). Their publication mentions the 42 collaborations on different projects that are established throughout 2017 and gives a percentage of the scopes they are related to.

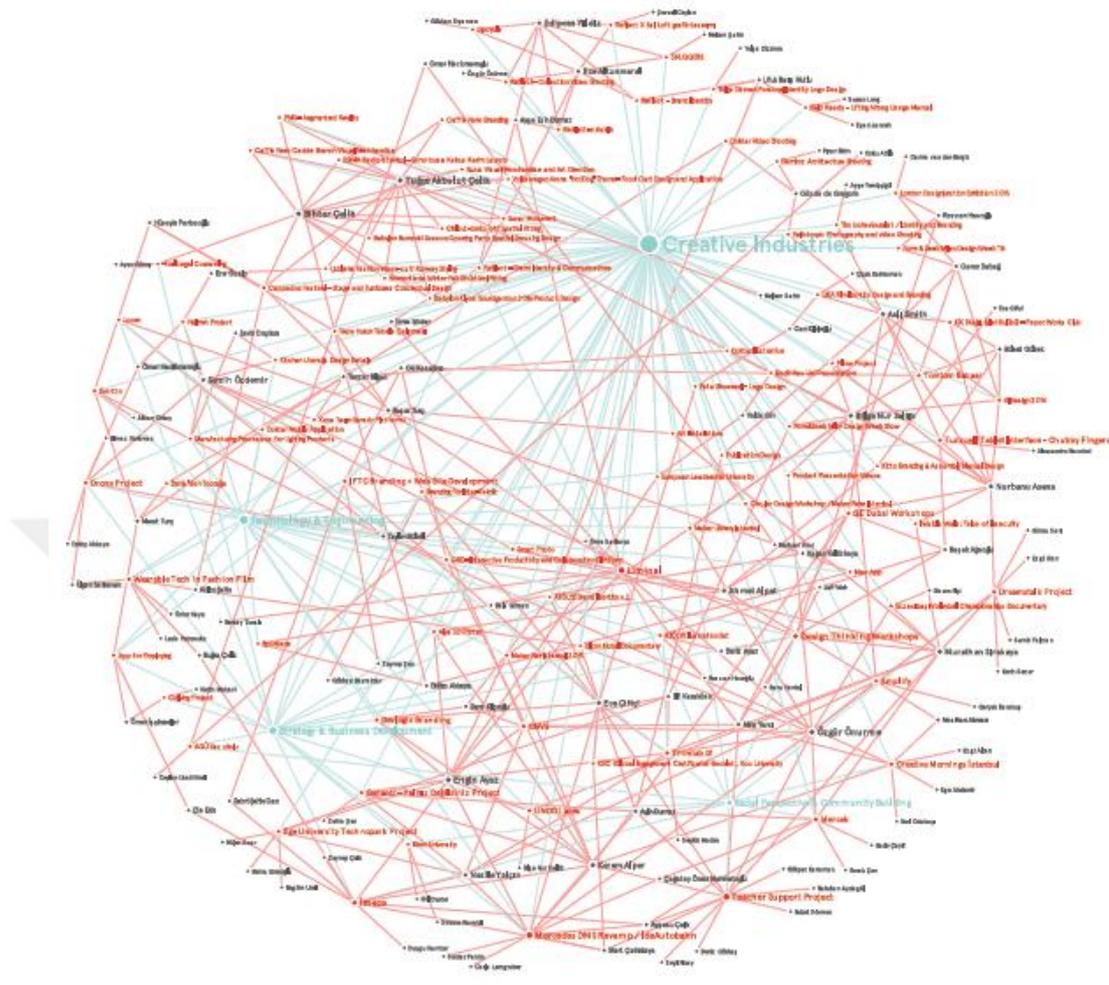


Figure 3.9. Atölye collaborations map (Source: Reflections, 2017)

After the assessment of collaboration projects, they present domain relations with collaborative acts. They present the percentage as 56% for Creative Industries scope, 19% for Technology & Engineering scope, 15% for the Strategy & Business Development and lastly 10% for the Social Sciences & Community Building. It appears that the number of collaborations increased rapidly after 2015 with 24 projects in 2015, 29 projects in 2016 and 42 collaborations in 2017. The reason behind this inclination (Figure 3.10) might be due to obtaining a physical space in 2015.

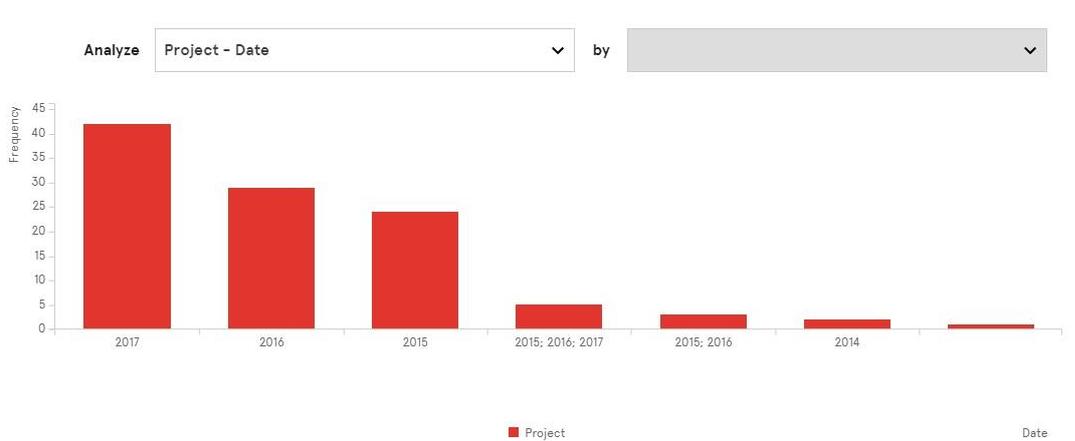


Figure 3.10. Inclination of project numbers (Source: graphcommons)

According to the “Reflections” (2018) publication, the first spatial program of the Atölye consisted of a co-working area, fabrication area, media lab, classrooms, cafe, gallery, and a storefront (Figure 3.11). Since this initial program was planned before locating in the Historical Bomonti Beer Factory it required some adjustments in order to fit the selected a 700 m2 available space.

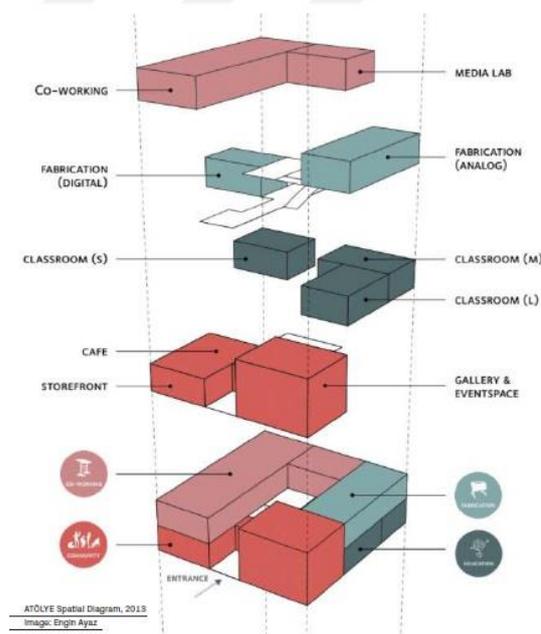


Figure 3.11. First spatial program of the Atölye (Source: Reflections, 2017)

This existing space had a single-floor layout that was already divided into four compartments. The design team used this division in order to separate public and private access. The public area works as a buffer zone with the event space, prototype lab, and one meeting room. The entrance to the facility is provided through a staircase that led to the event space. There is a circulation axis that is not essentially designed that leads the public zone toward to private zone to more designated workspaces.

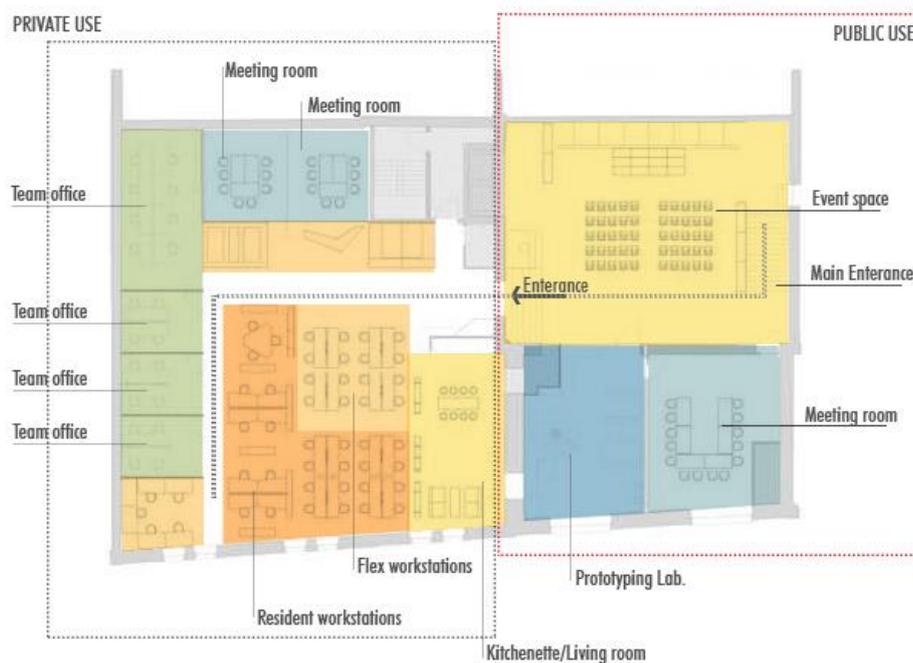


Figure 3.12. Atölye plan layout (Source: Author)

The private zone, on the other hand, is exclusive for the community and the team members (Figure 3.12). This more secluded zone consists of meeting rooms, offices for team members, a kitchenette/socializing area, one private workstation and one nook for Skype meetings or phone calls and open shared workspace for resident and flex members. The windows position the workspace for resident community members in an L shaped area. The workstations (Figure 3.13) for flex members are placed in the middle where the non-dedicated desks are located.



Figure 3.13. Atölye open workspace (Source: atolye.io)

The socializing area with a kitchenette is where people mostly interact with each other. The majority of the community events are hosted in there rather than the event space such as Happy Hours, Potluck Dinner, Feedback Sessions. The interview with the architect indicates that the reasoning behind it is related to the cozy atmosphere the space offers and its position in the layout. The proximity between this informal space and workstations aims to provide a more casual mindset for the coworkers. While the event space that is on the public zone in another level is associated with formal activities, the kitchenette which they refer to as “living room” is exempt from obligations.

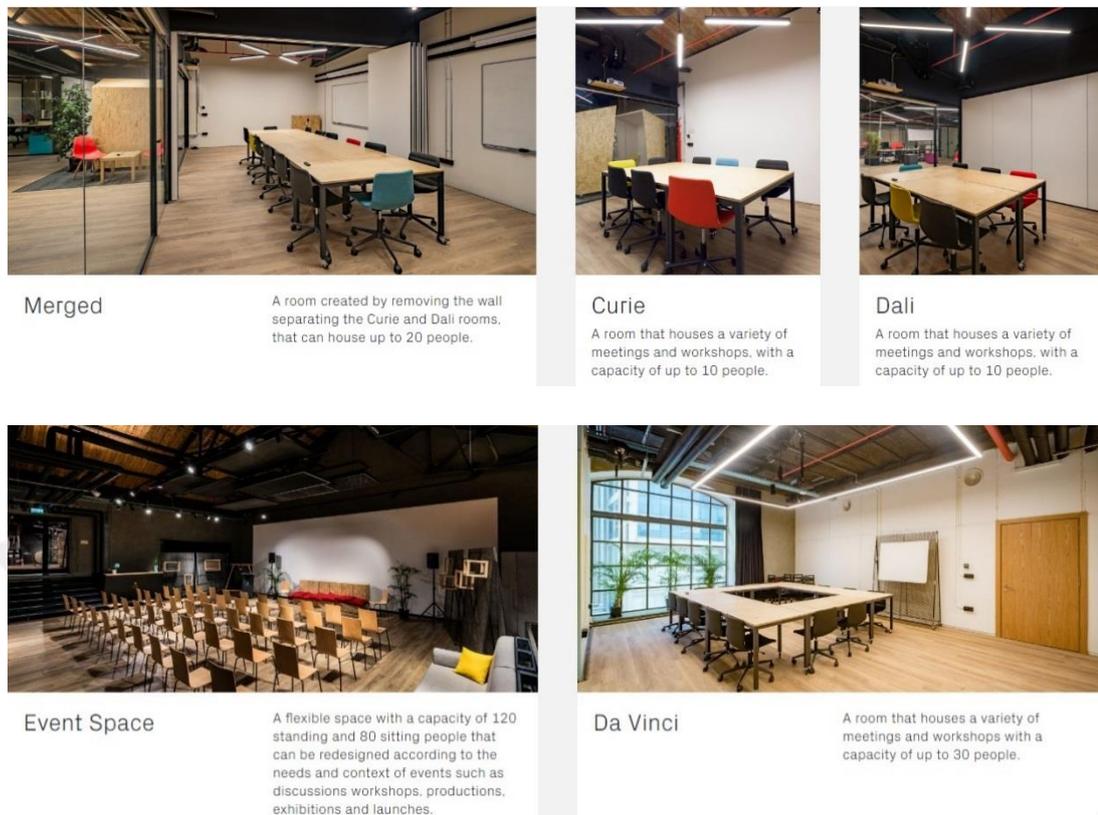


Figure 3.14. Atölye meeting spaces (Source:atolye.io)

3.2.2. CoZone

CoZone is initially a co-working space supported by METU Technopolis and Growth Circuit, where people from different disciplines and professional backgrounds are working together. According to the interviews with the partnership of Growth Circuit which is ”—an accelerator program and investment company founded by METU Technopolis, aiding initial-phase technological investments within the Turkish entrepreneurship ecosystem, towards accessing international markets.” CoZone is expected to attract people who want an opportunity to develop their own entrepreneurship by working among themselves and with different IT companies and get support from companies, especially in innovation. The said supports that are provided are establishing a communication network, providing resources, portfolio / technological product marketing, public relations, business development, investigation of sales opportunities, capacity building services.

For instance, CoZone, which is located within the Technopolis Informatics Innovation Center (BİLİM) in Ankara (Figure 3 11), hosts members from some of the 42 technology companies operating in the said building. The interviews indicate that even though some of the companies already have an office within the building, they prefer to place their key employees or teams in CoZone with the motivation of mind hunting and creating networks.

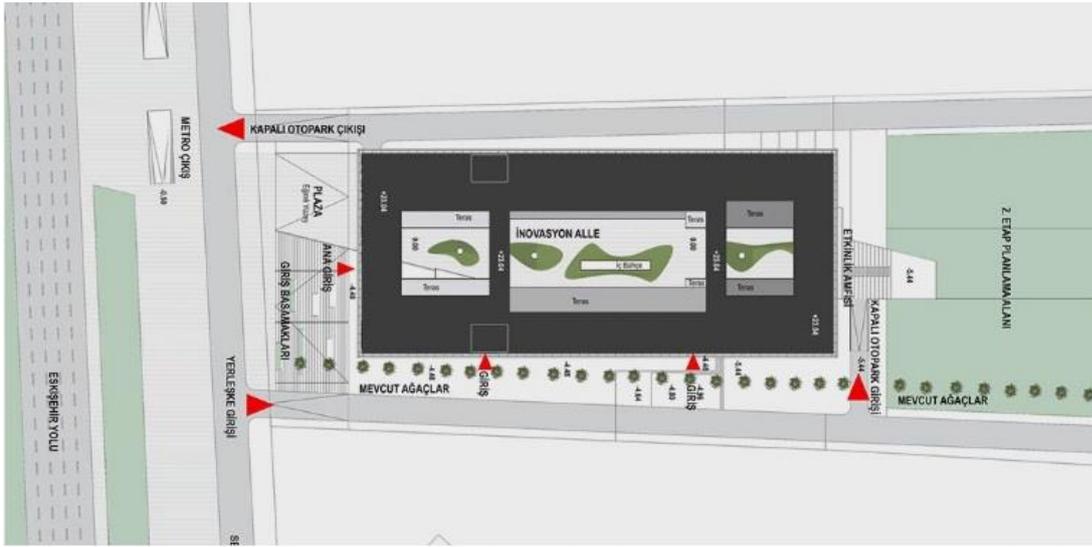


Figure 3.15. CoZone Site plan (Source:” FREA | Projects | ODTÜ Teknokent Innovation Center,” 2019)

CoZone that can host up to 300 people in a 2,300 square meter space aims to have a diverse group of people varies from big companies to students as their user profile. Currently the venue is hosting approximately 150 members with several R & D firms such as Arçelik, Havelsan, Tundra, Hermes, Viveka, V-Count, university students from different levels of education such as undergraduate, graduate and doctoral students there are also some startups and individuals who prefer to work at CoZone from various disciplines such as lawyers, accountants, freelancers.

CoZone offers four types of membership plans for its users, such as private space, fix desk, co-working, and virtual office (Figure 3 12). The private space plan is an enclosed office unit suitable for individual and teamwork for 2 to 10 people. Fix desk plan, on the other hand, allows members to select a desk for themselves in an enclosed

office space. In the co-working, plan members can benefit from non-dedicated workstations (hot desk) in the common work area. Last but not least, in virtual office plan members use the CoZone’s address and be a part of the co-working community in a virtual platform. All of these membership plans offer some level of access to the meeting spaces with limited hours and allow clients or guests to visit.

The co-working membership plan can be preferred according to various periods as well since the co-working space is open 24/7 it is possible to work at nights. The varying co-working models are below:

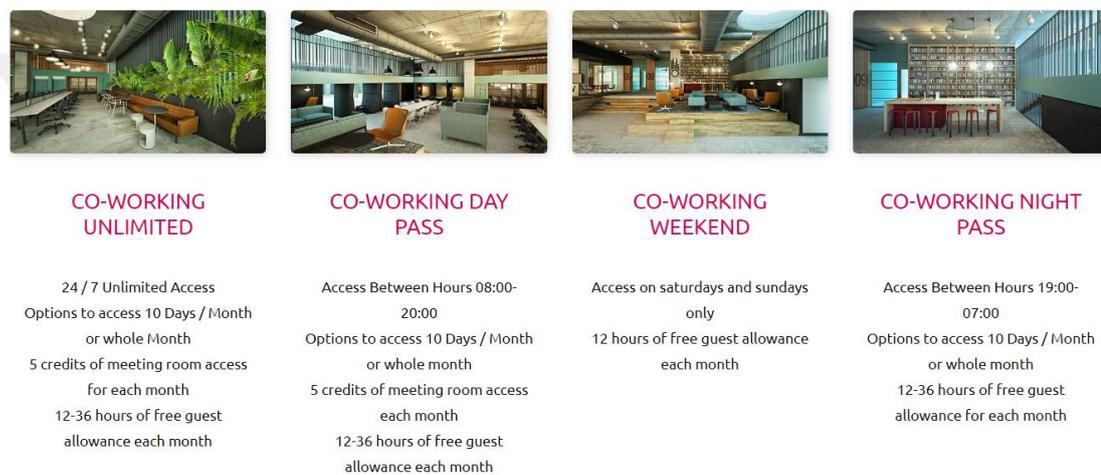


Figure 3.16. Membership types (Source: CoZone)

Since CoZone is located within the existing structure, the amount of intervention to the building is limited. However, there are some taken design decisions regarding access to the higher level of the building such as the pedestrian circulation which is provided by semi-permeable bridges that surround the co-working space in order to maintain a visual relationship between CoZone and passersby. Other than these bridges which could be perceived as a semi-public zone, the co-working space does not have any spaces open to public access. Apart from public events, the venue has been allocated only to members and their guests. This venue starts from the reception area located in the building and offers spatial arrangements (Figure 3.17) for different activities such as various work modes, formal and informal meetings, and socializing

activities. For instance, there are three different sized kitchenettes located in the layout with one across the main entrance, the other close to the center and the last one near the event space. These areas that work as social spaces as well are directly connected with the open workspace.

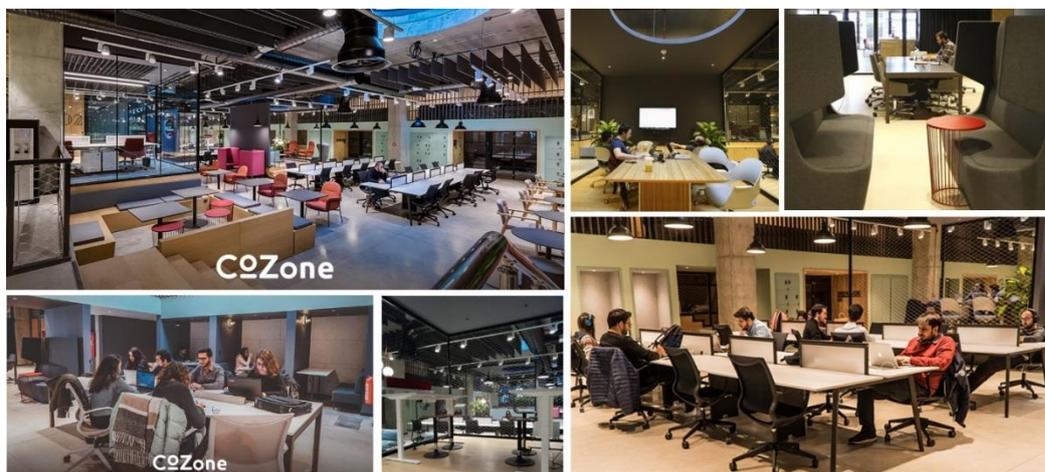


Figure 3.17. CoZone openwork settings (Source: CoZone)

The open workspace facilitates different settings for informal meetings, Skype calls, and work modes such as co-working and working alone (Figure 3.18). This open space consists of non-dedicated workstations.

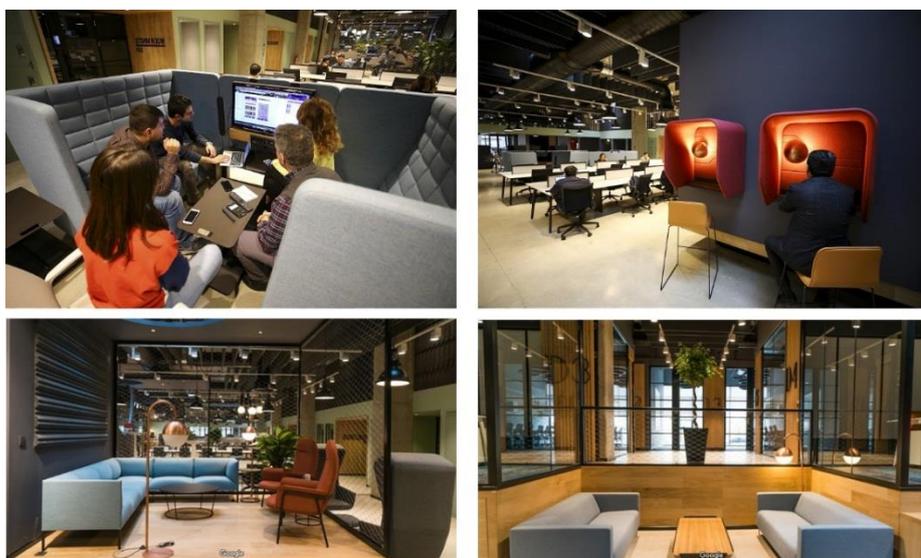


Figure 3.18. Informal meeting arrangements (Source: CoZone)

Other than the open workspace CoZone provides 33 enclosed office space with 28 of them functioning as private offices usually for teams and the other five rooms as fixed desks. The private rooms that are currently 85% in use are located in a specialized area separated from the open workspace with a corridor and rooms for fixed desks. The fixed rooms, on the other hand, are positioned in the glass boxes which have a closer relationship with the open area. The glass walls of these rooms provide a visual connection to the rest of the workspace. This positioning of the workspaces in the layout causes the formation of 3 axes for various modes of co-working side by side, such as public, semi-private, and private (Figure 3.19).

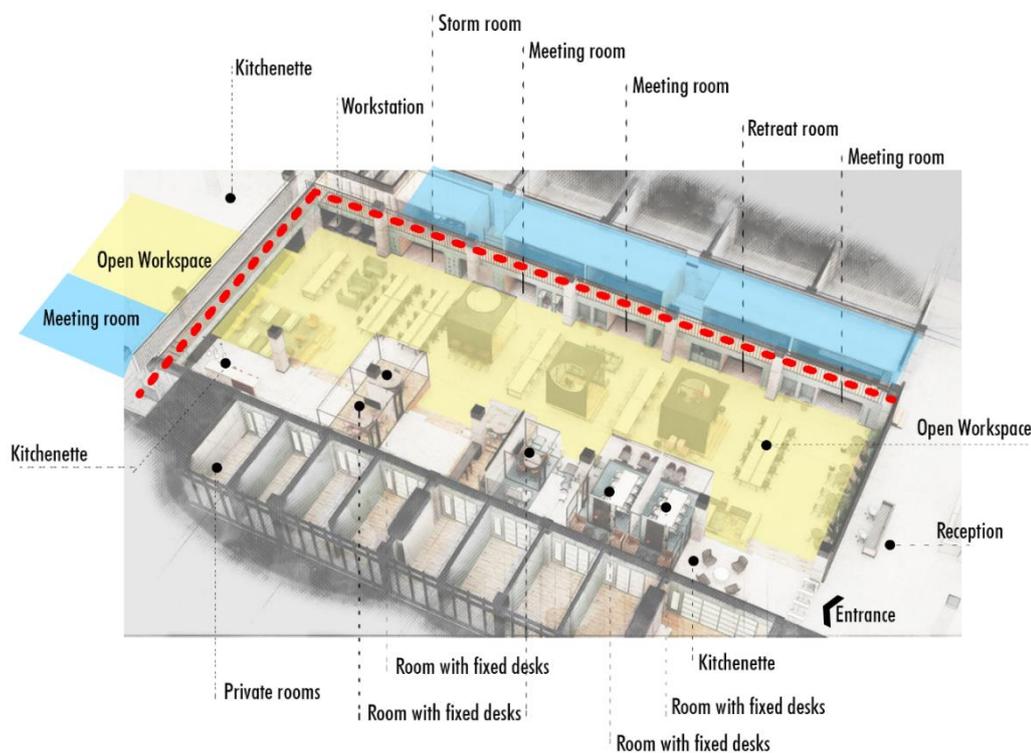


Figure 3.19. Atölye Plan Layout (Source: Author)

There are also several spaces for formal meetings (Figure 3.19) that are located on the other side of the open workspace. These meeting rooms that are designed for hosting a various number of people are reserved through an app in a digital platform (Figure

3.20). The same platform is also beneficial for creating a network and is designed to enable individuals or companies to reach people from different fields.

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Figure 3.20. Image from the app (Source: CoZone)

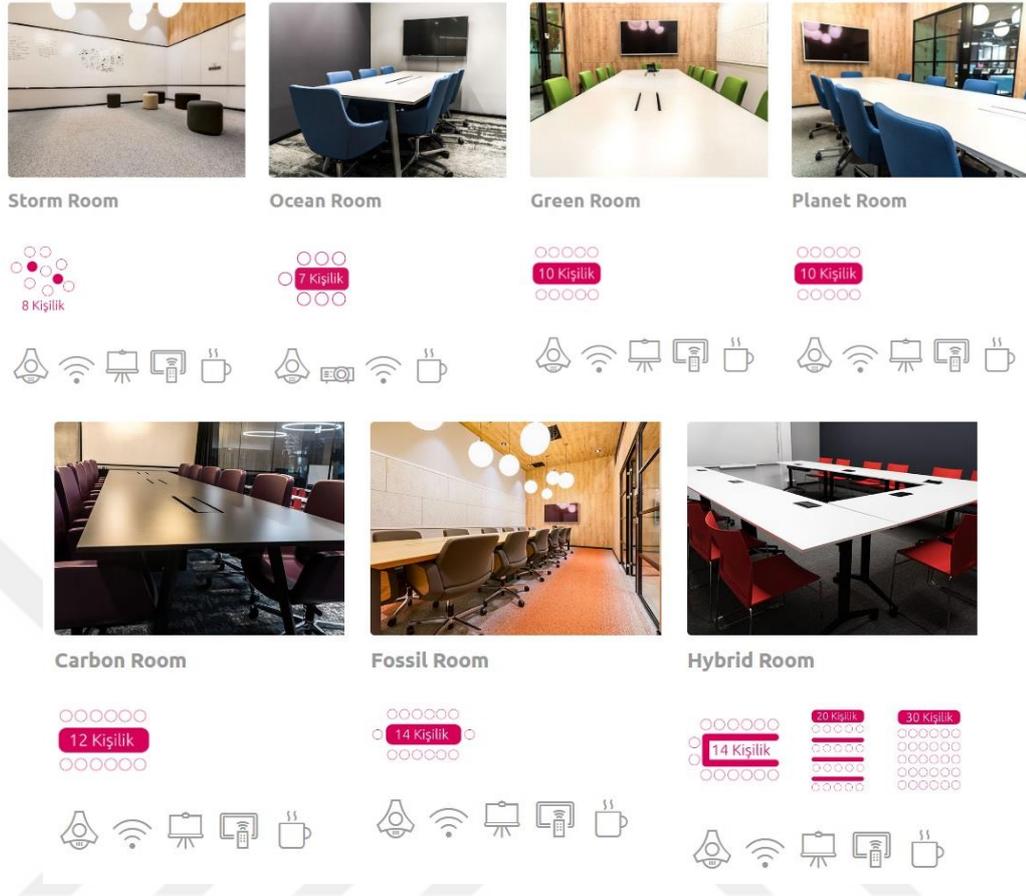


Figure 3.21. CoZone meeting rooms (Source: CoZone)

The purpose of establishing a network and opportunity to create interaction among coworkers is aimed to provide through the events as well. According to the interviews, there are several events that are frequently organized by CoZone that encourages members to meet entrepreneurs and socialize.

First one is “Growth Circuit CoZone Investor Breakfasts” which is as the name suggests is an event series where CoZone hosts investors and experienced entrepreneurs to share their point of view on technology, startups, and ventures. So far CoZone hosted several investors such as Atıl Erken (founding partner of Collective Spark), Dilek Dayınlı (founder and Managing Partner at ScaleX Ventures), Gülsüm Çıracı (founder partner of “startupfon” funding platform), Hulusi Berik (Co-founder of Keiretsu Forum investor network) and Numan Numan (Co-founder of “212”

Venture Capital). Whereas the second one “CoZone Colors” could be defined as more creative focused event series aimed to create opportunities to share experiences and knowledge on different topics such as photography, writing, art & creativity, economy, through panel discussions and presentations. There are also gathering for yoga sessions and happy hours for socializing.

Other than these frequent gatherings, there are also events that are hosted by CoZone by providing the venue such as hackathons, panels, and presentations. It appears that the majority of these events are related to entrepreneurship and technology. These events are hosted in the events space with a capacity of 200 people. The event space offers an Amphi seating arrangement as well as a flexible sitting area.

3.3. Analysis

This section of the thesis is dedicated to the analysis of aspects of the suggested brief and their relations to each other. In order to navigate through the data that will be examined in the analysis, a summary has been extracted from the previous section, that gathered information regarding Atölye İstanbul and CoZone.

Table 3.4. Summary of cases (Source: Author)

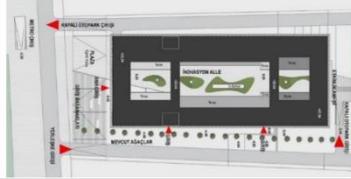
Summary of the data extracted from the cases	ATÖLYE İstanbul	CoZone
User profile of the facility and potential collaborators	The user profile of the Atölye could be explained as a combination of the community and the Atölye's team members (employees). The members are required to take part in 4 main clusters (Creative Industries Technology & Engineering Strategy & Business Development and Social Sciences & Community Building)	The facility hosts students from different levels of education, individuals from various disciplines (lawyers, accountants, freelancers), R & D firms, and startups. The leading target group could be explained as people who want an opportunity to develop their entrepreneurship by working among themselves and with different IT companies.
Located building	Repurposed Building	New Building
Locus of the facility	Atölye İstanbul is located in the existing 12,000 m2 Historical Bomonti Beer Factory in Şişli İstanbul. The venue is now entitled Bomontiada; currently, it is more of a commercial venue with cafes and restaurants. 	CoZone, on the other hand, is located within Technopolis Informatics Innovation Center (BİLİM) in Ankara, mostly surrounded by technology companies. 
Motives	Network connections, collaborations, being a part of the talent pool	Mind-hunting, network connections, collaborations
Interactions	"Family-like" close relationships between coworkers	More professional relationships between coworkers
Collaboration contents and durations	Predominantly product-oriented collaborations / short-term projects	Predominantly process-oriented collaborations / long term projects
Collaboration models	Constant collaboration between the individual community members who usually work alone and the Atölye team. Mainly operated under Spinnizu's "good partners" collaboration model which requires working together to ensure an end product.	Members seem to prioritize the application of Spinnizu's "good neighbors" collaboration model where members of the coworking space work alone together.

Table 3.5. Summary of cases (Source: Author)(Continued)

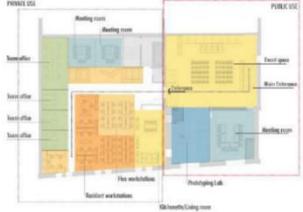
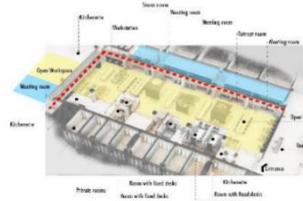
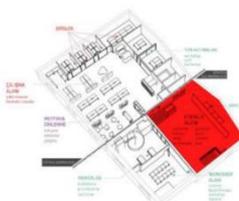
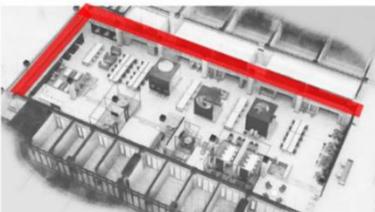
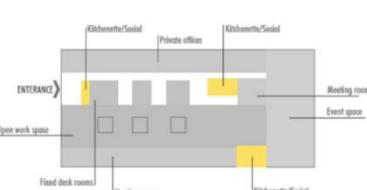
Collaboration strategies	adopts various strategies	adopts various strategies
Physical environment		
<p>Alternative function settings</p>	 <p>3 different meeting rooms</p> <p>Event space with a capacity of 120 standing and 80 sitting people</p> <p>Enclosed offices</p> <p>4 enclosed offices for team members</p> <p>Open workspace</p> <p>Hot desks</p> <p>Fixed desks</p> <p>2 nooks</p> <p>1 social space / kitchenette</p> <p>Prototype lab</p>	 <p>6 different meeting rooms with a capacity of up to 20</p> <p>200 people event space</p> <p>Enclosed offices</p> <p>28 enclosed private offices</p> <p>5 enclosed offices with fixed desks</p> <p>Open workspace</p> <p>Hotdesk</p> <p>Various informal meeting spaces</p> <p>Various settings for "working alone."</p> <p>3 different sized social space / kitchenette</p> <p>Break out rooms</p>
<p>Visibility</p>		
<p>Privacy and proximity</p>		
<p>Centralization of social spaces</p>		

Table 3.6. Summary of cases (Source: Author) (Continued)

<p>Events</p>	<p>Especially the professional community events seem to be project/product oriented. The primary purpose of these events is sharing the method of applying an idea. 101 sessions, feedback sessions, and prototyping workshops are used in order to give practical information that could be necessary to proceed with a project. For the public events some of them belong to the lifestyle domain, including social gatherings or activities such as Yoga or Rhythm Circle. The rest of the event contents vary between domains such as Creativity, Design, Entrepreneurship, and Technology but only %9 of them are related to the business side of ventures.</p>	<p>It seems like other than the "CoZone Colours" event series the majority of the events follow the theme of innovation and entrepreneurship. The gatherings that CoZone organizes and hosts mostly serve to create network connections and share experiences related to the incubation period of a startup such as "Investor Breakfasts" rather than teaching how to produce a product. ("Investor Breakfasts", "CoZone Color" events, panels or discussions regarding ventures and network and six events from varying topics)</p>
<p>Regulation of coworkers</p>	<p>occurs</p>	<p>occurs</p>

The relations between the directly related first layer of factors and the collateral factors (Figure 3 21) will be analyzed through the guidance of related data summary.

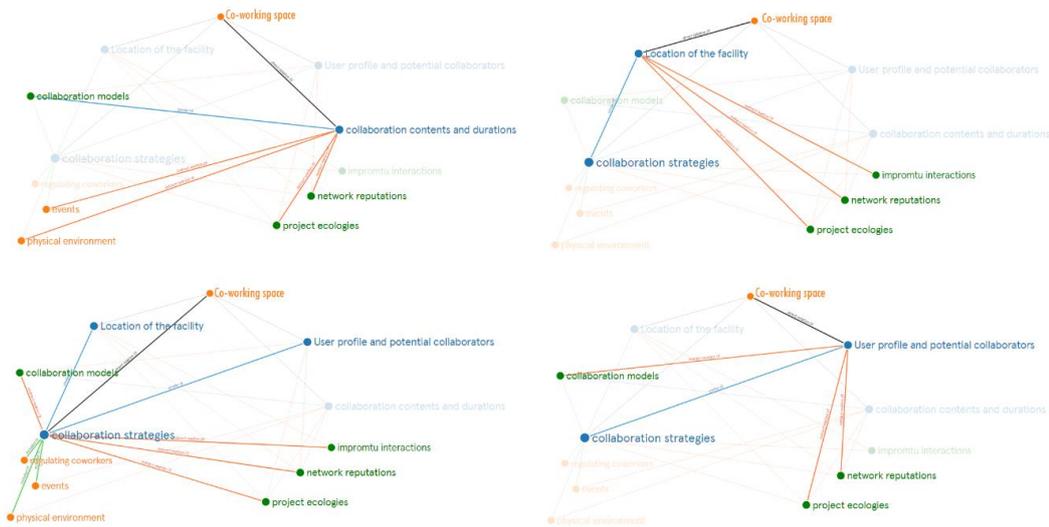


Figure 3.22. Factor relations (Source: Author)

1. User profile of the facility and potential collaborators

This section is dedicated to the user profile and potential collaborators factor, which vary with the influence of coworking space. The second layer of factors such as collaboration models, project ecologies, network reputations and collaboration strategies which were affected by user profile will be examined below (Figure 3 21).

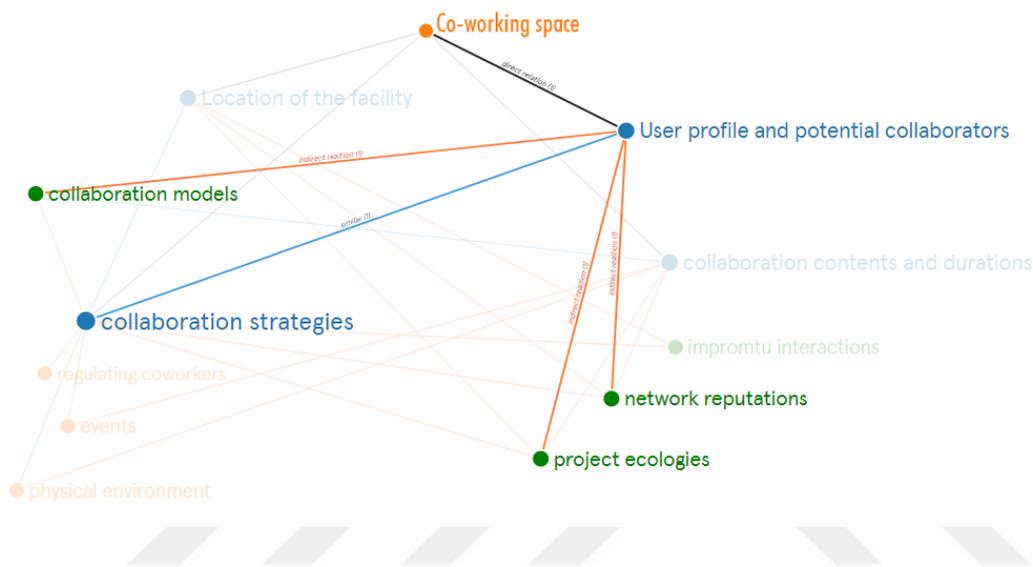


Figure 3.23. Co-working spaces' influence on user profile and potential collaborators

- **Collaboration models**

The change in the user profile seems to affect the collation pattern between the potential collaborators. The first differentiation can be determined as the member's position as a team member, an individual, or a part of a known company. For instance, in Atölye, there is a constant collaboration between the individual community members who usually work alone and the Atölye team. However, the collaboration between them seems to prioritize Atölye projects rather than the individual ones, which causes everyone to work on collective projects mostly for the benefit of the Atölye as a brand. The interviews with the staff and the statement of the facility on

their website indicate that the collective projects of the creative industry are mainly operated under Spinnizu's 'good partners' collaboration model which requires working together to ensure an end product. This constant state of working together seems to prevent individual projects from causing a significant amount of competitiveness between coworkers since the projects are often open to feedback and collaborations between coworkers. According to interviews, everyone in this creative cluster is more or less aware of each other's projects which also influences the necessary spatial solutions that the facility offers. This awareness originates from the confidentiality levels of the collaboration contents, which is influenced by the potential collaborators' motivation and their willingness to share information.

On the other hand, the CoZone community includes several firms, technology companies, and entrepreneurs working in similar industries, which causes the emergence of a competitive environment since the collective nature of projects is often limited. It is possible to say in this context that this user profile challenges the community such as Adler et al. (2008) states "The forces of capitalist competition,...., simultaneously tend to both destroy and to recreate a community." Since the confidentiality levels of the collaboration contents are higher between firms in the technological industries, the companies and entrepreneurs tend to be cautious of the risk of exploitation; therefore, prefer to limit sharing their knowledge and keep new ideas confidential in the competitive nature of the economy. Potential collaborators' preference towards limiting their knowledge sharing dynamics with the rest of the community affects the preferred collaboration models as well. As oppose to Atölye, CoZone members seem to prioritize the application of Spinnizu's "good neighbors" collaboration model where members of the coworking space work alone together.

In the end, the analysis shows that even though both cases accommodate Spinnizu's both collaboration models at the same time, creative sectors, which mostly include individuals due to their occupations, enable a large number of collaborations; therefore, emphasis on the good partners model. Whereas technological sector that mostly operates through technological firms and startups leans towards "good

neighbors” model due to the limited need for partnerships and demand for confidentiality.

- **Collaboration strategies:**

The differentiation of potential collaborators and user profile between sectors influences several collaboration strategies that facilities adopt, such as decisions regarding physical environment and organizations of the events.

- o **Physical environment:**

Limiting their knowledge sharing dynamics with the rest of the community might cause constraints in their interactions within or out of the community as well. It is possible to say that this differentiation in interaction levels reflects in the spatial settings as well. The layout follows the need for various settings with informal meeting areas and workspaces for different levels of privacy requirements due to the high probability of confidential information.

For instance, in Atölye, the flex members and the resident members are working together in very close proximity. Other than the plants and on a few occasions, mesh separator modules, there are no architectural elements that provide privacy in the co-working area. The same situation is also valid for the team room, which does not provide any separation other than the orientation of the tables. The reason for this lack of privacy between coworkers is that many of the individuals that work in the facility create projects that could benefit the community as well. The collaborations are not concealed because the community already functions as a talent pool and share their process through the feedback sessions. The minimal need for confidentiality in Atölye corresponds to centralized open workspace that aims to enable shared knowledge. The open space corresponds to immediate feedbacks and frequent short-term partnerships that come with constant visual contact.

For CoZone, on the other hand, the limited need of firms and companies for short-term partnerships and the necessity to work longer on the process corresponds to

alternative workspaces that are used for working alone or as teams. The user profile's preference towards confidentiality of their collaborations causes the formation of more private spatial arrangements.

2. Collaboration contents and durations:

The projects they accommodate do not show extreme variety and generally seem consistent between themselves. For instance, after gathering information about these facilities through interviews, observations and their websites, it is realized that while a creative business that Atölye specializes allows many short-term projects that result as a physical product and the technological entrepreneurship that CoZone supports might need a development process in the long term.

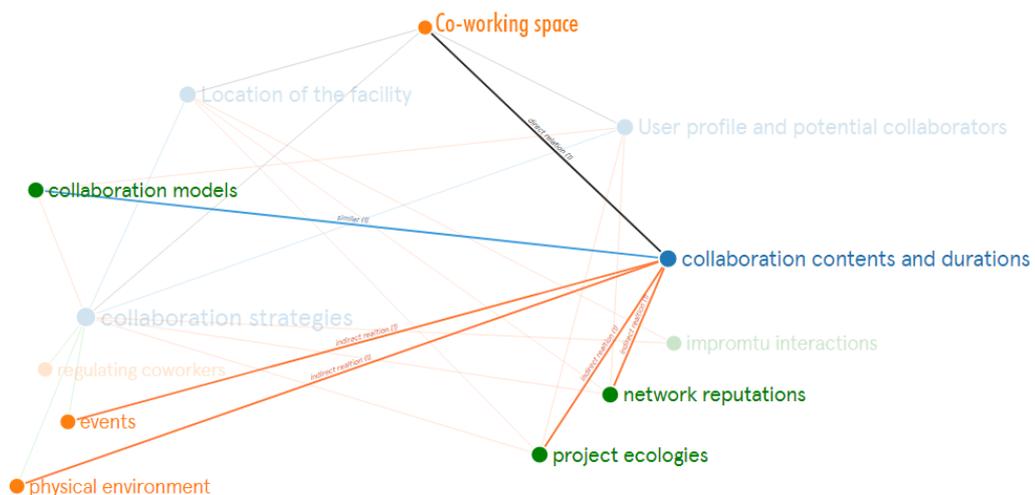


Figure 3.24. Co-working space's influence on collaboration content and duration

This section is dedicated to the coworking spaces' influence on collaboration contents and durations (Figure 3 20) and their influence on second layer of factors such as network reputations, project ecologies, and events and physical environment from collaboration strategies.

- **Network reputations:**

According to the interviews with staff and the examination of the collaborations, the creative inclination of the Atölye causes collaborations to be shorter and product-oriented projects. Such as the small project, “cat house” example where a staff member suggests building a living space for cats to live during winter.

Researcher: “Örnek verebilir misiniz peki bu farklı projelere?”

Staff member:” Ben mesela buradaki prototip labında geçen aylarda bir kedi evi üretimi istedim..hani beni böyle bir düşüncem var ne yapabilirim nasıl yardımcı olabilirsiniz diye...prototype lab, tasarımcılar falan hepsi destek çıktı... Amaç sadece kedi evi ama hepsi konuşulabildi...”

The mostly brief duration of these projects causes increased product-oriented business relationships and short-term partnerships. These short-term collaborations influence the number of projects that are worked on and often leads to a situation of working with different partners in new projects. According to the interviews, these increased frequency of changing partners causes network reputations to form faster. However, since the extent of creative projects is limited, it seems to be necessary to take part in more projects to refer to the previous job in order to prove one’s reliability and reputation.

On the other hand, in CoZone, the collaborations are mostly related to technology and entrepreneurship, which seems to rely on the process rather than the end-product. Therefore, the collaboration durations are longer, and content is more comprehensive. The increasing duration of collaborations decreases the number of projects that are worked on and cause the emergence of long-term partnerships in fewer projects.

This situation influences the network reputations by spreading the formation of the said reputations to a more extended time period. However, as opposed to the creative sector, the network reputations are more reliable since it is formed between large projects and mostly known companies.

As a result, it is possible to say that the sectoral inclination of the facility influences the collaboration contents and durations and therefore effects the formation and reliability of network reputations.

- **Project ecologies**

The definition of a project ecology is an organizational arena that enables necessities such as resources, organizational networks between partners, and the physical environment until the completion of the specific project. In this context, since the content of the Atölye collaborations are often oriented towards the creative sector and end products, the project characteristics and needs are mostly similar. Therefore, the organizational arena does not require contradictory solutions for each project.

When the Atölye case is examined, it is seen that the facility has more potential to create a project ecology compared to coworking areas without a specific focus.

As a result, it is possible to say that the sectoral inclination of the facility causes the contents of the collaborations to be similar within themselves, therefore enables the generation of an organizational platform that can fulfill the needs of specific projects.

- **Collaboration strategies**

The project contents and durations also affect the decisions regarding the event and physical environment from the collaborative strategies that are adopted by the facility.

For Atölye, the events that are organized generally focus on the project production methods and solutions that emerged as a result of the creative process. However, in CoZone, since more collaborations are about business building and technology, the events focus on the aspects of entrepreneurship.

Since the content of the collaborations is product-oriented, it also influences the decisions regarding the physical environment. The use of prototyping labs or writable surfaces and the mobility of all furniture originate from the instant short-term collaborations.

For CoZone, since there is no immediate physical product, there is no need for a lab to produce it. Instead, the focus is on informal and formal meeting spaces and on-site workplaces, where strategic decisions regarding the process are taken.

In other words, while the creative sector requires a physical environment suitable for instant collaborations and short collisions for the product, technological entrepreneurship creates a need for long meetings and constant discussions.

The sectors changed the collation times and contents and indirectly affected the event content and the shaping decisions of the space.

3. Locus of the facility:

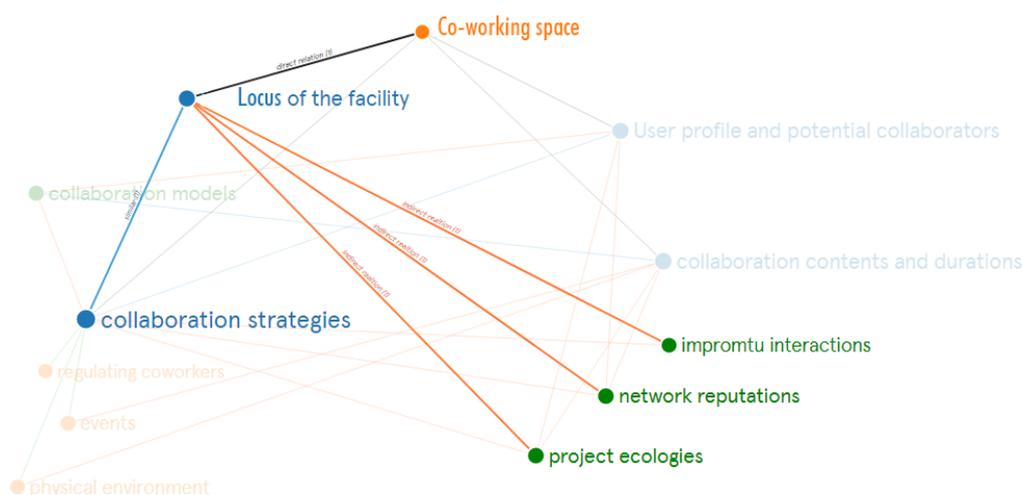


Figure 3.25. Co-working spaces' influence on the locus of the facility

Even though the decision to locate the facility provides several benefits, it is rather difficult to claim that there is a direct link between coworking spaces' locations in the city and the sectoral inclination of the facility. Instead, the facilities' proximity to other venues appears to have more influence on the collaboration factors such as network reputation, impromptu interactions, and the emergence of project ecologies than the location(Figure 3 22).

- **Network reputation and Impromptu interactions:**

CoZone is located in a building where the facility is surrounded by firms and companies from similar industries, which causes METU building to function as a technology cluster on its own. As was stated previously in the user profile section, CoZone accommodates members from other companies who are essentially located within the same building with the motivation of mind hunting and creating network connections which cause the emergence second level of a technological cluster as known as CoZone. The emergence of these interrelated sectoral clusters and spontaneous encounters between them, due to close proximity, create the potential for collaboration among similar firms and ultimately causes network reputation to spread faster.

On the other hand, for Atölye, the location of the facility proves to be irrelevant to the sector and collaborations in the facility. The facility functions as a more closed cluster which mostly accommodates individuals and the Atölye team. According to the interviews the extent of the potential collaborations that are limited. Therefore, the impromptu interactions of individuals do not seem to have the same effect on network reputations as firms.

It appears that each coworking space is forming their own network reputations and project ecologies in their own clusters. While the spatial aspect of the project ecology of the Atölye is only spread within the 650m² area where it is located due to the nature of creative work which requires more proximity, for CoZone since the extend of projects are wider.

4. Facilities' adopted collaboration strategies:

The next aspect the “Facilities' adopted collaboration strategies” which turned into the more detailed category is examined under several sub-categories such as;

- Facilities' adopted collaboration strategies:
 - Physical environment
 - Alternative function settings
 - Visibility
 - Privacy and proximity
 - Centralization of social spaces
 - Events
 - Regulation of coworkers

While analyzing the effects of these strategies on collaboration, it is not possible to claim that this category is isolated from the other aspects of collaboration. Therefore, the study will discuss this factor's influence on the second layer of factors such as the emergence of project ecologies, network reputations, and impromptu interactions (Figure 3 25).

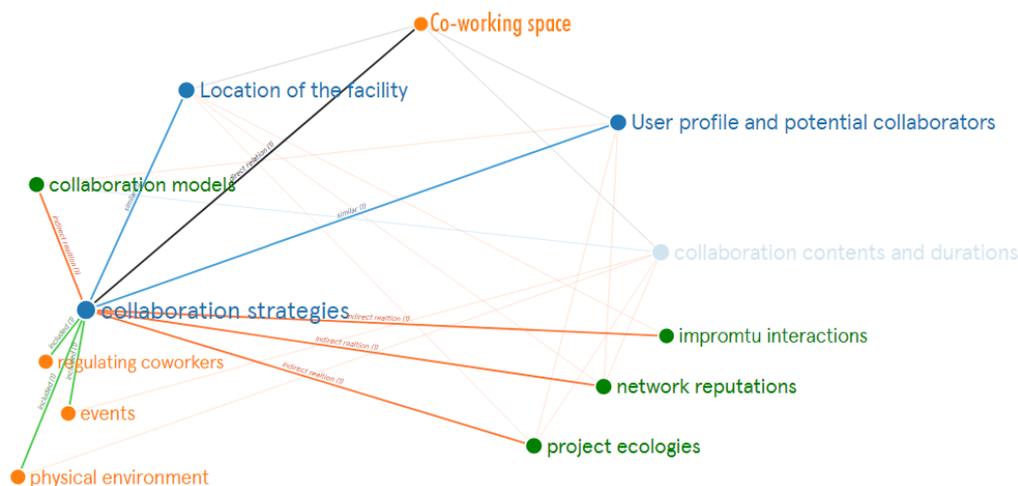


Figure 3.26. Co-working spaces' influence on collaboration strategies

The firstly the strategy which is presented as the “Physical environment” will be discussed. This strategy generates from the need for physical space that will enable the said interaction and collaboration between specific user groups. From the data extracted in the previous sections, it is possible to say that both facilities have different approaches toward the physical space.

Regarding the physical space, Atölye state that they prioritize the emergence of their ‘community’ rather than the environment they provide, hence their preference towards location, in the repurposed beer factory. They reckon their target user group already knows the collaboration potential of the facility and their target groups’ preference for the facility is not related with the buildings condition. The interviews with other members of the community seems to support this claim.

CoZone, on the other hand, is located in a new building, however the physical space is not particularly built for CoZone. Therefore, the design decision regarding the physical space other than spatial arrangements, were not made by CoZone.

In the end the condition of the building, whether it is a new building or a repurposed one, does not seem to affect collaboration directly.

In order to acquire more detail into the physical spaces’ influence on collaboration, the sub-categories will be discussed as well.

For the “Alternative function settings” sub-category, as it was mentioned in the summary table while both of the facilities provide space solutions for various functions such as working, socializing, resting and collaborating with workstations, informal seating area, breakout space, kitchen/coffee, reception desk, printer/copy to some extent, the scale and the purpose of the said spaces alter the spatial arrangement decisions. For instance, even though Atölye equipped for socializing, resting, and collaborating, it is rather difficult to claim that the facility has areas devoted to different work types other than co-working. Other than the meeting rooms, the only dedicated separate spaces for work are occupied by team members who are also working together. In Atölye, all the space is utilizing the act of co-working for the

community. When it comes to CoZone however, every user group has a workspace that can accommodate their needs. While the facility still encourages co-working, it also provides alternative workspaces in various spots for individual work. The design decision regarding the extent of providing alternative function settings seems to guide the member towards to work together or work alone. This guidance also assists the formation of collaboration models.

Regarding the “visibility” sub-category, it is possible to say both facilities provide semi-public zones in the layout that are used in order to exhibit the purpose of the space to the potential members (Figure 3 26). For instance, Atölye’s semi-public zone is the event space near the entrance. This zone has a visual connection to the prototyping lab, which is separated from the lab with a glass wall. This conscious decision to use transparent separator stems from the desire to show the physical correspondence of their projects to the people who attend the events.



Figure 3.27. Semi-public zones (Source: Author)

CoZone implements the same approach with another purpose because this facility initially works as a physical network platform. Even the companies that have offices in the same building prefer to rent a space at the CoZone with the motivation of “network hunting,” “mind hunting,” and to establish new business connections. Hence in order to make this network environment visible, the semi-public areas at the CoZone are introduced as circulation routes that surround the open workspace. These circulation routes that are positioned on a higher level allow passerby and potential

members to observe the co-working area, the kitchen/cafes, and the fixed desk offices located in glass boxes.

Both facilities benefit from their physical environments in order to exhibit the organization of their offered services. While the creative sector focuses on showing the production area, which is perceived as an indication of the product-based project environment, technological entrepreneurship focuses on the creation of network connections. The spatial arrangements of both cases display the strong suits of their facilities and aim to attract similar minded people. Exhibition of the relations between individuals, firms and the facility serve as a reference from the reputation of the facility for the potential future collaborators.

From the data that was gathered it is possible to say that the influence of the visibility mostly affects the provided conditions that enable collaboration potentials, such as workers' or visitors' awareness of potential collaborators and enabling possible conscious or chance encounters and conditions for reinforcing network reputation, rather than effecting coworking and collaborative act itself.

The matter of privacy and proximity is another factor that will be discussed for Atölye and CoZone cases. For Atölye, there are two sides to privacy. One of them is the boundaries they draw between the public and the community. According to interviews, Atölye prefers to preserve the internal affairs of the organization and would not prefer to cause a distraction to the community who are working at the space. In order to ensure this segregation, the facility used the existing division to separate the space into two sections on the layout as private and public zones. The public zone that consists of event space and prototyping lab and functions as a buffer zone. The access to the private zone is provided through a staircase which aids in limiting the entrance of visitors.

The other side of the privacy matter occurs in the zone that is dedicated to the community and the team members. Even though there is a clear distinction between the public and community, the same approach is necessarily not evident in the private

zone. The flex members and the resident members are working together in very close proximity. Other than the plants and on a few occasions, mesh separator modules, there are no architectural elements that provide privacy in the co-working area. The same situation is also valid for the team room, which does not provide any separation other than the orientation of the tables. The reason for this lack of privacy between coworkers is that many of the individuals that work in there create projects that could benefit the community as well.

For CoZone it is possible to say the facility offers various privacy levels that can accommodate different needs. There are three primary arrangements for working that can be mentioned, such as enclosed private offices for teams, again enclosed private offices for fixed desks and open workspace. The open workspace also offers several settings for individual work and co-working. The differentiation in the layout is caused by the nature of the projects and user groups that CoZone hosts. Unlike Atölye, more private ventures are exclusive to specific companies that do not affect other people in the facility.

Another sub-category the “Centralization of the social spaces” such as kitchenette/cafes, which proves to be the source of social interactions, is used as a design strategy for both establishments (Figure 3 27). The facilities position their social areas according to the space they occupy and the relationships they want to maintain between coworkers. For example, Atölye, which is spread over 650m² area, provides one kitchenette near the co-working area that urges all coworkers to be familiar with each other because it is indeed functioning as a center of attention because of its location in the layout. It is also visible from the open work area apart from the bookcase dividers. It causes everyone to notice new faces immediately. Whereas CoZone that covers the approximately 2300m² area and offers three different sized social areas that are distributed through the layout.

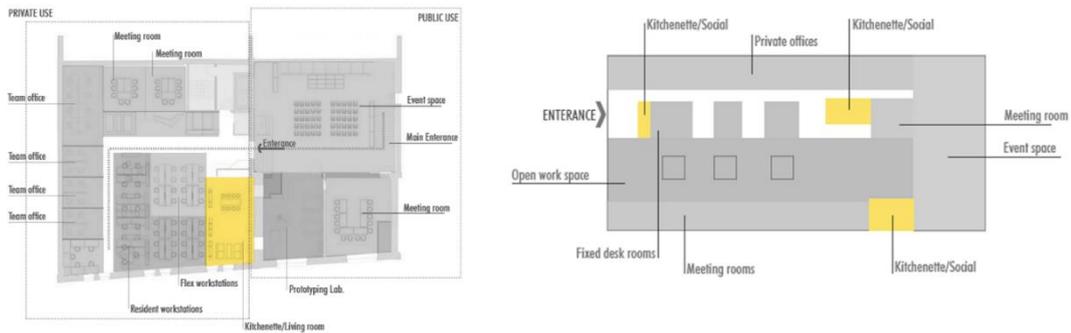


Figure 3.28. Social spaces (Source: Author)

The centralizing the social spaces influences the visitor-member and member-member, enables impromptu interactions and spontaneous encounters and affects workers' or visitors' awareness of potential collaborators which might lead to potential collaborations. The effects related to centralization are evident in the observations as well. During the site visit the researcher also witnessed several impromptu interactions which led the potential collaborators to engage and decide to work together on a project.

Another strategy that coworking spaces adopt is the “events” that provides convenient conditions for their users to engage and create network connection such as business presentations, weekly seminars, exhibitions, project or product reviews, debates, conferences or brainstorming sessions (Spinuzzi, 2012; Joachim, Roche, Hubert, 2015). Since these events are designed to bring people together and support collaborations between them, the “event” category is determined as one of the sub-categories that aid this study.

Atölye and CoZone both organize and hosts various events. However, even though they provide social and professional events, the content of the said gatherings differentiates along with the business inclination of the facilities and preference of the user groups. For the case of Atölye, especially the professional community events, seem to be project/product oriented. The primary purpose of these events is sharing the method of applying an idea.

For CoZone, so far, from the 6 “Investor Breakfasts,” 6 “CoZone Color” events, nine panels or discussions regarding ventures and network and six events from varying topics, it seems like the majority of the events follow the theme of innovation and entrepreneurship. The gatherings that CoZone organizes and hosts mostly serve to create network connections and share experiences related to the incubation period of a startup such as “Investor Breakfasts” rather than teaching how to produce a product.

In both cases, the events are related to their facilities’ sectoral inclination, therefore functions as a demonstration of how the collaborations and interactions between coworkers proceed. The events that are organized by the members are perceived as a way for members to present themselves to potential collaborators. The events for both sectors serve as a tool for coworkers to improve their network reputations by displaying their expertise.

Another effect of “events” can be discussed regarding project ecologies. The definition of project ecology indicates a change in resources such as events with each new project. The alteration of the events corresponds to the modification of resources as well. For instance, while providing events, creative sectors need to focus on the primary purpose of sharing the method of applying an idea since the collaboration contents are mainly physical. On the other hand, technological entrepreneurship focuses on building a business, and startups require information regarding creating network connections and sharing experiences related to the incubation period of a startup. The existence of a sectoral focus of the facility provides appropriate environments and resources for specialized project ecologies since the resources are coherent within their clusters.

Last but not least, “Regulation of coworkers” added to the category since the previous research indicated that, the relationship between user profile and collaboration is also related to the facility managers' preference towards a curation process for coworkers.

CHAPTER 4

CONCLUSION

With the changing work practices and worker profiles, the shared workspaces that accommodate knowledge workers from various backgrounds, different disciplines, and provide environments for them to work together and collaborate increased. Although these co-working spaces have been studied by scholarly a lot, there are still not many studies with the focus on these spaces' influence of collaboration in more than one aspect, especially in Turkey.

In order to fill the lack in the literature and propose a future implementation of potential collaboration and coworking types and spaces, this thesis examines two cases that serve different industries, have such as Atölye for creative business and CoZone for technological entrepreneurship.

Each chapter of the study provides another notion of co-working spaces; therefore, it suggests another critical point. For instance, first section of the literature study examines the changing aspects of work such as work practices, worker profiles, and workplaces. The section mentions the emergence of concepts such as knowledge workers, digital nomads and remote workers. The core of the section states that with new line of jobs in current economy, the worker profile and their needs from workplaces and practices changed. More mobile, technology-enabled working practices such “flexible working” “activity-based working” and “agile working emerged (Harris, 2015; Gibson, 2003). Work turned into time-pressured, team-based collaborative tasks rather than individual efforts (Harris, 2015; Kingma,2018). With the more flexible work practices working is said to lose its dependency on time and place, and as a result of this mobility, the need for a fixed location or space to work is believed to be irrelevant. (Gibson, 2003). This temporal and spatial flexibility of

current work practices led the thesis to discuss Oldenburg's third-place concept that focuses on work. The introduction of these third places that accommodate current work practices led case selection process to evolve around the coworking spaces.

In the second and third sections, theoretical background research dedicated to the characteristics of coworking and collaboration that coworking spaces facilitate in order to gain insight regarding the emergence of collaboration in current work environments. From the literature review several vital notions and concepts are retracted and presented in the last section of the second chapter. The highlights of the literature review are determined as; the essential role of user profile and communities for coworking spaces, importance of impromptu interactions and chance encounters, significance of collaboration in coworking spaces, contribution of collaboration strategies, role of network reputation and swift trust, collaboration contents and durations and lastly the emergence of goal-focus temporary systems and Project ecologies.

From these highlights, several factors that assist in the emergence of collaboration are extracted. Since none of these factors can be examined without the consideration of their influence on the others, the researcher mapped out the relationships between these factors.

- User profile of the facility and potential collaborators
 - Teams/individuals/companies
 - Occupations
 - Motivations
- Collaboration models
- Collaboration contents and durations
- Facilities' adopted collaboration strategies:
 - Physical environment
 - Alternative function settings
 - Visibility

- Privacy and proximity
- Centralization of social spaces
- Events
- Regulation of coworkers
- Locus of the facility
- Network reputation and swift trust
- Impromptu interactions
- The emergence of Project ecologies

These factors examined in the main two layers. The analysis section of the thesis examines the first layer of factors through the data extracted from interviews, websites, and observations and studies their relation to second layer of factors.

The first layer of interrelated factors (Figure 5 1) is determined as below since the influence of the facility directly affects them.

1. User profile of the facility and potential collaborators
2. Collaboration contents and durations
3. Facilities' adopted collaboration strategies
4. Locus of the facility

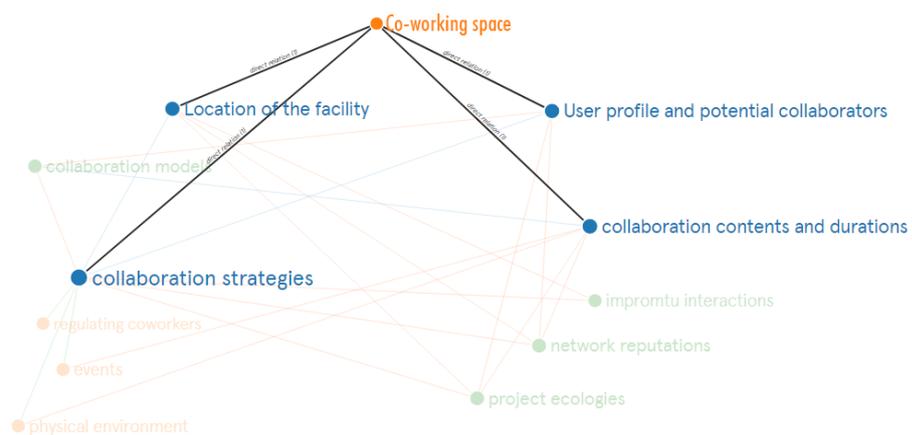


Figure 4.1. First layer of factors (Source: Author)

The factors in the first layer are examined by considering their relations to each other and the relations of second layer.

These analyses and examinations revealed several results. Some of the results were evident such as the influence of sectors on user profiles, whether users' status as working alone or as part of a company affects the interaction and trust bond between coworkers, different trust levels between community members that become project partners due to the potential competitive environment. However, there are some revelations that are not as easily predicted.

One of the critical findings of analysis is the sectors' effect on collaboration contents and durations. According analysis and the examination of the collaborations, the creative inclination of a facility causes collaborations to be shorter and product-oriented projects. The mostly brief duration of these projects causes increased product-oriented business relationships and short-term partnerships. These short-term collaborations influence the number of projects that are worked on and often leads to a situation of working with different partners in new projects. According to the interviews, these increased frequency of changing partners causes network reputations to form faster. However, since the extent of creative projects is limited, it seems to be necessary to take part in more projects to refer to the previous job in order to prove one's reliability and reputation.

On the other hand, in facilities where the collaborations are mostly related to technology and entrepreneurship collaborations contents rely on the process rather than the end-product. Therefore, the collaboration durations are longer, and content is more comprehensive. The increasing duration of collaborations decreases the number of projects that are worked on and cause the emergence of long-term partnerships in fewer projects. This situation influences the network reputations by spreading the formation of the said reputations to a more extended time period. However, as opposed to the creative sector, the network reputations are more reliable since it is formed between large projects and mostly known companies.

As a result, it is possible to say that the sectoral inclination of the facility influences the collaboration contents; the contents affect the durations of collaborations and therefore effects the formation and reliability of network reputations within the facility.

Another fundamental notion is that in each case from different sectors, the projects are mainly consistent in content, needs, and executives which prevents the frequent need for change with each new project. The minimum necessity for adjustment in the organizational arena that enables necessities such as resources, organizational networks between partners, and physical environment until the completion of the specific project causes specialized coworking spaces to create their own constant project ecologies. Therefore, according to the analysis, it is possible to say that each coworking space seems to create their own network connections and project ecologies with different attributes that fulfill the needs of their expertise area within the cluster of like-minded people.

According to the current conditions and the conclusions that are extracted from analysis with the evolving work practices and workers' needs for knowledge sharing environments where workers can interact with like-minded coworkers, the demand for coworking spaces will continue to increase. However, As Schopfel et al., states while co-working spaces aim to achieve interconnectedness and poly-centricity, in reality, these spaces often are conditioned by a specific business area and community (Schopfel et al., 2015). Therefore, the emergence and types of coworking spaces will change towards particular niches, and the majority of the coworking spaces will be conditioned by specific sectors. The studies that was mentioned in the previous chapters, (Foertsch, 2018) and Schopfel et al. (2015) supports this assumption by stating that the operators of co-working spaces anticipate more co-working spaces to focus on particular niches (Foertsch, 2018) and emphasizes the future expectations from coworking spaces by stating "Often, a co-working space will be conditioned by a particular business, an economic activity such as software development, multimedia or audiovisual design, with companies and start-ups...". Schopfel et al. (2015). In the

future, coworking spaces that function as niches will be increased, addressing a more defined sector instead of cowork areas with all kinds of employees from every profession. Individuals and companies will work in these niche work areas. As the cases show these particular niches will establish their own network reputations.

Moreover, since the sector these facilities focus on will be more defined, the resources and organizations that are needed for the resulting collaborations will be similar; therefore, each niche will function as its own project ecology. The collaborations between participants will work in layers, first in their own project ecologies than will reach for other sectors project ecologies. Therefore, there will be a need for a space that will accommodate and network ground for linking clustered project ecologies (niches) together. The situation will be essentially similar to current configuration (Figure 5 2). The interview with CoZone manager supports this argument with the mention of current demand for a space to enable network connections.

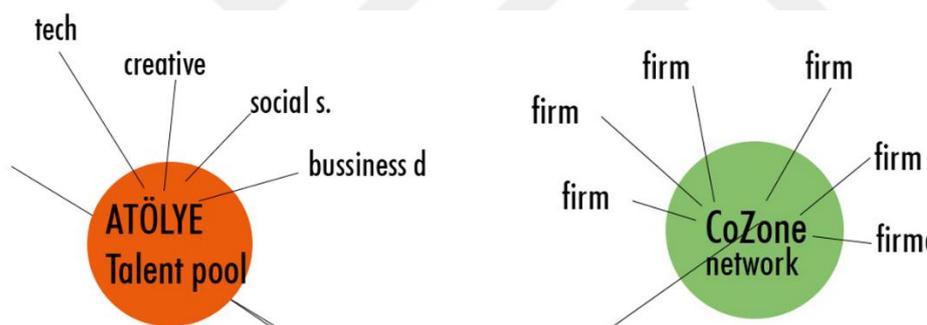


Figure 4.2. Current configuration of collaborative co-working spaces (Source: Author)

For example, in the Atölye, individuals from different creative clusters join the community with the intention of participating in collaborations and increasing their network reputation, and the Atölye uses the community as a talent pool. The curation process for the community members and interactions of the people working in the Atölye are provided by the community coordinator. It is evident that there is a similar situation in CoZone as well, where known companies place their team members to CoZone for mind hunting and creating network connections, even though they have their own offices in the same building.

These new-formed network areas will potentially work as talent pools such as CoZone or Atölye. Probably not directly through people, but perhaps by community coordinators sent by project ecologies to these areas. Network reputations will first occur in niches and then in these network environments through community coordinator who will display the collaborations each project ecology participates (Figure 5 3).

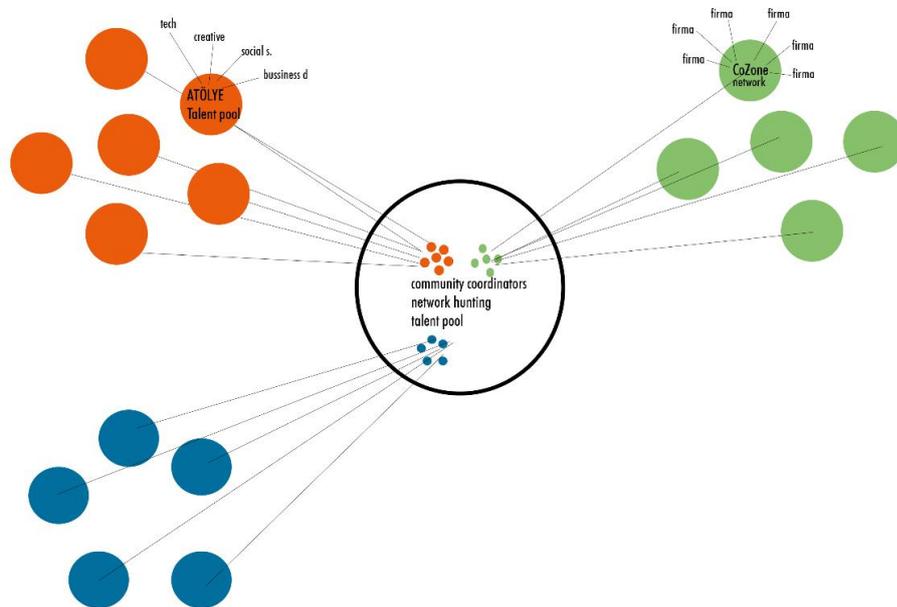


Figure 4.3. Future prospect of collaborative coworking spaces (Source: Author)

These network environments most likely have different spatial solutions than the coworking spaces since the priority of these spaces is to present project ecologies, potential collaborators, and create network connections rather than working together. Therefore, the necessity for alternative work settings most likely will be irrelevant. Instead, the formal and informal meeting spaces will increase in order to host two layers of interactions between different project ecologies. The first layer will be dedicated to the community coordinators who will be the representative of their

niches. The social spaces will be crucial for their interaction since their purpose will be to introduce their niches. The second layer, however, will probably require more private meeting spaces so the participants from different niches can discuss the collaboration process. In the end the collaborations factors that are influenced by the focused sectors will affect the collaboration environments and turn coworking spaces into project ecologies that generate their own network reputations as clusters.

To better understand the implications of the results of the analysis and challenge the future estimations for a need for network environments, future studies could examine more facilities that specialize in different sectors or industries. They could also aim to find established spaces that accommodate project ecologies and offer a comparison between them and the other collaborative coworking spaces.

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