NEMODE Network+ 3K Open Call

Final Report: *New Economic Models for, and from, Co-Working*

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NEMODE

New Economic Models in the Digital Economy
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1 INTRODUCTION AND OVERVIEW

Back in 1980 Alvin Toffler coined the concept of the Electronic Cottage (Toffler, 1980). While this might sound like a feature from Tomorrow’s World,¹ it was essentially the idea that people, particularly those engaged in “knowledge work” – using their brains – would in the future be less bound to a traditional workplace. Technology would increasingly make working from home possible. Thirty-five years later, there is evidence that tele-working is not as ubiquitous as Toffler might have envisaged.² But data from the Office for National Statistics does show that there are now more than 4.5m self-employed workers in the UK.³ While we should keep in mind that there are still 25m people in “normal” employment, an increase in self-employment of more than 1m since the turn of the millennium (and 15% since the beginning of the economic crisis in 2008) suggests that something significant is happening when it comes to employment.

The two occupational categories with the highest increases in self-employment during this period have been “managers, directors and senior officials” and “professional occupations”. So perhaps this is where the inhabitants of the electronic cottage are to be found – not working remotely for someone else, but for themselves.

Figure 1: The rise in UK self-employment since 1992.

Source: ONS data

Following the recession of the early 1990s, Figure 1 above shows self-employment declined as firms began to take on workers again. But though the UK economy is now in recovery,⁴ self-employment is still rising. This may indicate a more fundamental shift to new ways of working. These trends are by no means restricted to the UK. For example recent research (Merkel, 2015) has shown that almost one third of the total US workforce is engaged in some form of “contingent” labour, which means it is largely project-based.

¹ BBC TV’s long-running popular science programme
² http://www.bbc.co.uk/news/magazine-21588760
⁴ http://www.theguardian.com/business/2014/nov/25/uk-economic-recovery-continue-2016-oecd
This in turn of course begs the question as to where these activities are being carried out. As a freelancer you can either rent your own office – which will be expensive and for many tasks probably not necessary. Or you can work at home, with the various distractions and disadvantages that entails (Mason and Reuschke, 2015). One other option might be to use “third places”, your local coffee shop, perhaps. Although often convenient these will inevitably have drawbacks of their own, not least the somewhat random set of encounters to be found therein.

And so the idea of “co-working” has arisen. Co-working is about working independently but in the presence of others: “working alone together” in the words of Spinuzzi (2012). If one person can be identified as the pioneer of the co-working movement it would be Brad Neuberg, who founded Spiral Muse in San Francisco back in 2005. Quoted in Jones et al (2009), Neuberg sums up how co-working solves one of the central tensions of the working at home versus working in an office dichotomy:

“Traditionally, society forces us to choose between working at home for ourselves or working at an office for a company. If we work at a traditional nine-to-five company job, we get community and structure, but lose freedom and the ability to control our own lives. If we work for ourselves at home, we gain independence but suffer loneliness and bad habits from not being surrounded by a work community.”

In recent years co-working spaces have been successfully developed in cities such as London and New York to encourage collaboration, creativity, idea sharing, mentoring, networking, socialising and generating new business opportunities (as well as keeping costs to a minimum level) for small firms, start-up companies and freelancers who typically lack the resources of large organizations. Coinciding as it does with the rise in self-employment, critics have objected to the lack of security, sometimes lower wages and benefits that freelancers who co-work have compared to their employed counterparts (Gandini, 2015). Conversely, others meanwhile have celebrated the creative flexibility that it supposedly brings. Co-working spaces have been touted as hotbeds of collaboration, interaction, and innovation (DeskMag, 2012). The emerging evidence (see for example, Merkel, 2015) is that this is most likely when interactions are facilitated rather than relying purely on serendipitous encounters between unconnected individuals. In summary, co-working is still an emerging phenomena and we still do not fully understand people’s motivations for joining co-working spaces – both positive and negative – and whether they really do improve creativity and collaboration.

In this way, co-working can be seen as the ‘canary in the coal mine’ for new ways of working, interaction and socialisation – and ultimately, creating and capturing value. At present however, systematic knowledge as to how these spaces actually facilitate this is weak. They also typically appear less developed outside of major urban centres. This report seeks to address this shortfall by looking ‘beyond the firm’ to an as yet poorly understood group: the users of co-working spaces (disparate activities such as software, design, independent creative/cultural producers and a range of other knowledge intensive business services (KIBS).
The concept of the “economic model” addresses issues around the structure, conduct and performance of firms in the market and considers new opportunities and new markets and the consideration of both “who does what” and also “who gets what” (Jacobides and Billinger, 2006). To a degree, co-working individuals will create and capture their own value, but of greater interest is the potential value created in collaboration and interaction. This in turn raises questions around such issues as who retains the intellectual property: individuals, collaborators and/or the host co-working space itself? Furthermore, this links to specific business models as per Teece (2011) which also need to be identified and understood in relation to co-working. Co-working spaces are not exclusively focused towards digital sectors/occupations, but they do appear to lend themselves to these activities due to the nature of this work as per Norman (2001) i.e. lower constraints around time, place, actors and networks. Thus in the Digital Economy, the line separating work and non-work activity is increasingly blurred. The locus of this value creative and capture is particularly contentious as while it is true that there is more flexibility at the micro level, there is evidence to suggest this is not the case at the meso (organisational) or macro (industry/sector) level – knowledge-based activities and innovation are becoming ever more spatially concentrated, typically in the core urban areas (Chapain et al, 2010).

More broadly, this NEMODE project report seeks to capture what has been done, as well as to highlight future development scenarios. For example how might new ecosystems in which these actors come together to create value develop – ‘new work arising from old’ as per Jacobs (1970), which are not understood by considering new technologies in isolation. For example, could the (successful) co-working space become a source of distinction/differentiability itself? The key outcome of this research is thus a comprehensive review of the ‘state of the art’ from secondary sources (academic literature, grey literature, industry associations and co-working spaces' websites) moderated by a reflective case study of a co-working space based in Wales with which the research team have existing links, the Innovation Centre for Enterprise5 (ICE). This will focus upon:

- How is value currently created and captured in co-working spaces?
- What business models are involved?
- What might be their future eco-system role be in the DE?
- What policy implications (if any) are there?

Moreover there are significant opportunities for this work to shape and inform future Welsh Government, as well as wider UK, policy in this space. Future policy formulation and implementation clearly needs to be informed by the right data and evidence; are we in fact making decisions on economic models from the 20th century rather than ones informed by new (digital) economies?

5 http://welshice.org/
2 REVIEW AND SYNTHESIS OF THE CO-WORKING LITERATURE

2.1 Creativity and Organisational Environment

Creativity is increasingly important in the economic world, with research suggesting that creativity by individuals and particularly teams is the starting point for innovation (Amabile, 1996). Moreover creativity and innovation are now established as key competitive weapons in the globalised knowledge economy (Cooke, 2002; Clifton, 2008). Economic geography literature has argued that proximity (both physical and in its other forms e.g. cognitive, organisational, etc) is important for innovation (Boschma, 2005). Similarly a body of research on mobile creative people has emphasised the importance of diversity of experience (Florida, 2002; Clifton et al, 2013). However, the role of these factors in the creative process at the micro-level remains essentially a ‘black-box’. A global study by IBM in 2010 of 5,000 chief executive officers (CEOs) across 60 countries and 33 industries found that creativity was selected as the “most crucial factor for future success” (IBM, 2010). Research by Adobe in 2012 looking at the attitudes and beliefs of 5,000 adults in the US, UK, Germany, France and Japan towards creativity found that 80% of people felt that “creativity is key to driving economic growth”. In 2013 the Korean Government established a Creative Economy Action Plan where they emphasized that “the global economy is moving away from labour and capital (industrial economy), and knowledge and information (knowledge economy), to ‘innovation, technology and creative ideas’ (creative economy)” (South Korean Government, 2013). Margaret Boden described creativity as “the ability to come up with ideas or artefacts that are new, surprising, and valuable.” (Boden, 2004, pp. 1). The term is almost ubiquitous, and thus the central question from a management practice and science perspective is how to enhance organizational and employees’ creativity (Robinson, 2009; Martins and Terblanche, 2003; Huggins et al, 2010; Florida, 2002; Csikszentmihalyi, 1996; Amabile 1996; 1997; Brettel and Cleven, 2011).

Some of the key factors these authors have highlighted from their research are the importance of both the access to knowledge and the necessary tools to apply it within a supportive environment. Thus important factors are: interaction with people from a range of backgrounds; the need for autonomy; the willingness to take risks and overcome the fear of failure; the setting of challenging goals that match skill levels; and the time available for “immersion in concentrated activity” that Csikszentmihalyi described as ‘flow’. More recent work by Loudon and Deininger (2014) has also highlighted the importance that a person’s ‘state of being’ has on creativity, where they define ‘state of being’ as “the emotional, mental and physiological condition of a person”.

This implies the need for organisations to give employees the permission and the freedom to communicate and to collaborate with people from different disciplines, and indeed from other organisations and stakeholders including end users; as Kakko and Inkinen (2009) suggest, the more diverse the team, the higher is the probability that they will generate breakthrough innovations. It also implies creating an environment that can support Csikszentmihalyi’s “immersion in concentrated activities” without distractions, so that individuals have the time and freedom to explore new ideas. McCoy and Evans (2010) noted that although a number of creative thinkers themselves have acknowledged the role that environment (in its various forms – physical, social, organisational) can potentially play in facilitating or indeed hindering creativity, creativity research itself has typically been skewed towards the study of personality traits. The work of Amabile and Gryskiewicz (1988) and
Amabile (1989) represents an attempt to tackle this issue with its explicit reference to the characteristics and qualities of the work environment. The conditions beneficial to creativity identified therein are summarised below:

- **Freedom**: a sense of control over one’s own work and ideas
- **Challenge**: a sense of working hard on challenging tasks and important projects
- **Resources**: access to appropriate resources, including people, materials, facilities, and information
- **Supervision**: a manager who sets appropriate goals, values individual contributions, and serves as an intelligent, enthusiastic role model
- **Colleagues**: communications with peers are open, trusting, and constructive
- **Unity and cooperation**: a cooperative, collaborative atmosphere in which there is a lively flow of ideas around a shared vision

2.2 **Overview**

As noted above, long-term employment trends and developments in Information and communications technology (ICT) have tended to encourage more work from remote locations such as independent contracting (Burton-Jones, 2001), nomadic work (Mark & Su, 2010), distance work and telework (Bradner & Mark, 2002). To get a sense of these trends, in 2012 a survey of 2500 people conducted by Regus highlighted that two in every five workers work remotely for at least half a week (Zainzinger, 2012). According to a survey of 1400 CEOs in 2009, 46% stated that telecommuting was the second best way after salary to attract top talents with 33% claiming that telecommuting was top of the list (Ouye, 2011). A recent study by Sodexo highlighted that approximately 69% of employees surveyed cited higher productivity when working remotely (Sodexo, 2013). In short co-working is seen as a model that can encourage individual/team creativity, provide space for collaboration, stimulation, self-reflection and play, and ultimately where serendipitous encounters and knowledge exchange might happen (Spinuzzi, 2012).

The rise of collaborative community workspaces is part of a broader socio-economic system-shift, the so-called sharing economy. The term ‘sharing economy’ was coined in 2008 by Lawrence Lessing at Harvard University; it emerged as a new paradigm of consumption that prevents excessive consumption based on collaborative consumption and shares, exchanges, and lends goods for resource and cost saving, not owning them (Botsman, 2010). People share rental, cars, clothes, textbooks, etc (Uber, Airbnb). Classical example include open-source software repositories (e.g. GitHub), collaborative online encyclopaedias (e.g. Wikipedia) and other content sharing sites (e.g. YouTube, Instagram), or even peer-to-peer file sharing (e.g. The Pirate Bay). More recent examples are peer-to-peer financing such as microloans (e.g. Kiva) and crowdfunding services (e.g. Kickstarter) (Hamari et al., 2015).

Trust is a key element of collaboration as well as of the sharing economy. The possibilities created by new technologies have re-built trust: people have more opportunities to interact and create reciprocal relationships by using social media. “The rapid explosion in swapping, sharing, bartering, trading and renting being reinvented through the latest technologies and peer-to-peer marketplaces in ways and on a scale never possible before” (Botsman and Rogers, 2011). This increase in connectivity and focus on trust could also reflect a return to
the belief that community is important. Gansky (2012) has also discussed how dislocated individuals are seeking community and personal interactions. The shift in community patterns, from autonomy to connectedness, also reflects changes in values.

Offices spaces can nowadays be consumed collaboratively in the same way that people now rent cars or movies, etc. Recent research by Laing (2013) suggested that the future of the workplace will be transformed both in terms of how the workplace is procured and consumed by end users. The collaborative consumption model provides users with much greater choice and control to procure their own work environments on an as-needed basis by the hour or day in any location or type of work environment that they want. Oldenburg, already in 1989 has observed that people between work and private life are looking for a community to be part of it. He coined the term ‘third places’, that “host the regular, voluntary, informal and happily anticipated gatherings of individuals beyond the realms of home (‘first place’) and work (second place’)” (Oldenburg, 1989). Third places are ‘anchors’ of community life that facilitate and foster broader, more creative interaction. These places serve as focal points of community life such as cafes, bars and bookstores (Oldenburg, 2001). To become a successful third place, they must be locally owned, independent and small-scale and be based on steady-state business (Oldenburg, 2001). Furthermore, the places should be highly accessible, within walking distance, free or cheap and involve regularity. These spaces combine a number of conditions that make informal meetings possible and enable the creativity of social interactions through openness, flexibility, viability, conviviality and accessibility (Sundsted et al., 2009). Third places are the product of human relationships, creative interactions and the modes of social and professional organizations that dominate contemporary society (Manzini, 2005).

The 21st century brought new meanings of the ‘third place’ environments. Boundary-less work in the corporate context, the changing nature of work, as well as the rising number of mobile workers, independent workers, freelancers and micro businesses implies the need of spaces of work that facilitate formal productive activity alongside informal social interactions. These new forms of workplaces are so called ‘shared spaces’ that lend new meaning to the space and to the surrounding culture through the communities that are formed and assembled there: networks that are merged and expanded around the uses made of the space. They are also ‘collaborative spaces’ as value is created collectively by their users/members and where people “meet, interact, experiment, ideate and prototype new solutions” (Bason, 2010); and ‘creative platforms’ built on trust, concentration, motivation and knowledge, instruments for focusing creative efforts and skills (Bason, 2010). They can also be called as ‘clubs’, that host ambitious, successful, intellectual people with common interests, to share what is, a kind of place, a rich and diverse environment that provides a level of comfort and services that each member could not afford separately.

Schmidt et al. (2014) highlighted that the last ten years have seen an increase in the number of places that host different forms of collaborative work. They found that two terminologies have been introduced: co-working spaces and labs (as in FabLabs or MakerLabs), and both play with key terms co-working and lab(atory) with regard to creativity and innovation. In their research Schmidt at al. surveyed 53 innovation and creativity labs in Berlin and classified into five different formats: co-working labs, grassroots labs, firm-driven innovation labs, academic-driven innovation labs, incubators and accelerators. These spaces are fulfilled three conceptual dimensions: creativity-driven and open innovation processes take place, boundaryless work is supported, and conditions for collaborative work is being provided.
Other studies classifying different kind of collaborative community workplaces are undertook by Capdevilla (2013) and Jackson (2013). While Capdevilla considered the three different characteristics that define a community of practice (open to the general public, have defined focus and goal collectively agreed by their members, share information and tools and encourage the free share of knowledge) for distinguishing different spaces (co-working spaces, fablabs, hacker spaces and living labs) for collaborative innovation (Wenger, 1999), Jackson (2013) categorised these spaces of how they relate to each other and how connected we are to the people around us from social or neighbourly connection to new connections that have value to our work. With this respect, they could be labs, university labs, incubators, touchdown spaces, traditional office, home, coffee shop, coffee shop+, collectives, jellies, co-working labs or co-working for innovation, and co-working spaces.

Nevertheless, Bason (2010) added that collaborative workspaces can be named as experimental spaces or hubs, maker spaces, hacker spaces, fablabs, co-working spaces, interaction spaces, and also several others like future centres, shared spaces, innovation studios, experimentation spaces, incubators, creative platforms, concept factories, living labs, innovation gyms and many others. However, as noted by many contributor, the differences between these types of workspaces are not always obvious, often overlap, typical features could be considered though (Greater London Authority, 2014; Suarez, 2014; Kojo and Nenonen, 2016; Schmidt et al., 2014; Jackson, 2013).

In his study, Laing (2013) differentiates three types of the emerging workplace: co-working, open-houses and cohabiting. Open houses are open workspaces belong to organizations to a wider community e.g. clients and other in the city. According to his understanding, cohabiting environments are shared by different organizations with the purpose of gaining from each other’s knowledge and expertise.

Bates (2006) in his work distinguished between different types of workspaces based on their intent and how easily an independent professional or small business can make use of them. He differentiates from co-working spaces co-tenant, creative and hybrid types of workplaces. The co-tenant typology refers to an office with one or more sub-letters, often working in related industries, or has related missions. Creative studios are occupied by artists and often include specialized equipment or facilities. Hybrid spaces combine amenities and programming from several types, and may include innovative facilities or combinations of activities. Other types, such as executive suites and incubators are considered as standard shared spaces where the emphasis is typically not on collaborative activities.

In their article, Kojo and Nenonen (2014) investigated the evolution of co-working places from the 1960s until today and identified three evolving types of co-working places from telecenters, through serviced offices to co-working spaces. They define co-working places as an office concept that is operated by independent entrepreneur, who may, however receive public financial backing. In their most recent paper (Kojo and Nenonen, 2016), the authors produced different typologies while undertaking research on co-working places in Finland. They used two axis in order to differentiate one place from the other: business model and level of user access and affordance. The business model can be based on for profit or non-profit objectives, and the level of access for the users can be public, semi-public or private.
Based on their observation, public offices are those that are publicly accessible and open to everybody for free of charge (e.g. libraries). Third places are also publicly accessible but the use of the facility requires purchasing of services (e.g. coffee shops). Collaboration hubs operate in a bigger scale and run by organizations with the goal of facilitating collaboration between members of certain interest groups (e.g. design). Co-working hotels are service providers offering shared office space with a short lease and a compact service (e.g. collaborative space for pubic-sector employees or project groups). Incubators are a shared workplace for a preselected group of individuals or teams to support entrepreneurship. Shared studios are shared offices where an organization or entrepreneur sublets its workplace with a flexible lease.

Table 1: Typologies of co-working places

<table>
<thead>
<tr>
<th>Level of access for users</th>
<th>Business model</th>
<th>Non-profit</th>
<th>Profit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Public</td>
<td>Public offices</td>
<td>Third places</td>
<td></td>
</tr>
<tr>
<td>Semi-public</td>
<td>Collaboration Hubs</td>
<td>Co-working hotels</td>
<td></td>
</tr>
<tr>
<td>Private</td>
<td>Incubators</td>
<td>Shared studios</td>
<td></td>
</tr>
</tbody>
</table>

Source: Kojo and Nenonen, 2016

Authors of the Silicon Santier⁶ positioned co-working spaces by the importance of communities and the importance of economic profit. The graph below attempts to present the balance between the importance of community on the vertical axis and the economic importance on the horizontal axis. In relation to other kind of workplace providers, co-working spaces could be positioned where community and profit have equal importance.

Figure 2: Positioning co-working spaces

Source: Silicon Santier ⁶ https://paris-en.numa.co/

⁶ https://paris-en.numa.co/
Based on Schmidt et al. `s (2014) and Jackson`s (2013) classification, a typology of collaborative workspaces have been developed. The following table summarizes the key characteristics of the workspaces where we `work alongside each other`. 

<table>
<thead>
<tr>
<th>Type</th>
<th>Purpose</th>
<th>Operator</th>
<th>Space</th>
<th>Model</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Incubators</strong> (internet and mobile, ICT and media)</td>
<td>To provide capital to commercialize potentially innovative business ideas or business models</td>
<td>Investors (e.g. venture capital, funds, angel investors, multinational enterprises)</td>
<td>Similar to co-working environments and/or private offices rented by individual companies, conference room, meeting and coaching rooms</td>
<td>Run as a business for profit or not for profit, accommodate start-ups, provide services, mentoring, coaching, advice and events</td>
</tr>
<tr>
<td><strong>Accelerators</strong> (internet and mobile, ICT and media start-ups with rapid-growth potential)</td>
<td>Fixed-term, cohort-based and bootcamps offering educational and mentorship programs for start-ups and exposing them to a wide variety of mentors and investors</td>
<td>University, government or investor</td>
<td>Often take place in co-working space or incubator</td>
<td>Provides stipend or small seed investment to their start-ups and receive an equity stake in the portfolio company in return (appr. 5-7%)</td>
</tr>
<tr>
<td><strong>Maker spaces, Hacker spaces and FabLabs</strong> (crafts combined with digital technologies and arts)</td>
<td>Creative experimentation and collaboration with ideas and tools</td>
<td>Collective, often organized as non-profit organization</td>
<td>Built to suit the needs of occupants (machines, craft studios, etc.)</td>
<td>Individual or shared projects, membership includes the shared use of facilities</td>
</tr>
<tr>
<td><strong>Co-working spaces</strong> (creative industries e.g. design, media, arts, software development)</td>
<td>To implement creative boundaryless work and learning by collaboration</td>
<td>Operator as entrepreneur</td>
<td>Different for every space, often only an open space with rentable desks, meeting rooms and coffee corner, private offices, spaces for recharge</td>
<td>Desks can be rented on different basis (daily, weekly, monthly) Use of meeting rooms included or can be rented for additional fee</td>
</tr>
<tr>
<td><strong>Serviced offices/Touchdown spaces</strong></td>
<td>To provide high-end office infrastructure and use of meeting rooms included or can be rented for additional fee</td>
<td>Operator as entrepreneur,</td>
<td>Similar to co-working environments (open office, private office,</td>
<td>Provide office infrastructure (open office, private office,</td>
</tr>
</tbody>
</table>

Table 2: Types of collaborative workspaces
| (start-ups, small businesses, travellers, companies from high-tech and service industries) | front-office support for travellers or individuals to rent a desk on various options (even virtual office membership) | company office, private offices, meeting areas) | meeting room, etc.) and front-office support for clients |
| "Jellies" (entrepreneurs from different field) | To provide collaborative work for individuals and an opportunity to socialize with likeminded people | Entrepreneur, freelancer | Usually takes place in someone’s house or in a coffee shop | Informal gathering of independents |
| Collectives (entrepreneurs/freelancers from different field) | Share projects and space with similar field of work | Entrepreneur, freelancer | Comfortable space specially built to suit the occupants` need | Shared projects bring money for the group |
| Start-up bootcamps/Big tent events (internet and mobile, ICT and media) | To offer short term intensive workshops on entrepreneurship | University, investor, or company | Often take place in co-working space or incubator | Businesses/entrepreneurs apply for the event and pay tuition |
| Company-owned Labs (media, ICT, internet, mobile, design, consulting) | Open innovation and collaboration in line with operators’ innovations strategy | One or several companies (e.g. multinational enterprises) | Custom built spaces with creative design, white boards and post-its galore | A lot of money spent on the team, their environment and resources |
| University Labs (technology-intensive industries e.g. ICT, automotive) | Open innovation and collaboration for accelerating market entrance of academic driven innovation | Public research organizations or operator groups (strategic partnerships) | Custom built spaces with creative design, white boards and post-its galore | University runs spaces for collaboration between disciplines and foster new start-up creation |

Source: own construction based on Schmidt et al. (2013) and Jackson (2013)
Laing (2013) suggested that due to the trends in technology, ways of working and use of space and buildings, organizations will work in increasingly heterogeneous workplaces and in increasingly collaborative urban environments. The figure below suggests a direction of change for patterns of use for the workplace, suggesting a dual progression of new ways of working towards more heterogeneity of patterns of use and changes from individually focused environments to space and places that are social, collective an increasingly urban in character.

Figure 3: Emerging Patterns of Work and Use of Space

Laing (2013) observed several changes that will transform the way organizations work and use technology, spaces and buildings. Breaking away from the Taylorist office and single use of buildings, organizations are creating ‘open houses’ which is opened for collaborators, partners and the public; are co-creating ‘cohabited’ workspaces in which group of environments share environments and actively encourage the intermingling of their workforces. They are designing many kinds of co-working spaces in which individuals and smaller organizations work together in communities.

Given the more mobility of work and that many workers no longer need to collocated in office buildings on a regular daily basis, workspaces can be densified overall and their patterns of use intensified over time. It also means the possibility to increasingly mix different kinds of work and non-work functions within buildings with the benefits of mixing different scales of buildings and workspaces in close proximity so as to encourage collaboration and interaction between and among organizations of different scales and at different scales of their developmental and organizational life cycle. Organizations might plan supporting activities in workspaces such as living, educational, retail, entertainment, and service spaces of many kinds. Interstitial and in-between spaces might also support leisure, retail, culture, entertainment and educational services. Organizations as well as
individuals are seeking public and semi-public environments in which to meet and work collectively. Furthermore, it has been assumed that work will also happen in semi-public and public places of different kinds. This suggests an architecture and urbanism that is physically networked and connected in complex and stimulating ways.

2.2.2 Co-working Typologies

In the relevant literature there are different types of co-working spaces. One of the earliest academic research conducted by Spinuzzi (2012) examined the responses of the proprietors of co-working spaces. Spinuzzi (2012) identifies three types of co-working spaces in Austin, USA. The community work space serves its local communities; the main idea is to work alongside but not with each other. Unoffice working sites encourage discussions and interactions between the coworkers. It also attempts to provide aspects of traditional offices that the users miss. Water cooler discussion, collaboration, and the exchange of ideas between members were encouraged. The federated workspaces make collaborative networking the focus of their co-working spaces and while the emphasis is on business networks, federated workspaces also encourage personal relationships. Federated workplaces leverage their collective network to enhance the work abilities of their users (Spinuzzi, 2012).

Spinuzzi’s paper (2012) also gives a useful set of two configurations of co-working spaces. The Good Partners where the relationship is an inward one of collaboration, and The Good Neighbours where the relationship between coworkers is a neighbourly one, where people work together for the community but do not work together on projects.

This distinction corresponds to an earlier classification of co-working spaces in three models: 1) the franchise, 2) the cooperative, 3) community (Silicon Santier, 2009). The franchise model emphasizes the importance of economic and spatial dimension with the primary motivation of profitability, acts as a service local where the community dimension is limited. In the cooperative model the social dimension of professional relationships and activities are important, such as enabling ideas to come up with, favouring meetings, providing diversity, collaboration and flexibility (example: incubator). The community model has strong connotations of community and support a more bottom-up way of community building.

DeGuzman and Tang (2009) categorise co-working spaces into six different types, determined by the section of people that they target: These categories are: Incubators, Workshops/D-I-Y/ Hacker Spaces, Social Enterprise and Nonprofit Co-working Spaces, Industry-Specific/Niche Co-working Spaces, Co-working Space for Established Businesses, Satellite Spaces. Because of a huge variety of spaces and the complexity of the multitude of possible combinations of people, space, location network, industry combinations, sponsorships and structures, “many spaces defy being pigeon-holed” and can fall into more than one of their categories.

According to Schuermann (2013), co-working spaces can be categorized into five types: Midsize and big community Co-working Space, Small Community Co-working Space,
Corporate Powered Co-working Space, University Related Co-working Spaces and the Pop-Up Co-working Space. These are not only different in size but also in the industries and types of operators.

2.3 The co-working phenomenon and the co-working organization

Co-working is an increasingly generalized workplace concept. Suarez (2014) noted that the terms co-working and co-working are often mixed together. According to them, a co-worker is someone working in the same company or office, whereas a coworker is a member of a co-working space. Therefore, cowork means independent work in a shared environment (Buksh and Davidson, 2013), and co-working spaces are shared offices where a group of individuals with more or less heterogenous backgrounds co-locate themselves in the same work environment.

In this thesis, co-working refers to the practice of working “alongside each other” (Spinuzzi, 2012) in a flexible and shared office environment where desks can be rented on different basis and where like-minded people form a community. The phenomenon is mainly associated with mobile and creative freelance and self-employed work in knowledge-intensive sectors and creative industries.

The popularity of co-working spaces and its expansion around the world has many causes and roots as discussed in earlier chapters. Co-working is a solution to structural changes in the labour market: in the wake of the 2008 crisis more and more people have left the traditional workplace (either by choice or otherwise) and have started a professional life on their own. The other important trend is the change in the nature of work: knowledge workers frequently undertake a range of tasks and those tasks can be done in different work spaces (Robinson, 2010). Work has become more dependent on knowledge and creativity. This highly skilled creative knowledge work is far more collaborative; more and more people tend to work from remote locations where work is cooperative rather than collocated. Another parallel trend has been the rapid rise of internet communication technologies (ICT). ICT has made work more mobile and less geographically dependent (Chan et al., 2007). People “no longer need a huddle”, mobile phones and laptops have replaced their immobile ancestors (Worthington, 2013), thus, workers are no longer bound to a single desk to operate the technology: they can create, analyse and transform texts in the comfort of their own homes or from other remote “third place” locations. There is also a financial and economic reason that made entrepreneurs join co-working spaces. Entrepreneurs making the decision to join co-working spaces are doing so for rational economic reasons (i.e. it saves money or has some other benefit). Working in a shared space has obvious cost-savings: cheap work arrangements through shared equipment and rent.

With this respect, co-working spaces intended to offer an alternative to working in a classic office or at home, a new of workplace infused with values espoused by the open source movement, a rebellion among programmers against big corporations that relied on intellectual property rights to make profits while constraining the flow of information, innovation learning and growth of knowledge base.
According to Deskmag (Foertsch, 2013), the number of co-working spaces grew every workday on average by 4.5 spaces. In the last twelve months co-working spaces have grown by 36%, putting the number of co-working spaces worldwide at around 7,800 occupied by 510,000 coworkers. Research conducted by King and Ockels (2014) predicts that the number of co-working spaces will grow to 12,000 in 2018. Moreover, Deskmag report shows that about 60 per cent of already existing co-working spaces needed to acquire additional space for their expansion. “seven out of ten co-working facilitators report that the availability of desk space in co-working spaces cannot keep up with the public`s demand in general” (Foertsch, 2014).

Alongside practitioner-oriented research (Baim, 2013; Davies and Tollervey, 2013; DeGuzman and Tang, 2011; Kakko, 2014; Kwiatkowski and Buczynski, 2011a, 2011b; Leforestier, 2009; Nakaya et al., 2012; Olma, 2012; Schuermann, 2014; Suarez, 2014; Sundsted et al., 2009; Vorgan Le Bariz et al., undated), a growing stream of academic empirical work has arisen concerning co-working practices with the focus on defining the term, and understanding their effects on the everyday life of businesses. Academic works outline a number of influential factors of productivity, creativity and venture development across co-working spaces e.g. the physical work environment, the office setting and design (Stumpf, 2013; Doulamis, 2012; Fabbri & Charue-Duboc, 2014); open social settings and diverse community (Spinuzzi, 2012; Muhrbeck, 2011); and the professional “background” environment provided by operators (events, services, support, welcoming atmosphere, access to network and external resources) (Deijl, 2011; Muhrbeck, 2011; Fabbri & Charue-Duboc, 2014).

2.3.1 The history of co-working spaces

In this section different connotations of co-working practices are being provided. However, early co-working pioneers named independently their unusual way of work, their common motivation was the need for physical proximity and social cooperation in a shared space outside the boundaries of shared formal environment.

Jackson (2013) based on her interview with Alex Hillman highlighted that there is a more commonly cited story in America and its many variations worldwide due to similar circumstances concluding in a natural evolution to co-working.

“They created Wikis and discussion groups to get the word out and this, I believe, is a large portion of the DNA of why it has turned into what it is today, it is spreading like wildfire and the people that do it are more likely to share than to contain knowledge in any one silo. Meanwhile, simultaneously to that entire story going on, similar stories where unfolding in other parts of the world. There’s a European lineage, an Asian lineage and they sound very similar with different characters” (Alex Hillman cited by Jackson, 2013 p 32).

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The most popular story of how the co-working movement has started in America is written by New York Times reporter Dan Frost in 2008. He described how a young computer programmer, Brad Neuberg had three years previously created a solution to his career dilemma, a solution that was now sweeping the nation and changing the way that people worked.

“Traditionally, society forces us to choose between working at home for ourselves or working at an office for a company. If we work at a traditional 9 to 5 company job, we get community and structure, but lose freedom and the ability to control our own lives. If we work for ourselves at home, we gain independence but suffer loneliness and bad habits from not being surrounded by a work community” (Brad Neuberg, cited in Jones et al., 2009, p 9).

As Frost reported, when Mr Neuberg decided to be a freelancer and created an alternative work environment in 2005 and the so called “co-working” movement has been started. In a later blog article he stated that Spiral Muse a “home for well-being” in San Francisco was the first co-working space. Originally, the space was a feminist collective, but having there his friends he was allowed to bring over his idea of co-working and have and affordable space to boost it. The co-working space closed after a year, and was replaced by the Hat Factory in 2006. The Hat Factory opened as the first full-time space that was called a “co-working space”.

In 1999 Bernie DeKoven, game designer and theorist, used the term “co-working” as a way to identify a method that would facilitate collaborative work and business meetings coordinated by computers, and described the term as “working together as equals” pattern observed during game design amongst people who share “a deep appreciation of the joy of participating in a creative, playful community”. However, as Neuberg explained in his recent blog article, even though the term used by De Koven with the aim of increasing awareness of collaborative work techniques and technologies, it was unconnected with the rise of the co-working movement and was never applied to characterise shared workspace enterprises (http://codinginparadise.org/ebooks/html/blog/start_of_co-working.html) (DeKoven, 2013).

According to Cagnol and Foertsch (2013), co-working has its roots in the artisan colonies and collectives of the past, organizations and spaces that existed to support the work of their members. The first published book which praised the power of co-working is dated in 1628. Yet they only admired the co-working power of God and its representatives (Cagnol and Foertsch, 2013). At the turn of the twenties century, artists from around the world came to live and work to Paris. La Ruche in Montparmasse as the heart of artistic life was made by them. La Ruche met two needs for its residents: it as a community space that cut across traditional boundaries (e.g. nationality and religion), and it became a community of peers that centred on the work of its residents.

In the mid-1990s, shared spaces for writers offered opportunity to work with like-minded people. Famous spaces are the Writers Room founded in 1978 in New York that hosted 40 writers, or Grotto in San Francisco established in 1994 that was a clubhouse or bohemian retreat, provided workspace for about 30 writers who engage in everything from poetry to journalism (Jones et al., 2009).
Although the term co-working space as used today did not exist at that time, some kinds of variations have started to evolve from the late-1990s. For instance, C-Base in Berlin opened in 1995 as one of the first hacker space. It provided creative space for like-minded people to work together and held public and co-working events. Due to its main feature, C-Base was a pre-stage of co-working spaces (Cagnol and Foertsch, 2013). In Vienna, Schraubenfabrik, which was first named a “community centre for entrepreneurs” opened in 2002. This was one of the first co-working spaces that focused on creating a community of likeminded people (Bauer et al., 2014). In 2005, The Hub in London (now Impact Hub) opened its first space in the “factory opportunities” as a “community of companies”. The motivation behind a small group of social entrepreneurs decided to open the Hub was to create a physical space to connect ideas (Kennet, 2008). In the same year a “community office space for writers and programmers” opened in San Francisco in Spiral Mouse (Bauer et al., 2014). In 2006 the first Jellies emerged and started to organize “working events” where a few people meet occasionally for work at a certain location. The two roommates and self-employed home-based software programmers, Anil Gupta and Luke Crawford realized the lack of “other people to share ideas with”, so started to invite friends to informally work from their apartments. Other locations for occasion meet-ups might be coffee shops or private offices; important is the community aspect (Bauer et al., 2014).

Yet, the movement is expanding, nowadays the basic features of co-working concept can be found in different organizational structures, and being shaped and remixed with other models as well.

2.4 Unpacking the term

Because co-working is so community based, it is hard to define it (Deskmag 2012). Today, a huge number of quotes are available from the current literature, yet each co-working space has its own definition of the term: they have significant differences in service, culture, field of work, size, business model, institutional purposes, adherence to values and movements, co-worker employment, level of relations with other spaces and other aspects (Parrino, 2013). After conducting a twenty-month research in Austin (US), Spinuzzi (2011) found many contradictions in what co-working is. He claimed that the “proprietors and coworkers seem to disagree at every point.” (Spinuzzi, 2012, p 409).

Moriset (2014), using data collected by the international online editorial Deskmag, a well-reputed online reference for the co-working movement, showed how co-working is largely diffused in the so-called ‘creative cities’ of advanced economies, such as London, Berlin and Paris in Europe, San Francisco and New York in the US, (Moriset, 2014). In his work, co-working spaces are epitomised as ‘third places’ between home and work. He argued that co-working is a global phenomenon that maintains strong local roots, as it frames into policies which point towards the emergence of creative districts around urban environments – and casts a light on the risks of a possible ‘co-working bubble’, given that the profitability of these initiatives is often still low (ibid.).

According to Kwiatkowsky (2011), co-working as a whole is generally defined by five major values: collaboration (“the willingness to cooperate with others to create shared values”),
community (intangible benefits, shared purpose), sustainability (“do good to do well and offset the environmental footprint of the space), openness (free sharing of ideas, information and people), and accessibility (financially and physically accessible, diverse).

The following table provides some definitions of this newly emerged phenomenon (Table 3).

Table 3: Some definitions of the co-working place

<table>
<thead>
<tr>
<th>Source</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Co-working Wiki</td>
<td>Independent professionals and those with workplace flexibility work better together than they do alone.</td>
</tr>
<tr>
<td>Brad Neuberg, 2005</td>
<td>The freedom and independence of working for myself along with the structure and community of working with others.</td>
</tr>
<tr>
<td>Reed, 2007</td>
<td>‘Movement’ or a ‘philosophy’ characterised by four common values: collaboration, openness, community and sustainability.</td>
</tr>
<tr>
<td>Gallaga, 2008</td>
<td>Co-working is mingling of a techie-friendly coffee shop with functionality of rented office spaces.</td>
</tr>
<tr>
<td>Fost, 2008</td>
<td>Co-working is connected somewhere between the communalism of the 1960s and the whimsy of the dot-com days of the 90s.</td>
</tr>
<tr>
<td>Soundsted et al., 2009</td>
<td>Co-working combines the best part 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.</td>
</tr>
<tr>
<td>Jones et al., 2009</td>
<td>Social movement.</td>
</tr>
<tr>
<td>Leforestier, 2009</td>
<td>Open source community approach to work.</td>
</tr>
<tr>
<td>Lange, 2011</td>
<td>Bottom-up spaces participated by workers who strive for independence, collaborative networks and politics, and that share a set of values in a ‘collective-driven, networked approach of the open source idea translated into physical space’.</td>
</tr>
<tr>
<td>DeGuzman and Tang, 2011</td>
<td>Set-up and dynamics of a diverse group of people who don’t necessarily work for the same company or on the same project, working alongside each other, sharing the working space and resources.</td>
</tr>
<tr>
<td>Spinuzzi, 2011</td>
<td>New models of ‘distributed work’.</td>
</tr>
<tr>
<td>Welter and Olma, 2011</td>
<td>Co-working is simply the natural organization design of the urban collective manufactory.</td>
</tr>
<tr>
<td>Botsman and Rogers, 2011</td>
<td>Co-working combines the best elements of a coffee shop (social, energetic, creative) and</td>
</tr>
<tr>
<td>Source</td>
<td>Description</td>
</tr>
<tr>
<td>--------------------------------------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Kwiatowsky, 2011</td>
<td>A state of mind, a community, and more importantly a revolutionary element of the larger collaborative consumption movement.</td>
</tr>
<tr>
<td>Wagner, 2011</td>
<td>Co-working is a workspace for socio-cultural enterprises and freelancers.</td>
</tr>
<tr>
<td>O’Brien, 2011</td>
<td>Productive spheres of work, environments of informal interactions, community, social support, collaboration, inspiration and innovation, all based around work-based mobile media consumption.</td>
</tr>
<tr>
<td>Nakaya et al., 2012</td>
<td>Co-working is a working style to realise the atmosphere of a fun and fulfilling party.</td>
</tr>
<tr>
<td>Hurry, 2012</td>
<td>New business service model.</td>
</tr>
<tr>
<td>Schultz, 2013</td>
<td>Co-working brings likeminded people together who share a certain understanding of what work is for them and how they would like to work.</td>
</tr>
<tr>
<td>Blandzic, 2013</td>
<td>Co-working space is where social learning emerges as a result of people sharing the same workspace for their creative activities.</td>
</tr>
<tr>
<td>Lee, 2012</td>
<td>Co-working spaces are shared work facilities where people can get together in an office like environment while telecommunicating or starting up new businesses.</td>
</tr>
<tr>
<td>Coonerty and Neuner, 2013</td>
<td>Co-working spaces provide hip, comfortable, professional work spaces… along with a professional collaborative community of people who are living, breathing, and succeeding in this new economy.</td>
</tr>
<tr>
<td>John and Gratton, 2013</td>
<td>A third wave of virtual work’, that seeks to restore ‘colocation’ in the digitalising mode of production where tasks can be performed anywhere, anytime.</td>
</tr>
<tr>
<td>Moriset, 2014</td>
<td>Third place between home and work.</td>
</tr>
<tr>
<td>Dunstan, 2015</td>
<td>Co-working allows you to be a soloist but still play with the orchestra.</td>
</tr>
<tr>
<td>Goncalves, 2015</td>
<td>Co-working enables a perfect combination between the work done at home and that done at the client’s own installations.</td>
</tr>
</tbody>
</table>

Source: own construction

The relevant literature implicitly suggest that co-working spaces should be interpreted as places that freelancers and independent workers access with the purpose of fostering networking practices and social interaction (Capdevila, 2013).

Co-working provides a solution to ‘professional isolation’ (Spinuzzi, 2012): sharing a common space provides community to those who otherwise would not enjoy relational
support while working from home. Amongst other benefits (flexibility, being able to mingle and work with like-minded individuals, better work–life balance, greater job or career satisfaction), community, a sense of belonging, is also found to be critical in stimulating business development (Spinuzzi, 2012).

Being surrounded by entrepreneurs on a daily basis, coworkers are constantly learning and growing (DeGuzman and Tang, 2011). Knowledge sharing is one of the greatest benefits for members (Parrino, 2013), both formal and informal, including participating in professional workshops and attending social events. Entrepreneurs and businesses can access other professionals involved in related or complementary work, thereby lowering barriers to trying out new ideas, and reducing transaction and information costs (Pearce-Neudorf, 2014). Co-working spaces represent an organic form of `connected-learning` - a model that regards learning as an interest-driven and socially embedded experience (Bilandzic, 2013). Co-working spaces stimulate collaboration, promote the exchange of knowledge, increase productivity and foster creativity (Stumpf, 2013; Parrino, 2013; Deijl, 2013).

Flexible work settings and design leave members free to decide how they prefer to use the space and its features which facilitate the spirit of sharing and cooperation (Fabbri and Charue-Duboc, 2014). When asked about their preferred office design in the co-working survey, the majority of coworkers thought an ideal co-working space would have a mixture of open shared working areas, as well as smaller closed rooms for private conversations. This preference is coherent with the evidence that open layouts are associated with fewer confidential interactions (Sundstrom et al. 1982), while more enclosed spaces, as those with places to sit and facilities such as whiteboards, presumably afford longer, more meaningful discussions (Fayard and Weeks 2007). Many co-working places seem to pay attention to the various spatial and functional needs of the residents: a typical co-working space has both permanent and flexible desks for rent, some private spaces, such as reservable conference rooms, more informal space such as a couch area or kitchen, and normal office amenities, such as wi-fi, whiteboards and printer (Foertsch 2010).

The core challenge co-working spaces face is to facilitate their users` need for connected learning and networking opportunities to nourish creativity, inspiration and innovation (Bilandzic, 2013). However most activities tend to happen naturally, community facilitators may play an important role in creating different modes of engagement that stimulate interaction, networking and collaboration among members (Fabbri and Charue-Duboc, 2014).

2.5 “Core values” of co-working

“Co-working is a self-directed, collaborative and flexible work style that is based on mutual trust and the sharing of common core objectives and values between members” (Deskmag, 2012, p. 3). The reason why people join the space, the most important value is to be part of a community, answered by 94% (Deskmag, 2012, p. 9), and followed by interaction with others, flexible work styles, and serendipitous encounters, discoveries and opportunities (Deskmag, 2012, p. 5). If coworkers are asked how they describe co-working with adjectives, the four most often answers are: ‘fun’, ‘creative’, ‘friendly’, and ‘inspiring’ (Deskmag, 2012).
Hence the type of behaviour leading to such an atmosphere and this atmosphere itself should be considered as values. Kwiatkowsky (2011, p. 19) provides a list of those values:

Community

Having a strong community is seen as the central success factor a space depends on (Jones et al., 2009). It is said that people are more productive when surrounded by other like-minded, driven and creative people. The co-working community provides daily learning experiences. Moreover, as Capdevila (2013) argues, innovation is generally not the result of isolated individual thinking but of the co-creation within communities.

Accessibility

Co-working is a service within the social group that may be called the digital bohemians and the price of a desk should be as low as possible. Co-working spaces are not profit centres (see Kwiatkowski, 2011). It stands for being open and welcoming to guests e.g. during events. It simply means physical accessibility for disabled people. In short: no barriers to become a coworker. Also, it provides a space to work that financially affordable.

Collaboration

One of the selling points of co-working is a wealth of knowledge that you can get working among a diverse group of people with different skill sets, backgrounds and experiences (Kwiatowsky, 2011). Co-working enables the freelancer or the solopreneur to reach a certain level of creativity more quickly because of collaboration. Collaboration may emerge naturally in co-working spaces, however, the simple co-location of members by itself do not necessary stimulate collaboration between them (Boshma, 2005). Capdevila (2013) also agrees that some kind of coordination that aims to facilitate interaction and collaboration must be design in co-working spaces. He identified three types of collaboration in co-working setting: 1) cost-related collaboration (aim is to reduce transactional and operational costs related, hosts do not engage in community building and dynamization); 2) resource-based collaboration (aim is to learn and to complement resources by integrating external knowledge, hosts facilitate collaboration by engaging in community building); 3) relational collaboration (aim is to generate synergies and facilitate community building dynamics, hosts empower the community to self-organize freely and only provide support). Capdevila (2013) claims that each co-working space tend to focus on one of the three collaboration types, either organic or intentional way. He highlights that co-working space hosts play a key role in nurturing collaborative processes. The work of Capdevila (2013) also differentiates between FabLabs, Living Labs, Co-working Spaces and Hacker Spaces with respect to the relative degrees of social versus economic focus, and user-lead versus institution-lead nature of projects therein. This is shown visually in Figure 4 below.
Communication

The willingness to actively share knowledge and to learn from others is very important (Kwiatkowsky 2011). Through informal communications between coworkers social/business benefits may happen.
Openness (and Diversity)

Coworkers believe that everyone can benefit when ideas are freely shared. For this reasons instead of homogenous communities, co-working spaces tend to host diverse communities of likeminded entrepreneurs. The role of diversity was emphasized by a large amount of literature. For instance, Porter (1990) noted that the lack of diversity exposes the community to the risks of lock-in and stagnation. In addition, diversity stems from a heterogeneous environment where community members can find new inspiration, make new combinations, build new partnership, develop new experience and start new ventures (Cohendent, 2014). These perspectives address the importance of localized diversity for knowledge sharing and co-creation. However, knowledge creation often depend on the combination of diverse, yet complementary capabilities of heterogeneous agents within and between organizations (Nootseboom, 1999, Porter, 2008). However, according to Suire (2013), the mix of actors has to be balanced. Too little mix may lead to outputs that are predictable and not creative, but actors with overly similar characteristics may drive the collaborating participants into excessive conformism and conventional outputs. Co-working spaces host a diverse community of likeminded entrepreneurs in a heterogeneous environment where community members can find new inspiration, make new combinations, build new partnership, develop new experience and start new ventures. Functioning and sustainable relationships and trust are possible only if a suitable level of diversity is present in the community.

Creativity

Creativity as another important value of the workplace is added by Stumpf (2013). It is known that in order to be innovative, creative ideas must be hatched. Creativity is directly related to connecting one idea with another idea to synthesize a new idea (Kolko, 2011). When interdisciplinary groups of coworkers are able to collaborate and bring multiple diverse ideas together, stronger creative solutions to problems are found by virtue of understanding more aspects of complex situations (Thackara, 1997).

2.6 Who coworkers and why?

According to the third Deskmag survey (2012), the average age of coworkers is 34, about the thirds are male and most of the coworker has university degree: 74.4% graduated with bachelor or master degree, 4.1% has PhD. 53% of the coworkers are freelancers, 14% of them is seeing themselves as entrepreneurs, 24% says that they are employees of some sort.

Most of the coworkers are from creative industries and media related fields. 34% is dealing with web development/IT, 12% works in the field of graphic/web design and the same percentage of coworkers belong to advisory sector (Deskmag and TU Berlin 2010).

From an occupational point of view Spinuzzi (2012) found that the diversity is very high. Before joining a co-working space most members were working at home (Deskmag 2012)
and about three quarters tried to work from coffee-shops (Spinuzzi 2012). This is also a main precondition for co-working: people are able to decide where they want to work (see Spinuzzi 2012, p. 419). To work in a co-working space is also no absolute decision which makes working somewhere else impossible. On the contrary: 90% of all coworkers say that they work in other places as well, most often at home (80%) (Deskmag, 2012). Also the time people spend in the space differs. Only 40% are there every day, 19% three or four times a week, 16% one or two times a week, and the rest only a few times a month (Deskmag 2011).

The Deskmag (2011) studies also show which facilities of the spaces the coworkers need and value most. On top and without surprise 99% depend on internet access. Printers are needed by 80% and closed meeting rooms by 76%. These are both amenities coworkers may not have at home. For a more social perspective 61% like to have a coffee in their space and 50% use a kitchen to prepare drinks and meals. All the things said about the people occupying co-working spaces do not answer why they do so. Their kind of work seems to be possible from home. If asked why they started co-working, 66% answered because of the atmosphere in the space. 62% name the community, and 57% the interaction with others (Deskmag 2012). Spinuzzi (2012) describes the main problem of working from home as “professional isolation”. So they come to avoid this isolation and fight self-motivation problems which often come with solitude (Spinuzzi 2012). In co-working spaces they find diverse but likeminded people. The co-working culture is an important benefit of working there. Being present in such an environment can positively influence one’s own productivity, creativity, wellbeing and social embeddedness. For example 85% felt less lonely and 75% reported to be more productive (Deskmag 2012) since joining the space. Overall: what can be said is that co-working has to have a benefit for the coworkers simply because they keep doing it.

2.6.1 The Role of the host in the space

While, physical and cognitive proximity combined with intense face-to-face interaction facilitates and increase the probability for certain types of relationship and learning (Bathelt, Malmberg and Maskell, 2004; Boshma, 2005), co-working demonstrate that providing only the space is not sufficient. What is needed is social animation, engagement and “enrolment” (Callon and Law, 1982) to encourage people to interact, socialize and collaborate (Capdevila, 2013; Parrino, 2013). Consequently, hosts or community managers have a key role in creating nods between members, and are responsible for foster interaction, serendipitous encounters and collaborations.

Although co-working hosts are the heart of the community, some owners believe that processes are self-generative in the space, and simply due to the “law of attraction” people are not need to be “managed”, instead social interaction organically emerge.

Parrino’s (2013) qualitative study on knowledge exchange in co-working spaces showcases the importance of facilitative structures and activities on the emergence of collaboration among co-working communities. She identified two different kinds of co-working settings: one of the studied co-working spaces was characterized only by the co-presence and geographical proximity of the coworkers, while the other space was designed to create
synergies among the coworkers and thus stimulate also other forms of proximity. She noted that when coworkers shared only a physical space and no supportive coordination existed, few manifestations of sociality and collaborative relationships were found. On the other hand, in the space characterized by facilitative structures and activities, all the respondents reported knowledge flows and frequent interaction with other coworkers. However, too much control could refrain the organic development of the community (Capdevila, 2013). Suire (2013) suggest that if things are left to be, the actors are able to identify the relationships and encounters that are meaningful to them. He sees that it is the personality of the entrepreneur and his attitude towards risk that will decide the direction he takes with the potential partnerships and innovation. Knowledge cannot be managed, only enabled, thus, managers need to support knowledge creation rather than try to control it (von Krogh et al., 2000).

Space owners and managers who believe hosts are essential in stimulating interactions and collaborations. Two types of hosts (community managers) can be differentiating: the “service provider manager” and the “tummler”. While the “service provider” is responsible for providing services and facilitating good working situations, “tummlers” are “social gardens” (Walter and Olma, 2011) who stimulate interactions and collaborations through many techniques (e.g. social and professional events).

Hillman (2014) argues that using the term community manager is misleading in many ways. The word “manager” suggests a hierarchy and a control which is unnatural in communities. Therefore he introduced the word “Tummler” in order to replace the term ‘community manager’. Tummler is “a person who makes things happen, in particular a professional entertainer or comedian whose function is to encourage an audience, guests at a resort, etc., to participate in the entertainments or activities” (Hillmann, 2014).

Tumblers listen, observe, ask, stir, blends and incorporate the people they encounter with each other. “They cruise the party. They listen, and they observe. They ask questions, and they earn trust. They meet people at the edges of the crowd, connect with them, and then slowly help those people discover their own way into the mix.” They create a system that helps a particular culture to grow. Hillmann (2014) sees the culture as a “fuzzy, warm feeling” and as a system designed for actions and reinforced interactions between people.

The caring nature of the host (tummler) can be described as a form of curation (Merkel, 2015). A growing body of literature emphasize curation as a form of cultural intermediation and valuation in the cultural industries (Moeran and Pedersen, 2011; Potts, 2011). According to Lind (in Wood, 2010, 9. 53), today curating can be seen “as a way of thinking in terms of interconnections: linking objects, images, processes, people, location, histories, and discourses in physical space like an active catalyst, generating twists, turns, and tensions.” In this view, the role of co-working hosts or members fit the main idea of the curatorial practices: they make welcome, create nodes between members, facilitate interactions, offer hand-on support, help and support, care, encourage collaborations and organize events. Enriching people-centred collaboration is what fuels innovation and draws members to the spaces.
Events are particularly important in the life of the co-working community, as they provide good opportunities for interaction and the sharing of knowledge, increase the chances of serendipitous encounters to happen and the cross-fertilization of ideas which may result in fruitful collaboration (Cohendet et. al, 2014). Additionally, events represent invaluable opportunities to get in contact with external knowledge outside co-working spaces (Capdevila, 2013). Capdevila (2013) reports that the majority of co-working spaces organize events to offer 1) insiders opportunities to detect potential customers, partners or employers outside the cluster, and vice versa, 2) outsiders the chance to detect potential collaborators in the community or get interested in joining the cluster. Therefore, he argues that co-working spaces result not only in places of social interaction, but also shared spaces of knowledge sharing and creation.

Every community have different behaviours. Members can be categorized by the quality and quantity of their participation. The following figure illustrates the different types of participative behaviour between a “fully-in” and “fully-out” spectrum.

To keep the healthy balance in the community hosts (tumblers) have to keep the lines but in the same time have to encourage the move between different levels. Knowing the community helps to create engagement.

Figure 3: Members` different types of participative behaviour

![Diagram of participative behaviour]

Source: Alex Hillman, 2013

2.7 The virtual space

The rapid rise of the info-communication technologies made obvious the use of `virtual spaces` to enable communication, interaction and collaboration mediated by digital technology. These digital encounters can create new forms of situated interactions that would not evolve without the use of technology (Fatah et al., 2010). However, “digitally
augmented settings may not effectively support encounters, unless it is integrated with human interaction processes and social conventions (Konomi et al., 2010 p 54).

In this section Seats2meet and Gelatine were selected to introduce how a co-working space can use and benefit from the virtual space.

Seats2meet is a network of physical co-working, office and meeting locations around the Netherlands. Meeting rooms and office spaces are booked by corporate clients and independent professionals who pay a fee per seat used, with the price based on a sophisticated yield management system. Seats2meet.com offers co-working spaces that include WiFi, beverages and even lunch free of charge.

Seats2meet has created a ‘serendipity machine’ (as they call it) and at the heart of its business model lies a practise of fusing the real and the virtual in order to facilitate all kinds of encounters that can create value for all stakeholders. This is what Pine and Korn (2011) call “multiverse of opportunity for the innovative creation of customer value”.

Seats2meet requires its users to register via its app or website before they book a workspace. Each user is asked to include a photo and specify his or her particular skills and expertise. Every time a user books a workspace, he or she signs an agreement stating: “As you are not paying with money for your workspace, we expect you to pay with social capital: to be open to unexpected and valuable encounters and to share your knowledge and talents!” paying with social capital means paying tribute to the social network physically present at the location by contributing to its strength and purpose. At Seats2meet the term serendipity means the increased likelihood of an encounter that will add value to a user’s entrepreneurial activity. Serendipity is fed by a constant exchange of social capital. Seats2meet makes an effort to develop the best technology available to support serendipity. This is why it asks users to sign in to the system: allowing them to see the current state of the Seats2meet social network. This is done via a real-time dashboard, which lists the registered users and organizes their skills in a cloud. This enables the user to decide on the best Seats2meet location based on the skills of people available at each. A dashboard screen on the wall is also an integral part of every Seats2meet location, giving users the opportunity to always see who is present at every site. For the users, it serves as a contingency tool, something they can use to always find someone in the case of an emergency.

By reinventing social capital as the currency of network culture and fusing it with the technology of serendipity, Seats2meet has created a ‘serendipity machine’ that increasingly looks like an appropriate platform for value creation in the network economy (Olma, 2011). Seats2meet not the only space making use of the virtual space, more and more co-working space introduced virtual tools and apps to stimulate members’ activities in and outside of their boundaries.

In their research, Bilandzik et al. (2013) presented results from a pilot study of Gelatine, a system that facilitates shared encounters between coworkers who wish to work at the State Library of Queensland, Australia by allowing them to digitally check-in at a work space provided by the library. Similar to the Seats2mean’ts ‘serendipity machine’, Gelatine operates as a real-time public screen that highlights the skills, interest and help request of currently present users in the space. The main aim of its installation intended to 1) enhance
people`s perception of other users in the space as a source for incidental as well as goal-directed social learning, and 2) promote The Edge as a place for social learning and collaboration.

As in the case of Seats2meat, users of Gelatine have to create a personal profile with keywords that describe their skills, areas of interest, as well as areas that they have a problem in or want to learn more about. The aim of the study was to explore what social impact Gelatine had on users and collected information from people who ignored and passed, viewed and reacted, and who daily interacted with the screen. The findings of the study show that whether a user takes notice, ignores or interacts with the screen, highly depends on what the user`s individual pre-entry motivations and attitudes towards the surrounding place and people at the place.

2.9 The City as a hub of creative environments

Merkel (2015) argues that co-working spaces act as interfaces with the creative milieu in the city and beyond. Cohendet et al. (2010) define three different strata being responsible for developing a creative milieu: `underground` (skilled individuals), `middleground` (epistemic communities and communities of practice) and `upperground` (institutions and organizations). As Merkel (2015) suggests, co-working spaces, being part of the `middlegound`, could be considered as an intersection of the strata, mediating between the `underground` of creative individuals and the `upperground` of companies and organizations.

“An active middleground translates, transforms, and confronts local ideas with knowledge and practices issued from different parts of the world. It is a node of multiple connections of varying intensity and geographical distance. Spaces are necessary to nurture the middleground, to activate the cognitive role of local places, to widen the local buzz to other communities, to strengthen the global pipelines, and to help bring the local underground to the surface. (...) These spaces provide various lanes through which different communities establish permanent informal interactions with each other in order to confront ideas and to tap creative practices from other domains of knowledge. This reveals a complex maze of creativity (or forum), home of myriads of knowing communities, which promote creativity in diverse activities and modes”. (Cohendet et al., 2013: 1704)

The intermediary function of co-working spaces is most clearly apparent in the proliferation of stat-up scenes in cities. In this respect, co-working spaces provide crucial coordinating functions for young start-up entrepreneurs, venture capitalists and potential public policy interventions in cities. Most self-organized peer-to-peer learning groups in start-up scenes are organized by way of co-working spaces. In additional, many co-working spaces turn into `pre-incubators` or `transitional spaces`, occasionally accommodating more than a hundred tech start-ups. This make co-working spaces hubs of knowledge production and knowledge dissemination, providing situations of knowledge exchange along with professional project contexts (Grabher 2004) and the informal gatherings in different funky locations that create
the ‘buzz’ of a city (Currid, 2007; Storper and Venbles, 2004) for creative professionals (Merkel, 2015).

Co-working spaces are also spaces for different interest groups to gather. Exhibitions, hobby (fabric) groups, professional and social associations, book clubs, workshops are just a few examples how the space provides alternative forms of organizations by bringing different people and ideas together.

Additionally, co-working spaces show a strong identification with and commitment to their local surroundings, serving as interfaces with the local community and surrounding neighbourhoods. Giving an example, IndyHall in Philadelphia (USA). Gridneva and Noenning (2014) presented a new model for knowledge cities and creative urban environments. From spatial and organizational parameters, a tableau of nine distinct creative environments (“units”) was derived, each one having representations on three different value levels (“Low Space”, “Transformer”, “Establishment”). The resulting three-dimensional matrix not only describes the multiplicity and heterogeneity of creative urban environments, but also models the processes of knowledge work and the organizational and architectural definition of appropriate work environments. As a “Knowledge Ecosystem” it not only explains the importance of each of the levels – especially emphasizing the value of “low spaces” - but also recognizes the complex interplay of the units on one level, as well as across the different levels.
In total they identified twenty-seven units within a creative knowledge city, with nine types on each level, and provide real world examples. In the upper level the semidefined/half-open unit is a co-working space which they consider as a mixture of relaxed coffee house atmosphere and concentrated office environment; co-working spaces are somewhat between work-place and private home. Here, elements and atmospheric components of public spaces purposefully add to defined workplaces in order to build up creative communities. A kind of business project platform, it responds to the requirements of independent creative professionals and knowledge workers by enforcing their social interaction and idea exchange and thus triggering group creativity.
2.9 Co-working as micro-cluster

The concept of actors in related industries concentrating to each other is not new. Already in 1890, Marshall introduced the concept of ‘industrial district’ where concentrated workers of certain sector are agglomerated. Since Porter’s work (1990), not only economic geographers but also policy makers have gained interest in agglomeration and clustering mechanism (Martin and Sunley, 2003).

Even though many different synonyms of cluster have been used (see Maskell and Kebir, 2006), according to Porter (1998), clusters can be broadly defined as

“geographic confrontations of interconnected companies, specialized suppliers, service providers, firms in related industries, and associated institutions (for example universities, standard agencies, and trade associations) in particular fields that compete but also co-operate” (Porter, 1998, p 197).

On the other hand, based on the previous work of Richardson (1972) and Ellison and Glaeser (1994), Maskell and Kebir (2006, p. 1) provide a narrower definition of clusters as “non-random geographical agglomerations of firms with similar or closely complementary capabilities”.

The reason why related industries are clustering is to gain advantages from the enhanced interactions (Porter, 1990). By becoming part, actors can access the benefits that circulate in the diverse but mutually supporting group of industries. Clusters are knowledge pools where not only professional networks but also social relationships can form. Co-located actors benefit from the shared information and knowledge just by ‘being part’ of the cluster

Source: Gridneva and Noenning, 2014
Co-location also facilitates the circulation of best-practices, enable cross-pollination, decrease information costs, increase competition between firms but in the same time proliferates the overall competitiveness of the cluster. Suire (2013) recognizes that geographical proximity may enable and promote serendipitous encounters and discoveries, and other potential synergies such as reaching the critical mass. These synergies tend to expand the cluster for several reasons according to Porter (1990). The whole cluster encourages greater investment and specialization resulting visibility and attention from government and universities and becomes stronger in attracting talent.

One other driver for clustering presented by Suire (2013) is that it more relevant in today’s entrepreneurial environments is that young companies and entrepreneurs with insufficient financial resources pay particularly high attention to the property costs. The collaboration and knowledge flows between actors are promoted by the common institutional frame that reduces cognitive distance and facilitate information flows. Geographical proximity (physical or spatial proximity) according to Boshma (2005) is defined as the spatial or physical distance between economic actors. The importance of geographical proximity relies on a generally agreed mechanism i.e. short geographical distances facilitate both the planned and serendipitous face-to-face interactions and inter-organizational collaboration, and thus foster knowledge transfer and innovation (Knoben and Oerlemans, 2006). Spatially concentrated actors benefit from the closeness due to the short distances that bring people together, foster exchange of information and tacit knowledge between actors (Boshma, 2005). Moreover, those firms which are located near knowledge sources enjoy better innovative performance than those located elsewhere (Jaffe et al., 1993; Audretsch and Feldman, 1996).

Despite the claimed benefits of clustering, it has been argued that the relation between co-location and successful interaction is not linear. According to Boshma (2005), geographical proximity has the potential to facilitate inter-organizational learning, but it is neither necessary nor sufficient condition for success. Other critical perspective is the role of the cultural environment. According to Evans (2009), a creative territorial formation needs to be linked to and be part of an existing cultural environment. Organizations are culturally, socially, historically and institutionally embedded in the territories where they are located and also influenced by the local community (Marquis and Battilana 2009, Florida 2002, Cohendet and Simon 2007).

Another challenge clusters are facing is the lack of fresh perspectives if they become insular, closed and inward-looking system. Therefore the importance of external links has been raised the attention of researchers (Boshma, 2005; Cohendet et al., 2014) and point out the importance of geographical openness (establishing linkages with the outside world). Capdevila (2013) offers a theory of co-working spaces as ‘microclusters’ that enable knowledge transfer among members from a network–based perspective. Capdevila argues that co-working spaces are territories where microbusinesses and freelancers coexist and collaborate on a variety of actions and tasks. Thus, coworkers tend to be involved in the establishment of communitarian relationships of trust among themselves.

Capdevila stresses how the traditional industrial clusters are being replaced by ‘innovation networks’ constituted by networked microbusinesses, whereby larger firms operate as ‘anchors’ and attract new businesses into the cluster. In his view, co-working spaces provide
the necessary intermediation to this network activity, as well as a physical platform for this purpose. Co-working spaces seem to function, not just as hubs, as most of the literature suggests, but mostly as relational milieus providing workers with an intermediate territory to enact distributed organisational practices made of continuously negotiated relationships in a context where professional social interaction is simultaneously physical and digital (Gandini, 2015).

2.10 Co-working Business models

The business model of the co-working space does not offer any strict guidelines but rather adapts to the need and requirements of the occasions and allow flexible changes on demand. Based on the five core values (openness, community, collaboration, sustainability and accessibility), individual microcosms develop in tune with the needs of the current community and shaped by the ideas of it operators/managers/founders (Schurmann, 2013). In general the following formula applies:

\[ \text{Happy community/members} = \text{more revenue} \]

Co-working spaces fundamentally different from classical profit-oriented workspace rental (Regus) or business centres. Those provide office space and infrastructure but miss the community, the exchange of ideas and the incubator aspect (for expanded service offerings).

First, the space needs an operator (often private for profit start-ups run by entrepreneurs (Capdevila, 2013)). Owners often attempt to create a work environment that fills their personal needs for a workplace. The founding then follows the blueprint of “community first” (two to four catalyst first comers). The space then is advertised by word of mouth (friends, family, former colleagues), or through social media platforms (target wider group) to potential members. As soon as the founder-community starts working and their appropriate desks/rooms are secured, business is open. The founders take the role of leaders, manage the concept and find other co-workers to grow the space. At that point the “hospitality-based approach” developed by IndyHall comes important. The “tummler”\(^8\) (host or community manager) greets everyone, show the space around and make nods between members. Co-working space founders often combine the development of their own business simultaneously to the management of the co-working space. The main purpose is to reduce office rent cost and to create emotionally and professionally supportive community of like-minded people.

Some co-working space founders owns more than one space (IndyCube), has a network of co-working spaces (Talent Garden Italy), or extended the concept to provide user lab, living lab, entrepreneurship lab, startup accelerator and business club (DojoGroup, Numa). Co-working space might be owned by universities, public bodies and big corporations (research intensive companies, property development companies) as well. Their business model fundamentally differs from the classical co-working business model.

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\(^8\) http://dangerouslyawesome.com/2014/04/community-management-tummling-a-tale-of-two-mindsets/
In his book Suarez (2014) `The Co-working Handbook: The Guide for Owners and Operators` provides a helpful guide for future co-working space founders to help to create and run their own spaces. It focuses on the creation and management of co-working spaces and covers all the processes from community building through marketing & sales to how to make the space profitable. Suarez’s proposed business model canvas gives a clear representation of the structure taking into consideration the clients and services. It comprises the fundamentals of the business and the reasoning as well:

Table 4: Key Aspects of the Co-Working Business Model

<table>
<thead>
<tr>
<th>Key partners</th>
<th>Key activities</th>
<th>Value preposition</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Internet service provider</td>
<td>- Introduction and facility</td>
<td>- Professional environment and network</td>
</tr>
<tr>
<td>- Landlord</td>
<td>- Community building</td>
<td>- Increased productivity</td>
</tr>
<tr>
<td>- Investor.bank</td>
<td></td>
<td>- Life-work balance</td>
</tr>
<tr>
<td>- Influencers</td>
<td></td>
<td>- Flexibility</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Cost efficiency</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Customer relationship</th>
<th>Customer segments</th>
<th>Key resources</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Facilitation and networking</td>
<td>- Freelance professionals</td>
<td>- Good internet connection</td>
</tr>
<tr>
<td>- Community</td>
<td>- Entrepreneurs</td>
<td>- Professional premises</td>
</tr>
<tr>
<td>- Face-to-face</td>
<td>- Teleworkers</td>
<td>- Meeting room</td>
</tr>
<tr>
<td>- Online</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Channels</th>
<th>Cost structure</th>
<th>Revenue streams</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Website</td>
<td>- Rental</td>
<td>- Co-working plans (flexible or fixed)</td>
</tr>
<tr>
<td>- Events</td>
<td>- Utilities</td>
<td>- Events</td>
</tr>
<tr>
<td>- Social media</td>
<td>- Personnel</td>
<td>- Meeting rooms</td>
</tr>
<tr>
<td>- Email</td>
<td>- Marketing</td>
<td></td>
</tr>
<tr>
<td>- PR</td>
<td>- Maintenance</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Legal</td>
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</tbody>
</table>

Source: Adapted from Suarez (2014)

According to the study published by Silicon Sentier (2009), defined from an economic standpoint, three forms of co-working space are distinguished by the use made any profit: a) Franchise model (either corresponds to a commercial business model or to the sharing of space and material to reduce overhead costs), b) Cooperative model (profit is invested mainly in and by the socio-professional network that creates and recreates itself around the space), c) Community model (mainly non-commercial business model, any profit earned and invested in and by the community). Other typologies (business models) made out by Schurmann (2013). These are a) Midsize and big community co-working space, b) Small community, c) Corporate powered, d) University related, e) Pop-up. These are not only different in size but also in industries and types of operators, therefore require specialized services/fees for members.

Olma’s (2012) book describes the beauty of Seats2meet’s new generation business model. Seet2meet is a network of physical co-working, office and meeting locations in the Netherlands. The heart of Seets2meet’s business model lies a practice of fusing the virtual and the real in order to facilitate all kind of encounters that can create value for all stakeholders. It created a powerful serendipity machine operating at the intersection of
digital technology and physical space and gives the company a “multiverse” of opportunity for the innovative creation of customer value. The serendipity machine creates so much value that it turns an economy of scarcity into an economy of abundance. Behind the business model there is a vision: it describes how the “machine” can use technological progress to redesign its economic system according to values and principles that allow individuals to truly contribute something meaningful, not just to the market but society per se.

Hurry (2012) in his Master Thesis examined the Hub-Halifax co-working space in Canada. He conducted interviews with the two managers and five members which enabled him to get a better insight of the space’s business model. Based on the findings, the Hub-Halifax has an unusual business model. It is a for-profit business, so it is able to access and gain capital/funding more quickly through a number of government programs. At the start, the owners did not have much money and while they applied to many different institutions and meet lots of people they were unable to secure financing, so they had to bootstrap. They had additional expenses as they could not charge members with the use of meeting spaces. The reason behind was the standardized subsidised fee-system (all inclusive memberships), and in this way they could not pass on the fee to the members. As a result, it had negative impact upon its finances. After the first year crisis they developed the concept of “hosting”. The host (who uses the space free of charge) greets people and show the space around, introduce people and make nodes between them. The Hub has also incubation role: through the network it is possible to access additional funding, and one member might invest in another one’s business as well. But as an entity, Hub is not allowed to apply for funding for their members.

In recent times the co-working business model has attracted the attention of middle and large companies alike; many different forms of co-working-like organizational and work approaches are being implemented by companies (Schurmann, 2013; Bauer et al., 2014). From a business point of view, companies can benefit from co-working in many different ways (Bauer et al., 2014). The “sub-letting” model, when companies let workplaces to external, parties includes the following potentials for companies: generating rental revenue, avoiding vacant space and expensive work areas, maintaining contact and potential collaboration with innovative co-workers, winning over qualified experts for their own company. The other concept acquired popularity amongst companies is using conference/workshops and meeting rooms of co-working spaces as off-site locations. Co-working spaces usually offer event rooms at very affordable prices and at fair conditions. Events can therefore be worthwhile for all involved parties: co-working spaces can increase their sales and enlarge their network; companies can make cool meetings that provide refreshing impulse and networking opportunities as well. There are also examples of companies that deliberately rent workplaces for their own employees in co-working spaces. This might save costs for the company and generate more revenue for the co-working space owner. Another alternative for a company to benefit from the co-working model is to support the finances of co-working. In this in-depth collaboration, companies are very closely aligned to innovative start-ups and have the opportunity to participate in interesting innovations. Establishing and maintaining contacts with start-ups is aimed at paving the way for future sales opportunities.
3 REFLECTIVE CASE STUDY: WELSH INNOVATION CENTRE FOR ENTERPRISE (ICE)

3.1 Background

Welsh ICE, located in Caerphilly, is a creative environment for new entrepreneurs who are interested in feeding off each other’s ideas and enjoying high level of practical support from experienced business owners acting as mentors. The space opened in July 2012 at Britannia House in Caerphilly Business Park. Their vision is to be a thriving, sustainable centre full of extraordinary enterprising, fun loving and mutually supportive people each dedicated to causes that create positive social and economic impacts in their respective fields. ICE refer to themselves as a “propeller” for start-ups and small enterprises.

Co-founder Gareth I. Jones has experienced the frustrations of getting start-ups moving first hand in Cardiff. Unable to get the support he needed for his start-up from traditional business support schemes he saw that it was the community of young entrepreneurs who were most forthcoming in offering each other support. This helped develop his view that there was another way to help generate and support entrepreneurship in a much more sustainable manner than at present. Together with the other two founders, they developed a unique business model that suits the need of the welsh entrepreneurs and can be implemented into the welsh context.

In just over three years, Welsh ICE has become a key player within the Welsh entrepreneurial ecosystem, playing an important role in the shift to a more innovative and enterprising culture. At present ICE receives significant funding from Welsh Government to help deliver on the wider government targets for stimulation entrepreneurship. Around 50% of enterprises moving on from their base within ICE graduate into private office facilities, indicating that a good proportion of members and former members are able to become economically viable companies – that is not receiving any subsidy for their business space. Though figures are at present confidential ICE is confident that its activities have generated significant net employment gains for the Welsh economy. The key challenge for ICE as a community going forward is to balance the necessity for high levels of occupancy on the one hand with the need to maintain a healthy level of “churn” of its membership synonymous with their growth and dynamism. Successful companies associated with ICE include Bomper, Noddlepod, Do IT, Nudjed, Service Tracker, Life’s Chocolate, Creatables, Go Connect, RecRock, DW Studio, Profit Sourcery, and XIBO.

ICE’s business model lies a practice of mixing the business incubator and the co-working space concept. As ICE is located in the convergence area (Caerphilly Local Authority), more EU funds is available for starting a business. ICE members can apply for EU funding for two years which means successful members can use either the open plan office or one of the private offices depending on their requirements for free of charge. ICE has currently 86 businesses (200 people) and 50% of its members are funded by the Welsh Government. Another option for accessing funds is possible through Fairwood Trust. Only current members can apply for the Entrepreneurship Development Programme; if their application is successful, they can receive financial help from Fairwood Trust. Moreover, the Fairwood Trust supports the ICE Start Up Award as well.

Welsh ICE itself is 20 000 square foot facility and contains private offices (20), an open plan office, meeting rooms (3) and a canteen (Calon) as well. In Co-lab (open office) mainly
freelancers and entrepreneurs work, private offices are rented by start-ups and small companies. Memberships are varied; full time memberships (ICE Box and ICE Office) include registered business address, reception services (telephone answering, post, printing, other general administrative services), Wi-Fi, use of fax, print and photocopy machines, discount in the canteen and in the coffee shop, event invitations and outstanding support to the business. Meeting rooms can be booked in advance from £15 per hour. Virtual membership includes registered business address, 20 hours access to ICE per month, access to mailbox (weekdays 8am-6pm), parcel receipt, and the use of fax, print and photocopy machine.

ICE has a selection process in getting new members: every potential member has to fill an application form (business plan template). If the newcomer fits professionally and personally to the community then is welcomed. Apparently, a natural selection applies from a community point of view: like-minded, open, creative people go to join the community. The positive attitude, the sociable and enjoyable atmosphere, and the opportunity of personal and professional development keep the people at ICE. Professional and social events e.g. ‘HSBC Talking Businesss’ or ‘Breaking the ICE at Calon’ organized by the proprietors, but some programs are coming from the community such as ‘Friday drink’.

The management team consists of six people: a CEO, a person who is dealing with business operation, a training programme organizer, an accountant who is responsible for finance and funding applications, a receptionist and a person who is dealing with marketing. In addition to Gareth Jones, the co-founders are Anthony Record MBE and Will Record. Over 100 businesses have been supported by ICE, representing a diverse range of industries and sectors. The centre itself is based in the Cardiff Capital Region. Currently, more than 178 people are based in the centre, as employees or founders of new local businesses. Over 30% already trade internationally, serving a global market. The key to ICE’s early success has been its focus on developing as a community compared with other centres around the UK who focus on grand investments such as huge interactive tech installations and other unnecessary distractions that people mistakenly believe creates culture. ICE’s success has come from connecting people on very different levels, exposing their passions, fears and dreams and doing whatever it takes to enable them to succeed.

Gareth Jones states that “Welsh ICE is committed to create an ever-clearer, more accessible network of pathways to entry for would-be and young entrepreneurs by continuing to strengthen their connections with the wider business world. We also work very closely with local colleges and universities to apprise students of the details of start-ups and small business, in order to help them find their place in the working world. ”9 Another focus is on highlighting the potential for the Cardiff Capital Region to become a gateway for global businesses to access the European market. ICE's location is connected to a motorway network that links easily to London and other cities, a rail network with similar routes and an airport only 40 minutes away with direct connections across Europe, with onward connections across the world. Within 30 minutes of ICE there are 70,000 students and three universities (Cardiff University, Cardiff Metropolitan University and the University of South Wales) which are fully supportive of the start-up community and need to supply employable graduates and young people. Gareth Jones has commented that “There are many reasons as to why they’re important, whether that’s for the impression it makes on your client by

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having somewhere formal to meet them or meeting clients in the spaces, but there are broader influences that it can have on people with early stage business ideas.” He also makes the point that structure and community plays an important role in the contribution that co-working spaces can make to a regional economy, that “...it could be as simple as having somewhere to leave the house for at 8am every day, or a community of people who understand why you’re willing to sacrifice so much to live your vision, or just having spaces for different parts of your life”. Speculating on the possible future scenarios for co-working spaces Gareth Jones identifies a range of possible outcomes and influences – “Co-working across the world seems to have an energy that’ll see it keep moving. The question is what identity does that space have – access to funding, narrow sector/vertical focus, endorsement from a major PLC, embedded training/accelerator service or just where it happens to be located.” He goes on to suggest that “…they might end up like gyms, where you have a subscription every month that you forget to cancel, but use every now and again, or they might have high churn, with new faces appearing every three months. They might become showcases for sectors in cities, like the Life Sciences Hub, or they could become extensions to coffee shops, like Google Campus”.10

3.2 The ICE Model in Context

In this section we compare and contrast the co-working models of Welsh ICE and of IndyCube11 (the other major provider of co-working spaces across South Wales) as representing two related but distinct approaches, with different target groups and organizational purposes. These are observations are based on the authors’ primary research, and summarised in table X below.

Table 5: Key characteristics of Welsh ICE and IndyCube

<table>
<thead>
<tr>
<th></th>
<th>Welsh ICE</th>
<th>IndyCube</th>
</tr>
</thead>
<tbody>
<tr>
<td>Location</td>
<td>Caerphilly</td>
<td>At present 22 spaces across South Wales</td>
</tr>
<tr>
<td>Purpose</td>
<td>Providing creative community-oriented environment for entrepreneurs</td>
<td>Providing high-end office spaces where communities can form naturally</td>
</tr>
<tr>
<td>Number of members</td>
<td>150</td>
<td>200 at any given time</td>
</tr>
<tr>
<td>Reasons for joining</td>
<td>Social and enjoyable atmosphere (70%)</td>
<td>Good office infrastructure (56%)</td>
</tr>
<tr>
<td></td>
<td>Vibrant community (50%)</td>
<td>Interaction with others (37%)</td>
</tr>
<tr>
<td>Tenants by</td>
<td>Entrepreneurs and start-ups (early)</td>
<td>Entrepreneurs and start-ups (mature)</td>
</tr>
</tbody>
</table>

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11 http://indycube.cymru/
<table>
<thead>
<tr>
<th>professional activity</th>
<th>Tenants by sectors</th>
<th>Type of memberships</th>
</tr>
</thead>
<tbody>
<tr>
<td>and mature stage) (38%)</td>
<td>Professional, scientific and technical activities (33%)</td>
<td>Varied</td>
</tr>
<tr>
<td></td>
<td>Information and communication technologies (33%)</td>
<td>Varied with the opportunity to use any IndyCube site</td>
</tr>
<tr>
<td>stage) (41%)</td>
<td>Arts, entertainment and recreation (48%)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Workspace layout</th>
<th>Services</th>
<th>Types of support</th>
</tr>
</thead>
<tbody>
<tr>
<td>Open-office</td>
<td>Business address</td>
<td>Financial – public and private sector</td>
</tr>
<tr>
<td>Private offices</td>
<td>Reception – front-office services</td>
<td>Trainings</td>
</tr>
<tr>
<td>Meeting rooms</td>
<td>Use of office infrastructure</td>
<td>Social and professional events</td>
</tr>
<tr>
<td>Canteen</td>
<td>Broadband</td>
<td></td>
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<tr>
<td>Coffee shop</td>
<td>Discount in Canteen and Coffee shop</td>
<td></td>
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<tr>
<td></td>
<td>Mentoring, training</td>
<td></td>
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<tr>
<td></td>
<td>Professional events (organized by staff)</td>
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<td></td>
<td>Business address</td>
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<tr>
<td></td>
<td>Use of office infrastructure</td>
<td>Financial support through IndyCube Venture</td>
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<tr>
<td></td>
<td>Broadband</td>
<td></td>
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<tr>
<td></td>
<td>Professional events (provided by IndyCube Venture)</td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Model</th>
<th>Source: own construction based on primary research</th>
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</thead>
<tbody>
<tr>
<td>Unique mix of incubator and co-working space</td>
<td></td>
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<tr>
<td>Strongly linked to public sector</td>
<td></td>
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<tr>
<td>Accelerator and co-working space</td>
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<tr>
<td>Independent from public sector</td>
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**IndyCube**

IndyCube is a co-working space provider with 22 co-working sites across South Wales. At the time of writing, more than 200 workers operated out of IndyCube’s sites in any given month. Members had the opportunity to work in any co-working sites across South Wales; this allowed members to integrate with other local communities, to share knowledge, socialize and build networks. Thematic interviews with founders highlighted that IndyCube provided spaces for established enterprises to work alongside each other. Members were encouraged to make the offices their own, each location’s `character` being created by the
people who work there. Founders reported believing that members did not need to be "managed" by community hosts or moderators; but that the majority of collaboration tended to happen within the office in a bottom-up way.

The main reason members gave for joining IndyCube was the opportunity to meet potential investors, and because IndyCube provides high-end office infrastructure. IndyCube space is rented mainly by established companies, rather than entrepreneurs. The qualitative research findings revealed that the level of collaboration, community activity and social events within the IndyCube spaces was quite limited in comparison to other spaces visited. The research also found that IndyCube members wanted more space for socialising as well as more space for privacy and self-reflection. This was supported in the findings of the questionnaire where 90% of members said that they would be interested in more events (social, networking, professional) and 75% said they have not started collaboration with a fellow coworker. However, 80% of members did report an increase in income and 60% said they felt more productive since working in IndyCube. Other findings revealed that 70% of members would be interested in mentoring, administrative/reception and professional support.

Suggestions given for encouraging more activities and collaboration in the co-working spaces included changing the space layout so that 70% is open space; creating a kitchen-lounge space for socializing; allowing external communities to the use spaces for business breakfasts and association meetings. Other suggestions included providing welcome packs for new members. It is interesting to note that membership prices at IndyCube are similar to London co-working spaces, considering the average income levels in South Wales are much lower.

These findings highlight that the current members of IndyCube are gaining benefits from being in a co-working space, however more could be done to support key aspects of innovation by encouraging more collaboration through events and activities and building a stronger community. The findings also highlight the current lack of recent graduates in the co-working spaces and the relatively small numbers of members overall. This could be due to prohibitive membership costs; awareness of the co-working spaces existing; or that the current offerings do not meet their needs.

**Welsh ICE**

As noted above Welsh ICE is home to more than 85 companies and more than 150 workers at its Caerphilly centre. Half of its members are funded by the Welsh Government, and the staff can also assist members to reach other kinds of financing. Welsh ICE was created to foster connections and synergies among member businesses in a creative environment. It included an organizational platform composed of events designed to create connections among members; newsletter with information and news about the coworkers and the activities organized in the space; and staff managing and operating the space, selecting members and facilitating interactions and relationships.

Welsh ICE supported graduate entrepreneurship in two ways: it assisted talented young people to start their businesses through funds and mentoring, and encouraged member
companies to hire youngsters. Based on the findings, more than 60% of ICE population belongs to age group 21-26. ICE was mainly rented by small start-up companies: 38% of the members were entrepreneurs (sole trader) and 38% working for small companies (>5 employees). 75% of those working for small companies (>5 employees) are aged 21-26.

According to questionnaire survey, ICE members’ main reason for joining participating was that it provided a ‘social and enjoyable atmosphere’ and a ‘vibrant community’. ICE offered opportunities/ events to coworkers to get to know each other, to connect to the public, and ensure the inflow of external knowledge. 44% of members started collaboration with a fellow coworker. Members also highlighted the supporting role of common areas (coffee shop, canteen), enabling them to meet other like-minded people. However members believe that being co-located was only one condition to networking and collaboration. ICE staff were regarded as central figures in supporting trust enabling networking and social interactions among members.
Alongside a number of Western economies, Wales has aspirations of being an “agile digital nation”, drawing in and supporting the development of innovation-led, high value industries and associated research and development. As part of the Welsh Government’s *Programme for Government*\(^{12}\), there are policies for growth and sustainable jobs by supporting the economy and businesses, improving the skills base in Wales, as well as infrastructure investments. However, in the context of coworking, entrepreneurship and technology-led innovation, it remains to be seen whether there is clarity – as well as uniqueness – around the the sector strategies, particularly with nine identified priority sectors\(^{13}\) for economic renewal:

- Advanced materials and manufacturing sector;
- Construction sector;
- Creative Industries sector;
- Energy and environment sector;
- Financial and Professional Services sector;
- Food and Farming sector;
- Information and Communication Technology (ICT) sector;
- Life sciences sector;
- Tourism sector.

Clearly, many of these sectors represent Wales’ industry legacy, as well as its existing economic base. Furthermore, a number of these sectors are differentiated, segmented and hugely competitive, both regionally inside the UK, as well as across Europe and globally.

There are a range of opportunities across the ICT, digital and creative sectors; for example leveraging unique Welsh socio-cultural activities and the creative base, as well as the impact of BBC Wales, S4C and the strong independent film/TV networks based in or filming/producing in Wales. Viewing the ICT/digital sector both as a traditional vertical software/hardware/telecoms sector, as well as a cross-cutting horizontal sector supporting numerous other industries, also highlights strength and a developing ecosystem in south east, south west and north east Wales. However, the question remains about a long-term ICT sector strategy that offer a unique selling point for “Digital Wales”, especially how that differentiate from other regions within the UK, as well as attractive (and recognised) internationally. The narrative of Wales as a “digital testbed”, providing the infrastructural, geographical, rural/urban and socio-economic diversity to trial new technology products and services, is convincing, but needs both clarity and long-term support from a policymaking perspective.

There have also been substantial investments following on from the 2012 *Science for Wales* strategy\(^{14}\), including the *Sêr Cymru* (“Stars Wales”) programme to bring scientific talent into research posts in Wales, as well as the development of National Research Networks\(^{15}\) to

\(^{12}\) [http://gov.wales/about/programmeforgov/?lang=en](http://gov.wales/about/programmeforgov/?lang=en)

\(^{13}\) [http://gov.wales/topics/businessandeconomy/sector/?lang=en](http://gov.wales/topics/businessandeconomy/sector/?lang=en)


support the three grand challenge areas of advanced materials and manufacturing, life sciences and energy & environment. The Sêr Cymru II programme, a suite of schemes part funded by the European Commission through the Horizon 2020 Marie Skłodowska-Curie Actions COFUND scheme or the Welsh European Funding Office (WEFO) under the European Regional Development Fund (ERDF) are also starting to improve the research base in Wales. This was further supported by the announcement in January 2016 by Innovate UK of the 11th Catapult centre (and the first to be based in Wales): the Compound Semiconductor Applications Catapult, which will receive £10 million a year of UK Government support up to 2020-21.

There has also been substantial flux and proposed reform of the education system in Wales over the past five years, culminating in the publication of Successful Futures, an independent review of the curriculum and assessment arrangements by Professor Graham Donaldson in March 2015. This proposed a new curriculum for Wales to be developed with education professionals across Wales with the aim of it being available to settings and schools by September 2018. This review proposed four purposes to be at the heart of our new curriculum:

- ambitious, capable learners ready to learn throughout their lives;
- enterprising, creative contributors, ready to play a full part in life and work;
- ethical, informed citizens of Wales and the world;
- healthy, confident individuals, ready to lead fulfilling lives as valued members of society.

The four purposes contextualise the proposed six new Areas of Learning and Experience (AoLE) from ages 3-16, supported by three cross curriculum responsibilities: literacy, numeracy and digital competence. The Donaldson review fully accepted the recommendation of the 2013 review of the ICT curriculum, to include a clear strand of computer science as part of the new Science & Technology AoLE, as well as raising the profile and importance of digital competencies for all, from both a societal, educational and economic perspective. This reform of the ICT curriculum clearly supports the development of the high value skills base to underpin a number of the priority sectors, as well as reflecting on the impact and role that technology plays in our world.

However, the National Assembly for Wales elections in May 2016 present a critical juncture for Wales; for the first time since devolution, the incumbent Labour government are extremely unlikely to obtain a working majority, so will most likely have to enter into coalition talks with other parties, most likely Plaid Cymru. While unsettling from a political perspective, this potentially provides significant opportunities for a rethink of economic strategy, sector interventions and how best to leverage the ecosystem, skills and infrastructure in Wales. The implementation of the new Curriculum for Wales has cross-party support, but its operational delivery, as well as the potential impact on education and skills pathways in Wales (particularly in the context of the recently published Hazelkorn

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18 http://gov.wales/topics/educationandskills/schoolshome/curriculum-for-wales-curriculum-for-life/?lang=en
review of post-compulsory education in Wales, as well as the future role and function of the Higher Education Funding Council for Wales) will depend on cabinet appointments and ministerial portfolios post-May. Likewise, how the new Welsh Government will best support the successful development of the wider city-regional agenda: for example, the recently announced £1.2bn City Deal for the Cardiff Capital Region (in partnership with the Welsh Government and 10 local authorities), as well as the Swansea Bay City Region.

Innovation, economic renewal and entrepreneurship will clearly feature in any future Programme for Government, but it remains to be seen precisely how the next Welsh Government will identify key industrial sectors for Wales as part of a technology innovation strategy for the next 15-20 years – especially clearly encapsulating uniqueness for a “Digital Wales” in the wider digital economy – as well as the development and exploitation of key infrastructure, ecosystems, skills base and anchor companies, alongside effective interventions to support the growth and scaling of Welsh-developed enterprises.

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CONCLUSIONS AND FINAL THOUGHTS

As noted above, in recent years co-working spaces have been successfully developed in cities such as London and New York to encourage collaboration, creativity, idea sharing, mentoring, networking, socialising and generating new business opportunities (as well as keeping costs to a minimum level) for small firms, start-up companies and freelancers who typically lack the resources of large organizations. Coinciding as it does with the rise in self-employment, critics have objected to the lack of security, sometimes lower wages and benefits that freelancers who co-work have compared to their employed counterparts (Gandini, 2015). Conversely, others meanwhile have celebrated the creative flexibility that it supposedly brings. Co-working spaces have been touted as hotbeds of collaboration, interaction, and innovation (DeskMag, 2012). The emerging evidence (see for example, Merkel, 2015) is that this is most likely when interactions are facilitated rather than relying purely on serendipitous encounters between unconnected individuals. In summary, co-working is still an emerging phenomena and we still do not fully understand people’s motivations for joining co-working spaces – both positive and negative – and whether they really do improve creativity and collaboration.

The rise of collaborative community workspaces is part of a broader socio-economic system-shift, the so-called sharing economy. The term `sharing economy` was coined in 2008 by Lawrence Lessing at Harvard University; it emerged as a new paradigm of consumption that prevents excessive consumption based on collaborative consumption and shares, exchanges, and lends goods for resource and cost saving, not owning them (Botsman, 2010). People share rental, cars, clothes, textbooks, etc (Uber, Airbnb). Classical example include open-source software repositories (e.g. GitHub), collaborative online encyclopaedias (e.g. Wikipedia) and other content sharing sites (e.g. YouTube, Instagram), or even peer-to-peer file sharing (e.g. The Pirate Bay). More recent examples are peer-to peer financing such as microloans (e.g. Kiva) and crowdfunding services (e.g. Kickstarter) (Hamari et al., 2015).

What the ‘economic model’ around co-working spaces is depends to a large extent upon who we understand to be the customer in such environments. Is it the (potential) users of these spaces? In which case they are ‘sold’ a proposition of which particular space might be best for them. If so the issue here then is that this assumes that there is at least some degree of choice going on – but this in turn is spatially bounded in that by definition the user needs to be based reasonably near the physical space they might want to work in (and to a large extent the more time they want to spend there the nearer it needs to be as this will increase the cost of doing so, given the alternatives of working at home, and or in other public or private spaces – coffee shops for example – nearer to where they actually live. Conversely if a certain space is perceived as being particular beneficial there will of course be greater trade-offs potentially made – distance travelled for example – to use it. If for example a potential user in London then there will most likely be significant choice regarding the space, but elsewhere (South Wales for example) then this is unlikely. So this suggests that place matters in all this, and thus the model might well be different- as will the role of policy for example- in different places.
The next question is then that if the users are the customers, what is it that they are buying? (and what is it that makes them ‘happy’ in the words of Michael Jacobides). There are ‘hygiene’ factors here in terms of somewhere to work, internet access and so on, but then ultimately the space needs to be somewhere that will benefit them as a user in terms of actual business outcomes. As these more complex and less tangible factors are harder to judge for users, it might be that factors such as reputation or even brand of a provider might play an increased role. So it maybe that facilities management (i.e. ensuring the various infrastructure works properly, users are able to access it and so on) and business development approaches (‘normal’ ways generating sales, KPIs such as maximising turnover, occupancy rates, retention, etc) will be less important than those skills which are a closer fit with hospitality management e.g. ensuring users have a good ‘experience’ of the space.

The basic co-working business model is essentially a membership one- i.e. the user pays £x per day / month for which they get access, certain services, and maybe additional items like coffee, food and so on. Sometimes there are different levels of membership (gold, silver and such like) - but the basic point is that the amount it costs the user does not relate (or at least only indirectly) to the value created by being in the space (which potentially means quite a large number may be paying more than they gain, perhaps offset by a small number who make new collaborations and so as a kind of positive externality (for them) of just paying to use a facility. So- this may mean that at present the basic function of a co-working space is typically at the moment not aligned with the ultimate goal of maximising the value create therein (i.e. ‘size of the pie’ as per Jacobides) – and this is something that needs to be considered before the slice of the ‘pie’ (i.e. share of the value created) issue is allocated (new sales, products, turnover of users, share of IP created, and so on).

Moreover, the question remains as to who are the suppliers to the co-working space that enable it do its job in the ecosystem as per above? This is reminiscent of the Apple model in that they integrate but mostly do not actually produce the apps, hardware, telecoms and the like that captures a large proportion of the value created. For a co-working space this could be basic factors such as facilities, IT etc. – but the question remains as to what else might be added - possibly design services, business support and the like, but over and above these there might be scope for integrating apps / tools that users might value want- that are useful because they are accessed in the context of the space provided (for example real-time information on who is present at the space at any given time, whether they are available for collaboration, working on individual projects etc. Ultimately this report has shown that co-working is an emerging activity in the entrepreneurial ecosystem, which can take various forms which can be categorised analysed at the micro-level but whose role is not yet fully understood within the wider concept of new economic models. This report is thus intended to serve as the base-line for further research in this emerging field of activity.
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