

# New in-house organizational spaces that support creativity and innovation: the co-working space

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[Abstract] Office work has traditionally been associated with administrative and intellectual production. The demand for more timely information and a quest for ever greater productivity has led to the changes in the workspace through the centuries. Our workplaces have become more functional and productive, but also subsequently places of interaction and socialization, where the human dimension have emerged gradually. At a time when the mantra 'innovate or die' and 'find the next big thing' rings uncomfortably in company CEO's ears, designers need to change the office layouts to help promote interactions and encourage serendipity amongst creative employees. This in turn needs different forms of organizational corporate culture that supports collaborative work. Companies on the creative edge need to establish rich and diverse in-house office environments that provide a level of comfort and a wide range of facilities where creative work can be done in a collaborative way through exercising considerable judgement and intelligence.

This paper proposes that these offices should be more than just shared open-plan offices - they need to be spaces used by a diverse group of people (co-workers) for collaboration, community building and idea sharing. Originally, the term 'co-working space' refers to a new shared working environment for freelancers and other location-independent professionals who are tired of the isolation of their home offices and the distraction of their local coffee shops. However the paper proposes that the model used for co-working spaces can also be applied to company environments in order to boost creativity and innovation. To see whether this option is profitable for R&D activities, the co-working values (collaboration, community, sustainability, openness and accessibility) can be used as a guide for where to set up such spaces; how to operate on a daily basis; and how to stimulate employees' creativity.

In this paper the key values will be discussed from a practical perspective and used for the understanding of how these principles can be applied to R&D workspaces in companies to encourage creative behaviour and support innovative projects.

## 1. Introduction

Creativity is increasingly seen as a new 'Holy Grail' in the economic world, with research suggesting that creativity by individuals and teams is a 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 - cognitive, organisational) is important to 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', something this paper seeks to address in considering new approaches to facilitating successful R&D activities.

A global study by IBM in 2010 of 5000 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, "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; Florida, 2002; Csikszentmihalyi, 1996; Amabile 1996/1997).

For several decades, researchers such as Csikszentmihalyi (1996) and Amabile et al. (1996) have tried to identify and describe factors and principles that can enhance the creativity of individuals in organisations. Some of the key factors they highlighted from their research were the importance of access to knowledge and the necessary tools; 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 matched skill levels; and the importance of time for "immersion in concentrated activity" that Csikszentmihalyi described as 'flow'. Recent work by Loudon and Deininger (2014) has also highlighted the importance of a person's 'state of being' has on creativity, where they define 'state of being' as "the emotional, mental and physiological condition of a perso".

This implies the need for organisations to give employees permission and the freedom to communicate and collaboration with people from different disciplines and different organisations including end users and other stakeholders. The more diverse the team, the higher is the probability that they will generate breakthrough innovations (Kakko, 2009). It also implies creating an environment that can support "immersion in concentrated activities" without distractions so that individuals have the time and freedom to explore new ideas. Similarly, McCoy and Evans (2010) suggested the following underlying dimensions of physical settings salient to creativity: nature, challenge, freedom, support, coherence, threat, and status quo. These principles have to be considered by

research-intensive companies who are interested in finding new workspace solutions and environments for creative work.

Even though the vast majority of the leading research on creativity highlights the importance of interaction with people from diverse background, it is still difficult to create such spaces where interactions of people from different divisions of the organization (e.g. marketing, finance, design, R&D) and other stakeholders (e.g. researchers, independent professionals with project contract, end-users) could be possible. The main reason behind this structural challenge is that in many research-intensive large companies functional groups and divisions are often located away from the company's headquarters and also within divisions there are groups working on different products, research, design, etc. That makes it even more difficult to create common spaces for creative activities. The aggregate of these two features may increase isolation between marketing, planning, sales, strategic management, etc. and create a gap in the communication process and significantly limit creativity, which in turn causes obstacles in the R&D process. To help cope with this challenge, many companies have adopted practical ways such as giving their staff time and permission to get out of their office or lab on a regular basis and to meet a range of different people.

Another potential solution, and one that we discuss in this paper, could be to encourage staff to either join local co-working spaces to meet new people and form new collaborations, or to setup a co-working space inside the research organisation itself - in particular what we term as the "10% Club" model in which staff remain embedded in their home functions and projects but still have the space (mental and physical) to be creative.

Originally, the term 'co-working space' refers to a new shared working environment for freelancers and other location-independent professionals who became tired of the isolation of their home offices, and the distractions of their local coffee shops. 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, diversity) (Kwiatowsky, 2011). Co-working is seen as a space that encourages individual/team creativity, promotes space for collaboration, stimulation, self-reflection and play where serendipitous encounters and knowledge exchange might happen.

We propose that therefore the co-working model and its principles can be an invaluable point of reference, and thus our paper aims to show how this model could be applied to company environments and considered as a new R&D workspace solution in order to boost creativity and innovation.

## 2. Developments in R&D organizations

The roots of many successful R&D activities can be found in serendipitous interactions, impromptu meetings and informal chats between diverse groups of people. Companies need to design the right environment for people to feel comfortable, creative and productive. This includes both the physical and virtual workspaces that need to support and encourage productivity, collaboration, serendipitous interactions as well as self-reflection and thinking time. Not only the design of the space is important but the permission coming from senior management must also convey that casual or non-instrumental conversations are encouraged.

Researchers starting from the late 1990s have observed how building and office design have been changing and how this has been affecting the way we work.

Becker and Steele (1995) observe that it is necessary for organizations to provide areas that allow workers to meet informally if intra and inter-team collaboration is to flourish. This goes beyond simply removing office walls and partitions, or seating colleagues closer together; rather, the focus is upon designing a variety of spaces that can help to foster the types of interactions desired, in addition to allowing space for more individualistic tasks. Case studies exploring the provision of social space within contemporary office redesigns have consistently found that it helps to foster informal meetings and wider interactions (Becker and Steele, 1995). Furthermore, flexible workspace and easy access to meeting rooms have been related to higher job satisfaction and group cohesiveness (Lee and Brand, 2005). Allen and Henn (2007) argue that it is important for the physical space to be configured to facilitate the communication and work patterns required by the job. This may mean providing what Becker and Steele (1995, pp. 78) term "activity magnet areas," such as coffee areas where individuals may eat their lunch, have a drink, hold informal meetings with colleagues, or use for quiet reading. McCoy (2005) notes that providing a mix of different meeting spaces close to teams can help increase impromptu meetings and serendipitous interactions (Peponis et al., 2007), thereby encouraging team communication and collaboration. Providing adequate space for impromptu meetings to occur within the office may help to maximize the potential of open-plan working (e.g., increased visibility and communication) while limiting negative effects on those working on solitary tasks (i.e. by moving impromptu meetings away from co-workers' desks).

Thackera (1997) discusses the reasons why organizations need to continuously be innovative in order to remain a healthy business. Thackera explains, "The only thing a company has that cannot be bought or copied is the knowledge and creativity of its people (Thackera, 1997, pp. 40). Thus organizations need to figure out how to cultivate and capitalize on equity that the collective creativity of the people of their organization can produce. Thackera emphasises why innovation is so important and

that the key to being innovative is through cross-disciplinary or interdisciplinary collaboration. This is in line with Turner and Myerson's (1998) discussion about the importance of space design that allows cross-disciplinary interactions between many types of people within an organization. They describe a new concept in office design where a space is designed for people to interact within the workplace in an environment that feels like a social club. "The club is informal and unhierarchical because it is not based on precedent or territory, and it is a great environment for cross-fertilization of ideas because you will meet people there other than those you originally intend to meet" (Turner and Myerson, 1998, pp. 116). Furthermore, based on Duffy's research (1997) they predicted that "it is the rich and varied setting of the club which best illustrates the way the new office is going, with its high levels of both autonomy and interactions" (Turner and Myerson, 1998, pp. 73) where intense collaboration and creative knowledge work can be carried out.

As the workplace is a human-ecosystem (Jenkins, 2008), its physical space needs to be designed with social and cultural factors in mind. The design of the space needs to support and enable random stimulations between employees. Serendipitous encounters are directly related to random stimulations and occur when people meet each other by chance in a way fundamental to human happiness. There is a need for collective creativity to design the appropriate physical space for random stimulations. It is known that the key to a successful environment where people feel comfortable interacting is based on the amount of happiness the environment offers the people (Stilgoe, 2005).

In line with Becker (2004), who believes that every office has a unique "organizational ecology" and that no two places should be designed alike, Groves (2010), by examining the 38 most creative spaces in business, found that there are four main categories of creative space, each supporting a different type of creative activity: space for stimulation, space to think, space to share, and space to connect and explore.

Sturm and Schimpf (2011) conducted 13 interviews with R&D and innovation managers of leading Swiss and German companies over the period of six months, proposed six workspace scenarios that are suited to meet the needs of R&D work in the coming years. These are: 1) the individual workplace, 2) the creativity workshop, 3) the control room, 4) the prototyping and testing workshop, 5) the project room and 6) the silent room. This typology fits into Groves' ideas of spaces of different types of creative activity as these scenarios reflect the need for a work environment that is more flexible and can support collaborative project work but at the same time highlights the importance of individual work if needed.

Groves and Sturm and Schimpf's findings have a good match with Fayard and Weeks' (2011) article on the effects of design on serendipitous interactions. After conducting 9 studies over 12 years, their conclusion

comes down to three dimension or “affordances” that have physical and social aspects: Proximity, Privacy and Permission. According to their article “the most effective spaces bring people together and remove barriers while also providing sufficient privacy that people don’t fear being overhead or interrupted. In addition, they reinforce permission to convene and speak freely. ... getting the balance wrong can turn a well-meant effort to foster creative collaboration into a frustrating lesson in unintended consequences.” (Fayard and Weeks, 2011, pp. 104)

Taylor, back in 1983, has already proposed a person-environment congruence model of place attachment. The model suggests that place attachment involves “expectations of stability, feelings of stability, feelings of positive affect, greater knowledge of the local and behaviours that serve to maintain or enhance the location” (cited by Fayard and Weeks, 2011).

Based on these findings we can conclude that companies need to find the balance in creating an office environment that supports all kind of creative and collaborative knowledge work and in turn promotes greater R&D results as it supports impromptu meetings and serendipitous encounters which are essential in idea generation. Consequently, managers need to design with balance in mind both physical and virtual spaces and need to think about new management tools that fits the organization culture as well.

Leading companies have already tried to adapt these creativity principles e.g. supporting intrinsic motivation; giving permission and freedom to work on ideas that belong to personal interest; creating space for play and joyful activities; for recharging or stimulation; or for collaboration activities.

Good examples of giving permission to employees can be found in the cases of IDEO, Zappos, 3M and Google. In IDEO’s flexible office, portable furniture lets employees move around to work near whoever they are collaborating with. At Zappos, managers are encouraged to spend as much as 20% of their time socializing and team building (Fayard and Weeks, 2011, pp. 106). 3M introduced the “15% rule” allowing people to spend up to 15% of their time on projects of their own choosing. Similarly, Google uses its “70-20-10 rule” where 70% means the time spent on core projects, 20% of their work time engineers can work on projects outside of their core job and 10% of their time they can work on entirely new ideas and projects.

Google is not only known for its flexible working hour rule, but also known for its relaxed working atmosphere. Google’s headquarters, the so-called Googleplex in Mountain View, California, represents a feeling of a university campus. Big rubber balls, lava lamps and toys can be seen everywhere. Besides outstanding cafeterias, there is a rich array of sports activities and many services can be found there. All this is supposed to maintain fun at work, generate a playful environment and allow employees to further their own development and fulfil

themselves.

Lego’s Innovation Room can be a good example for stimulating environment. This is a place in which designers, marketers and commercial people alike come away from their desk and their usual workspaces to conceive new ideas. It is a place with no branding, no primary colours or miniature figures. It is a blank canvas for stimuli and ideas (Groves, 2010)

DreamWorks` campus is intensely relaxing, it gives an environment that encourages people to relax and take a breath of fresh air. One of the main thoroughfares between buildings carves a zigzag path over a grassed hill, railings intentionally slowing people down to breathe the air and relax the mind (Groves, 2010).

### 3. Co-working spaces

Co-working is a broad term that has been rapidly expanding in recent years. For us, co-working means a phenomenon that happens in shared, collaborative workspaces in which the emphasis is on community, relationship, productivity and creativity. According to this view co-working refers to the task/activity/work carried out in a space and not to the space itself. It can be understood as a tool or method that facilitates collaborative work but also provides the freedom to work independently in an unusual, creative way.

In 2008, New York Times reporter Dan Frost 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, pp. 9). As Frost reported, when Mr. Neuberg decided to be a freelancer and create an alternative work environment in 2005, the so called “co-working” movement was started.

Originally the term co-working typically referred to the new alternative workspace of the “freelance economy”. There are many trends behind its successful expansion around the world.

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. This trend led to the increase of the “freelance economy”.

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). Toffler’s (1980) “electronic

cottage”, in which workers could do work at home by using their personal computers, has come into existence. People “no longer need a huddle”, mobile phones and laptops have replaced their immobile ancestors (Ross, 2006 pp. 144), 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.

The nature of work is also changing which is also an important driving factor for current office evolution (Laing, 2006). Key to this evolution is the continued growth of knowledge working, both as a percentage of the economy and of the labour force (Davenport, 2005). Knowledge workers frequently undertake a range of tasks and those tasks can be done in different work spaces (Davis et. al. 2010; Robinson, 2010; Craig, 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.

Co-workers are commonly doing creative jobs. Location-independent professionals have found that moving to co-working spaces not only gives them cost effective ways of working, it has a wide range of positive effects as well. Co-working is based on mutual trust and sharing of common core objectives and values between members (Deskmag, 2012). According to the Deskmag Survey (2012), the main reasons why people join a co-working space is to be part of a community, answered by 94%, followed by interaction with others, flexible work styles, and serendipitous encounters, discoveries and opportunities. If co-workers 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.

These results are in line with the research findings on creativity in terms of how to support creativity and what kind of spaces stimulate individuals and teams in order to boost creativity and productivity. The co-working spaces also create an atmosphere that supports a freelancer’s ‘state of being’ by combating previous problems of isolation and loneliness and providing a sense of community.

These principles and patterns can be applied in the context of a large company environment as there are a wide range of operating co-working spaces successfully worldwide that can give ideas of how to set up, manage and operate such a space inside a company’s boundaries

or located in remote places.

### 3.1 Example – *Seats2meet*

We have chosen in this paper to introduce the example of the co-working spaces run by Seats2meet. This is because we believe that its model, that combines the physical spaces with virtual spaces, could be an interesting example for implementation by a large company.

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).

### 3.2 Our collaboration with IndyCube

We are currently collaborating with another company, IndyCube, who offer co-working spaces throughout South Wales in the UK. In our research with IndyCube we look at different co-working spaces in terms of office layout and design, community, collaboration and use of virtual platforms, in order to gain deeper understanding of the advantages and disadvantages of co-working spaces. Our research approach uses a combination of qualitative and quantitative research methods. Initial work focused on participatory ethnographic studies in the co-working spaces. Currently an online questionnaire survey is being carried out, and later interviews with around 100 co-workers and operators will be undertaken. We plan to use an action research methodology moving forward to test our ideas and proposed solutions and to explore different business models with IndyCube.

## 4. Options for R&D organizations

Open innovation (Chesbrough, 2003), globalization and expanding ICT capabilities have transformed R&D, so that managing the R&D lab of the future is tending to a dynamic innovation ecosystem.

Large companies can offer various work options to their employees where R&D activities can be carried out. These alternatives can be Innovation labs, Social spaces or Living Lab environments. However, we need to keep in mind that as Kim and de Dear (2013) have shown, the simplistic or unmanaged use of open-plan working space is unlikely to achieve significant interaction gains while at the same time having considerable disadvantages (loss of privacy, noise and disturbance).

Innovation labs are created by large companies to take advantage of the lean model. They are innovation arenas established for specific research projects.

Social spaces are hallways, food stops or outside areas that aims to encourage the sharing of tacit knowledge and strengthen relationship bonds.

Living Lab collaboration is an open innovation environment in a real-life setting, in which user-driven innovation is fully integrated within the co-creation process of new services, products and societal infrastructures,

The following table summarizes the advantages and disadvantages of the above mentioned options.

Alternatives	PROS	CONS
Innovation labs	<ul style="list-style-type: none"> <li>Established for specific research field/project</li> <li>Most modern IT infrastructure</li> <li>Close collaboration with fellow colleagues</li> <li>Limited but available financial resources</li> <li>Community-based</li> </ul>	<ul style="list-style-type: none"> <li>R &amp; D activities are divorced from 'mainstream' activities</li> </ul>

	<ul style="list-style-type: none"> <li>creative environment</li> <li>Stimulating, inspirational, reflective atmosphere</li> <li>The whole R&amp;D process can be managed</li> </ul>	
Social spaces	<ul style="list-style-type: none"> <li>Promote informal conversation</li> <li>Encourage serendipitous encounters</li> <li>Open, flexible design</li> <li>Space for play, think, relax</li> <li>Idea generation only</li> <li>Networking physically</li> </ul>	<ul style="list-style-type: none"> <li>Lack of management control</li> <li>Hard to gauge whether activities have been successful or not</li> </ul>
Living Lab	<ul style="list-style-type: none"> <li>Open</li> <li>Flexible</li> <li>Diverse group of stakeholders can participate (not only employees of the company)</li> <li>End-user involvement in the innovation process</li> <li>Networking physically and virtually</li> <li>Sustainable financially</li> </ul>	<ul style="list-style-type: none"> <li>Complex</li> <li>Hard to manage</li> </ul>

Table 1. Comparison of options for R&D activities

Our proposed solution for future R&D space is a club-type environment that supports different kind of creative activities and provides flexible working solutions for individuals and teams is called co-working space.

We can identify three types of co-working spaces and their common advantages can be summarized as follows:

- Access to the necessary tools and resources
- Interaction with people from a range of backgrounds/disciplines
- Space for encouraging serendipity to occur
- Virtual platform provides opportunity to find out who is currently in the co-working space you would like to meet
- Space for quite self-reflection
- Space for collaboration projects
- Space for “immersion in concentrated activity” vs. classical open offices that can be very distracting

Model	Other factors
1. Internal co-working space (for employees only)	<ul style="list-style-type: none"> <li>Interaction limited to people from within the organisation.</li> <li>Cost of creating and maintaining a new co-working space might be prohibitive</li> </ul>
2. Internal co-working space (open to non-employees as well)	<ul style="list-style-type: none"> <li>Interaction with people from a more diverse range of backgrounds / disciplines from both inside and outside the organisation</li> <li>Collaborative projects could provide spaces for other companies, stakeholders and end users to participate directly.</li> </ul>
3. Joining outside co-working spaces	<ul style="list-style-type: none"> <li>Interaction with people from a diverse range of backgrounds/disciplines outside the organisation</li> <li>Allows employees to spend time in a different environments meeting</li> </ul>

	<p>different people.</p> <ul style="list-style-type: none"> <li>• Allows for employees to avoid commuting to work on some days.</li> <li>• Issues related to privacy and intellectual property need to be addressed</li> </ul>
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Table 2. Different co-working space options

## 5. Discussion and conclusions

In this paper it is suggested that research-intensive companies will need to purposefully address the issues of workspace design in relation to creativity and innovation. This means that the physical and virtual work environment will have to provide spaces for different kind of creative activity e.g. collaboration, inspiration, thinking, sharing and exploration. Furthermore there is the need to address the core values of co-working (openness, communication, collaboration, accessibility and sustainability) in order to generate a `serendipity machine` where R&D activities including successful idea generation can be carried out.

In recent times, the co-working business model has attracted the attention of larger companies who seek to use the concept for themselves, or to find a way to integrate into existing structures. Employees are demanding more freedom and flexibility in the way they work with the spreading of the `management by objectives` approach, which promises more flexibility on the way to goal achievements, companies are increasingly answering this demand. Co-working spaces are compatible with this management style: they offer both an alternative to the corporate day-to-day life and an alternative to the home office.

Even if a company does not yet want to establish its own co-working space, it can support the business model and use it. In this paper we have shown that co-working is a club-type environment can be a flexible workspace where individuals or teams can choose which setting they want to work in for a given task at any given time. If companies were to give permission to their employees to use these club-type co-working spaces on a regular basis, they can provide a different environment that supports more productive and creative work.

The use of a virtual space for supporting idea sharing and collaboration is again something which can be learnt from the co-working model. We could see how Seats2meet created a serendipity machine combining the physical space with the virtual space. In a large company environment a similar virtual dashboard could also serve as a platform for employees of different divisions and every time someone feels like taking a break from their regular desk-work they can sign in and book a desk space and join to the "idea generation machine". Similarly, skills and expertise of all employees would be up to date and in this way they can see each other and use the space if someone else is there whose skills or expertise matches the idea or project she or he plans to do.

However our proposed solution is imagined to establish

inside the company, some companies have already been using the co-working space option, not on a permanent basis but instead for special projects that are meant to happen outside of usual structures. Berlin's Betahaus for instance cooperates with companies on a regular basis. The companies are especially interested in finding out how the new work model functions and how they can use its innovative power for profit. Large companies are increasingly using freelancers already and are therefore interested in finding out how they can incorporate the use of co-working space work structures into their own company. Daimler-Chrysler worked on their car sharing project "car2go" in cooperation with Betahaus Berlin, which made the use of special areas inside of the co-working space available. TUI with its Modul 57 or ING with the Network Orange Co-working Space hope to tap new sources of specialized knowledge through the creation of co-working spaces or through the collaboration with co-working spaces (Schurmann, 2013).

Large companies that are interested in the use of a co-working space need to be prepared for the specifics of this type of working model. For instance, there has to be an assessment of risks in regards to IT safety or the handling of sensitive information – those problems areas need clarification right at the beginning. Managers who are used to and embedded into traditional organizational structures have to learn about the business model to make their projects co-working compatible.

## 6. References

- Allen, T. and Henn, G. W. (2007) The organization and architecture of innovation: managing the flow of technology, Oxford: Elsevier.
- Amabile, T. M. (1997) Motivating Creativity in Organizations, *California Management Review*, **40**, 1, 1997, 39-58.
- Amabile, T. M., Conti, R., Coon, H, Lazenby, J., and Herron, M. (1996) Assessing the work environment for creativity. *Academy of Management Journal*, **39**, 5, 1154-1184.
- Becker, F. (2004) Offices at work: uncommon workspace strategies that add value and improve performance. 1st San Francisco, CA: Jossey-Bass.
- Becker, F. D. and Steel, F. (2005) Workplace by Design: Mapping the High-Performance Workspace. San Francisco, CA, Jossey-Bass.
- Boden, M. A. (2004). The Creative Mind: Myths and Mechanisms, London: Routledge.
- Boschma, R. A. (2005) Proximity and Innovation: A Critical Assessment, *Regional Studies*, **39**, 1, 61-74.
- Chan, J. K., Beckman, S. L. and Lawrence, P. G. (2007) Workplace Design: A New Managerial Imperative, *California Management Review*, **49**, 2, 6-22.
- Chesbrough, H (2003) Open Innovation: The New Imperative for Creating and Profiting from Technology. Harvard Business School Press, Boston, MA.
- Clifton, N. (2008) The 'creative class' in the UK: an initial analysis, *Geografiska Annaler Series B*, **90**, 1, 63-82.
- Clifton, N., Cooke, P., and Hansen, H. K. (2013) Towards a Reconciliation of the 'Context-less' with the 'Space-less'?

## R & D Management Conference 2014, 3-6 June, Stuttgart.

- The Creative Class across Varieties of Capitalism – new evidence from Sweden and the UK, *Regional Studies*, **47**, 2, 201-215.
- Cooke, P. (2002) Knowledge Economies. Clusters, Learning and Cooperative Advantage (London: Routledge).
- Craig, D. (2010) The workplace's impact on time use and time loss, *Paper Presented at the Annual Meeting of the Academy of Management*, Montreal, Canada
- Csikszentmihalyi, M. (1996) Creativity. Flow and the Psychology of Discovery and Invention, New York.
- Davenport, T. H. (2005) Thinking for a Living: How to Get Better Performance and Results from Knowledge Workers. Boston, MA: Harvard Business Press.
- Davis, M. C., Leach, D. J. and Clegg, C. W. (2011) The Physical Environment of the Office: Contemporary and Emerging Issues, *International Review of Industrial and Organizational Psychology*, **26**, 193-237.
- Deskmag (2012) 1st Results of the 3rd Global Coworking Survey. Available at: <http://www.deskmag.com/en/1st-results-of-the-3rd-global-coworking-survey-2012> [Accessed: 10 April 2014]
- Duffy, F. (1997) The New Office. London: Conran Octopus.
- Fayard, A-L. and Weeks, J. (2011) Who Moved My Cube? *Harvard Business Review*, July-August 2011, pp. 102-110
- Florida, R. (2002) The Rise of the Creative Class, New York, 2004.
- Florida, R. (2002). The Rise of the Creative Class, New York: Basic Books.
- Frost, D. (2008) They're Working on Their Own, Just Side by Side [Online]. New York Times, February 20, 2008. Available at: <http://www.nytimes.com/2008/02/20/business/businessspecial/2/20cowork.html?pagewanted=all&r=0> [Accessed: 8 April 2014]
- Groves, K. (2010) I Wish I Worked There! A Look inside the most creative spaces in businesses. London: John Wiley and Sons Ltd.
- IBM (2010) IBM 2010 Global CEO Study: Creativity Selected as Most Crucial Factor for Future Success [Online]. Available at: <http://www-03.ibm.com/press/us/en/pressrelease/31670.wss> [Accessed: 10 April 2014]
- Jenkins, J. (2008) Creating the Right Environment for Design, *Design Management Review*, **19**, 3, 16-22.
- Jones, D., Sundsted, T., Bacigalupo, Y. (2009) I'm Outta Here – How Coworking is Making the Office Obsolete, Brooklyn/Austin.
- Kakko, I. & Inkinen, S. (2009) Homo creativus: creativity and serendipity management in third generation science and technology parks", *Science and Public Policy*, **36**, 7, 537–548, Oxford University Press.
- Kim, J., & de Dear, R. (2013) Workspace satisfaction: The privacy-communication trade-off in open-plan offices, *Journal of Environmental Psychology*, **36**, 18-26.
- Kwiatowsky, A. and Buczynski, B. (2011) Coworking: How Freelancers Escape the Coffee Shop Office, Fort Collins.
- Laing, A. (2006) North American Office Design at the Start of the New Millennium, In Worthington, J. (ed.) *Reinventing the Workplaces*, 2nd edition, Amsterdam, pp 235-258
- Lee, S. Y. and Brand, J. L. (2005) Effects of control over office workspace on perceptions of the work environment and work outcomes, *Journal of Environmental Psychology*, **25**,3, 323-333.
- Loudon, G.H. and Deininger, G.M. (2014) A new model for supporting creativity in research organisations, *The R&D Management Conference*, Stuttgart, Germany, 3rd-6th June 2014.
- Martins, E. C. and Terblanche, F. (2003) Building organizational culture that stimulates creativity and innovation. *European Journal of Innovation Management*, **6**, 1, 64-74.
- McCoy, J. and Evans, G. W. (2002) The potential role of the physical environment in fostering creativity, *Creativity Research Journal*, **14**, 3/4 , 295-308.
- McCoy, J. M. (2005) Linking the physical work environment to creative context, *Journal of Creative Behaviour*, **39**, 3, 169-191.
- Olma, S. (2012) Serendipity Machine: A Disruptive Business Model for Society 3.0, Creative Commons.
- Peponis, J., Bafna, S., Bajaj, R., Bromberg, J., Congdon, C., Rashid, M. et. al. (2007) Designing space to support knowledge work, *Environment and Behaviour*, **39**, 6, 815-840.
- Pine, B. J. and Korn, K. C. (2011) Infinite Possibility: Creating Customer Value on the Digital Frontier, San Francisco: Berret-Koehler Publishers.
- Robinson, K. (2009) The Element. How finding your passion changes everything, New York.
- Robinson, M. (2010) An empirical analysis of engineers' information behaviours, *Journal of the American Society for Information Science and Technology*, **61**, 4, 640-658.
- Ross, P. (2006) Technology for a New Office. In Worthington, J. (ed.) *Reinventing the Workplaces*, 2nd edition, Amsterdam, pp 143-156.
- Schurmann, M. (2013) Coworking Space: Geschäftsmodell für Entrepreneur und Wissensarbeiter. Springer Gabler, Wiesbaden.
- South Korean Government (2013) Creative Economy Action Plan [Online]. Available at: [http://www.kdi.re.kr/about/gov\\_download.jsp?file\\_name=6995\\_01.pdf](http://www.kdi.re.kr/about/gov_download.jsp?file_name=6995_01.pdf) [Accessed: 10 April, 2014]
- Stilgoe, J. R. (2005) Landscape and Images. 1st Charlottesville: University of Virginia Press.
- Sturm, F. and Schimpf, S. (2011) R&D Work Environments 2015: Designing physical spaces for innovation. *Proceedings of the R&D Management Conference 2011*, Norrköping, Sweden, June 27th to 30th.
- Thackera, J. (1997) Winners! How today's successful companies innovate by design, Amsterdam: BIS
- Toffler, A. (1980) The third wave, New York, NY: Bantam Books
- Turner, G. and Jeremy, M. (1998) New Workspace, New Culture: Office design as a catalyst for change. 1st Hampshire, England: Gower Publishing Limited.