

ZWISCHEN  
DENWELTEN



Volume 9

Mark N. Phillips

# Collisions

Room for Creativity and Innovation in the Office

Editors: Jürgen Krahl / Josef Löffl



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Zwischen den Welten

Band 9





Collisions  
Room for Creativity  
and Innovation in  
the Office

Mark Phillips  
Hochschule Coburg





## Collisions

Room for Creativity and Innovation in the Office

Prof. Mark N. Phillips  
Coburg University of Applied Sciences  
2016

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**Mock Up**  
**Seating in the corridor for**  
**short interactions**

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## Foreword by the Editors

Many a time an intensified look at (seemingly) well-known surroundings is enough to give an impulse for a new approach. “Zwischen den Welten” personifies the self-conception of a contemporary research platform which provides room for ideas and approaches based on the entire spectrum of academic disciplines. In many respects, it is precisely these interspaces between the specialised professions which offer suggestions for innovation. By and large, these interspaces are all too often ignored when examining the whole situation. The author of this volume focuses our attention on those aspects in which the basic framework acts as a setting for our daily professional life. Due to his combination of creative intuition and knowledge from neurological research as well as his experience with creative room concepts, Mark Phillips opens up a new world, which everyone can experience – as long as we have the courage to follow the directive concepts described in this publication.

Jürgen Krahl and Josef Löffl





## Foreword

During my research, I stumbled across an article by Ben Waber, Jennifer Magnolfi and Greg Lindsay on the topic of workplace design. They use the term “collisions” to describe random encounters of company employees. In a working world which is becoming more and more digital, interaction among employees is increasingly awarded more meaning and value. Collision is an appropriate term because it contains both the sense of informality and spontaneity. However, is it possible to predict and verify the effects of processes in companies and those in such collisions? Could it be possible that they even stimulate innovation and promote creative work in companies?

A lot has been said about creative work. It is supposed to be the future, the future of many employees and many companies. New developments are unthinkable without creative work. Avoiding changes to processes in the office environment implies no new developments and innovations. But what is creative work? Bringing a little clarity into the picture will do no harm. On the one hand, we need clarity on the term “creativity” and what contribution we can make to creativity when we are at work. For this, I have collected and evaluated some of the research in this field. On the other hand, we need clarity on the question of work, office work. Where does work take place, what is it and in what way will it probably change in the future.

Considered together, creativity and office work could provide us with information about the requirements needed in a designed office environment in order for creative work to be able to take place there. This can happen when the right conclusions are drawn from observations on the conditions needed for the emergence of creativity. These conclusions can then be applied to spaces that are already available in offices or are in the process of being planned or still need to be found.

Using a sound basis, it is our goal to develop a causal relationship between the conditions for creativity and the environment in the office. The pre-requisite for creative work is a space that is so organised that it provides support for creativity. Our aim is to design such a space.

Prof. Mark N. Phillips



**COBURG UNIVERSITY**  
of applied sciences and arts



**Mark Phillips**

Photo: Coburg University



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## Summary

Topics such as change management, flexible office, home office, etc., play an increasing role in office planning and office design. Such topics are of direct significance for the employees as users of these office spaces. In this project, we investigated the insights from creativity research on the relationship between body and mind as well as human behaviour which have been developed from psychology and neurosciences to see how they could be used in the design of space in the office environment. Ultimately, it begs the question as to whether and how changes in the self-conception of companies are reflected in the built office environment. For a company that really takes the needs of its employees seriously will continue to operate in a future where there will only be an even smaller number of skilled workers available, where their increased consciousness about their individual needs continues to function and where they still generate innovation.

Creativity and also innovation are viewed as a reflection of the environment. The term “creativity” is frequently used in the arts and, especially nowadays, sometimes in the development of computer hardware and software. In the arts, such a reflection does not usually take place from a sociological or economic point of view. In many cases, however, ‘innovation’ and the area of innovation management are associated with technology or economic sciences. Innovations are deemed to be a pre-requisite so that they can be deployed in an economic way by businesses.

For this reason, interfaces between an economically determined environment and the arts are required for the development of concepts about creativity and innovation. It is especially here that the question arises concerning sociological innovation for society. These interfaces are ideally represented by architecture in its original tradition and design in its modern definition. In our view then innovation management is a core competence in the methodological principles of architecture and design. Office planning is economically a significant part of architecture and design and is located within the realm of interior architecture. Our current understanding of interior architecture is that it involves an interdisciplinary approach in which related areas such as psychology, philosophy, behavioural science, brain research or health management serve as the basis for solid enhancement and new insights. It is especially in the interaction of these disciplines that it is possible for a humanistic and user oriented approach to occur which should be of benefit to mankind. Only through scientifically validated knowledge about the needs of human beings is it possible for the environment to be planned and equipped according to these needs.





For this reason, a compilation has been made of the current state of discussion as well as scientific findings on a specific section of creativity research and office design. This has been done with the objective of making a contribution to the discussion on the promotion of creative work. A hypothesis is to be raised that establishes a relationship between the results of creativity research and office planning. This should result in providing knowledge about the conditions that should exist in an office so that creative work is possible in there. These results are to be used and documented in a practical project.

Three space groups from office planning will be given special attention:

1. The classical workplace
2. Gathering spaces
3. Threshold and transition spaces

As there is sufficient knowledge available about the first two space groups and this has been adequately researched upon and documented in both the literature and in practice, the emphasis here will be on the third group, namely “Threshold and transition spaces”.

The following will be taken into consideration from psychology and health research on the human ‘system’ [1]:

- rational intelligence
- intuitive intelligence
- the human body or physiology.

One of the special areas of investigation is the way in which spontaneous contact in threshold and transition spaces can provide support and promote the intuitive systems of human beings. In that way, these spaces could make a significant contribution to creative activities and innovative processes.

Thanks to the close cooperation with an office in Stuttgart that works in the creative sector, it was possible to implement the equivalence of the need and feasibility that were found during the investigation. The theoretical presentation was temporarily implemented in a real planning process in the form of a practical project. The objective was to create a living showroom and to do so together with partners from the building industry. On this basis, the planning could then be presented, checked and demonstrated on a 1:1 scale. A working area would ensue that would be available to various users in the form of a co-working space. This provides the opportunity for temporarily implementing the planning using suitable products from partners and for documenting the results. Examples emerged that specifically demonstrate how



threshold and transition spaces could be designed to enable creative exchange in an office environment. These examples were documented and photographed so that they could be used as a visual basis for discussion and for further development of the idea “Collisions, Room for creativity and innovation”.

The work undertaken here uses sound knowledge to provide a stimulus for dealing with statements in the area of the design of office spaces. In the area of design, assumptions are often made that have no sound basis or are not scientifically proven. This leads to arbitrary assertions being made. This is especially true in the area of creativity which can hardly be detected by objective means and where the procedures are difficult to define. Here, almost everything that sounds feasible is permitted.

In chapters 1 and 3, creativity will be examined in terms of what we understand it to be. Specialist publications as well as my own experience allow us to provide a definition using systems about how creativity can be understood and following that, what we might understand under creative office work. We will continue by examining existing spaces that we know were planned with a certain amount of consciousness, in terms of the definition of creativity, so that they would provide support for creative work. Of utmost importance is the presentation of the requirements needed in the design of spaces that fulfil the previously defined conditions for creativity. The second chapter presents what we understand today to be in keeping with modern office work. In this chapter, a number of specialist publications will be examined and commented on. The aim is to present a picture of what office work should be understood to be. The last chapter aims at showing that in the office there are relationships between singular space groups and that these have an influence on creative work. The emphasis here will be on the intuitive decision system as a creative system and the threshold and transition spaces as a space group. The aim is to demonstrate that these kinds of spaces really do have an influence on creative work in the office. A specific example will be used to illustrate how these kinds of spaces can be designed in order to demonstrate their support for creative work.

Possibilities for further development beyond the work undertaken here lie in evaluating the contributions posted in the discussion. In this way, it will be possible to investigate how changes to the threshold and transition spaces in an office will have an influence on the creative working approach and quality of employees. This was done in a suitable environment using scientifically valid methods. Using these results, it is possible to develop a benchmark that has general validity. This can be used again and again in the development of interior concepts in the office area. Through reference to this benchmark, further developments can be accelerated without continual recourse to fundamental questions.





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## Chapter 1

### How does innovation arise?

At work?

- What has work got to do with creativity?
- Is innovation also work?
- Is the term 'work', and all that we generally understand it to mean, at all suitable for use in the context of being creative and innovative?
- Is there such a thing as creative work and where are we innovative?
- Is there a relationship between the spaces in which we work and the creative and innovative activity itself?

These are all questions that are of interest in this project and to which there are various answers.

However, there is one fundamental question that needs to be answered:

- How do creativity and innovation arise?

### Five Phases

As we are going to be concerned with the question of whether and how the designed office environment affects human creativity, we will need to have a closer look at what causes creativity. First of all, it is important to clarify that when we talk about creative work, we are not only concerned with the so-called creative industry. We are addressing all disciplines which have the requirement as part of the daily routine to develop new things or to create them or to question conventional practices and in that way generate innovation. This might be something temporary or simply a description of one's own activities and is completely independent of whether one is for example, a web designer or a programmer. The question "how does something new come about?" is certainly not as easy to answer as the request for a definition of creativity. Over the past few years, I have accumulated a number of suggestions and possible answers under <http://wieneues.blogspot.de/>. This blog is a collection of impressions, lectures and literature on the topic that will be dealt with in detail in Chapter 3, Creativity – State of the Discussion.



Prof. Gerald Hüther, neurobiologist and author explains what happens in the brain when something new is anchored there. The brain is extremely plastic in terms of its architecture and he uses this in referring to the 'little man experiment' in which the reaction of six-month old babies was compared with their reaction six months later. (Video: Can Babies Tell Right From Wrong?, *NYTimes.com* – Video [2]). Babies can decide intuitively on what is good and what is bad i.e. this is not learnt rationally but is already available intuitively. The question that he raises is, why later in life anything new or new mind-sets are seen as something painful. He quotes Hermann Hesse: 'Courage, my heart, take leave and fare thee well!' and adds the following to it

*My heart and not my brain! ... Our ideas and conceptions ... are closely coupled with our emotional centres.<sup>1</sup>*

In conclusion, we can say that we want a lot of things that are new. However, we find it naturally and physically difficult to abandon our old habits. We are guided by our system and it is very difficult for us to depart from what we are used to. Something has become connected or has manifested itself in us, often subconsciously.

Prof. Hüther plays a decisive role in the film "alphabet – Angst oder Liebe" (alphabet – fear or love). The film deals with the question as to whether it is possible that already as a child we know everything and it is our education and training that over the years is responsible for some of this knowledge withering away. Perhaps in this context, experiencing something new is our own degeneration because instead of experiencing love, we only experience fear. Here, it becomes very clear that in creating something new, there is a close dependence upon which exterior influences are having an effect on us. On the other hand, David Kelley, the Guru of Design Thinking, not without reason, talks about "unleashing the creative potential within us all" in his book "Creative Confidence" [4] indicating that many of the prerequisites for creativity lie in or even better, lie within ourselves.

In a programme for local German radio (SWR 2 – Aula) with the title "Der zündende Funke im Kopf – Geheimnis Kreativität" (A Spark in the Head – The Secret of Creativity), Prof. Rainer M. Holm-Hadulla describes the five phases of creativity namely, preparation, incubation, illumination, realisation and verification: [5]

*However, ideas about how creativity starts are often blurry. It is easy to ignore that there are positive and negative aspects. It does not come about all by itself and it is often the cause of tension that is sometimes very difficult to bear. It has*

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<sup>1</sup> „Wohlan, mein Herz, nimm Abschied und gesunde“ und ergänzt „Mein Herz und nicht mein Gehirn! ... Unsere Vorstellung und Überzeugungen ... sind eng mit den emotionalen Zentren verkoppelt“ [3]



*to be worked for and many hurdles have to be overcome on that path to a creative life.<sup>2</sup>*

Here, the internal tension that is part of the creative process is being discussed. During the incubation period, this tension lies within us and is the pre-requisite for the production of something innovative.

*In order to produce something extraordinary, one finds oneself in a tense situation. One encounters difficulties and sometimes even failure. Some manage to bear the tension of the “not yet” especially when supported by sympathetic companions and go on to face the creative incubation phase. In it, the known takes on new forms. Something new and useful is in the process of being hatched.<sup>3</sup>*

One could describe the process of dealing with this tension at every phase as innovation and creativity management. In any case, there are various parameters and descriptions for this. At the Faculty of Design of Coburg University, I have been deeply interested in this in the context of the process of developing something new. In my research, I am especially interested in the moment of illumination. We ask ourselves what requirements both internal and external are necessary in order to produce that very moment when an idea is created. We are interested in the requirements, the preparation and incubation for innovation and creativity and what is needed for its further development, realisation and verification. Current results from brain research, psychology, philosophy, sociology and related fields form the framework for our research.

It is our own personal experience in design, in searching for this moment and in accompanying students in their search for these moments that lead to our special competence. Both we and our students then become the subject of observation. My observations make me believe that these moments do not occur in phases of tension, concentration and control but in phases of relaxation, contemplation and letting-go. However, we are generally not trained for these phases. This is why some of the requirements for creative processes need to be looked at more closely:

- Open-endedness and Motivation
- Eureka and Apercu – Promoting and fostering ideas

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<sup>2</sup> „Allerdings sind die Vorstellungen, wie Kreativität entsteht, oft unklar. Es wird leicht ignoriert, dass sie Licht- und Schattenseiten hat. Sie stellt sich nicht von selbst ein und löst oft Spannungen aus, die schwer erträglich sein können. Man muss sie sich erarbeiten und viele Hindernisse auf dem Weg zu einem schöpferischen Leben bewältigen.“ [5]

<sup>3</sup> „Um etwas Außergewöhnliches zu produzieren, gerät man jedoch in Spannung. Man stößt auf Schwierigkeiten und scheitert gelegentlich. Manchen gelingt es, die Spannung des Noch-Nicht, häufig unterstützt von verständnisvollen Begleitern, zu ertragen und sich der kreativen Inkubationsphase auszusetzen. In ihr entwickelt sich das Gelernte unbewusst zu neuen Formen, etwas Neues und Brauchbares wird ausgebrütet.“ [5]



- Risks and Choices
- Errors and error culture

At Coburg University, I work with students on interdisciplinary projects as well as mono-disciplinary ones. In these projects, it was and is still important to demonstrate openness right from the very time of setting the task. However, at the beginning, this can be confusing for the students. They do not receive enough information to be able to solve the task at hand. However, right at the very beginning of the project, the students are expected to express their own expectations so that they are able to start to solve the problem. Here, 'solving the problem' certainly also has something to do with the strenuous process of detachment from my supervision. As I do not expressly state any concrete expectations but consciously allow the students themselves not only to describe the task at hand but also their own expectations, they need to be able to deal with this openness and to do so right from the very beginning. This openness will be counterbalanced by the creation of familiarity on one side and trust on the other. This trust is absolutely necessary in order for students to be willing to try something new, something unknown as well as to promote courage and risk.

### Open-endedness and Motivation

It is commonly said that the outstanding characteristic of Design Thinking is the open-endedness of the processes.

*Design Thinking – if explained on a postcard – is creative thinking with a radical customer or user orientation. It is based on the principle of interdisciplinarity and in a structured, moderated iteration process, it links the attitude of open-endedness with the necessity for result-orientation. Design Thinking breaks with the notion that the future can be extrapolated from the data records of the past and searches for human needs that have not been (sufficiently) satisfied.*<sup>4</sup>

In so doing, open-endedness has always been the basis for a creative process compared to the earlier commitment to finding a solution. One's own experience demonstrates this when the level of one's own creative momentum then increases as the communication of one's own ideas about the type of solution decreases. The result of this is that open-endedness also means the loss of power and pressure. For without having a goal in mind, the exertion of pressure makes absolutely no sense, the direction is unknown. The loss of power however, is the pre-requisite for a creative proc-

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<sup>4</sup> „Design Thinking, - auf einer Postkarte erklärt - ist erfinderisches Denken mit radikaler Kunden- beziehungsweise Nutzerorientierung. Es basiert auf dem Prinzip der Interdisziplinarität und verbindet in einem strukturierten, moderierten Iterationsprozess die Haltung der Ergebnisoffenheit mit der Notwendigkeit der Ergebnisorientierung. Design Thinking bricht mit der Vorstellung, dass sich die Zukunft aus den Datensätzen der Vergangenheit ableiten lässt, und sucht nach menschlichen Bedürfnissen, die noch nicht (ausreichend) gestillt werden.“ [6, S. 13]



ess with an open-ended outcome. Sometimes, the person vis-à-vis may be overwhelmed because openness is something with which one is not familiar. Frequently confusion occurs when goals are not described in a clear way. On the other hand, this approach provides an opening for additional energy that would probably otherwise lead to the classical defensive reactions.

*The term 'Innovation' is in the same league of Management-Bullshitbingo-Ranking as 'Customer Centricity' and 'Strategies of Sustainability'. Someone who has the audacity to really use force to push for innovation is only providing a lip-service that provokes defensive reactions under the surface.<sup>5</sup>*

Power, pressure and force are just the opposite of an open-ended outcome and as such they are especially suitable for preventing innovation and creativity. They are meant to motivate from the outside and in so doing present exactly the opposite of the so-called intrinsic or internal motivation. Intrinsic motivation and creativity require each other. Various pieces of scientific research [7], [8] have demonstrated that one's own motivation for the task at hand produces a more creative result. It's fun to be creative. People find self-assurance and self-realisation in working in a creative manner. Mihaly Csikszentmihalyi [9] coined the term 'Flow' to describe full involvement in a creative activity. You can experience this flow which he describes as a state in which time and space disappear and a positive, attentive mood dominates which is focused on oneself. At the same time, one is so motivated that nothing is called into question. Motivation particularly needs a wide, open space which allows the motivation to flow back into it. Internal motivation cannot develop if relaxation, contemplation and letting-go cannot be really felt.

### **Eureka and Apercu – Promoting and fostering ideas**

Goethe talks of "Apercu" [10] and the term "Eureka" is Ancient Greek for "I have found (it)". The saying is traditionally known in association with Archimedes of Syracuse [11]. Archimedes is said to have jumped from his bath and then run naked through the streets of Syracuse shouting 'Eureka' after having realized how to prove that the king's crown was really made of pure gold and how to do so without destroying it. These are the very special instants when a new idea is created. In some cases, these moments involve a bath tub. However, in many cases it is the time that one spends in the bath and the muse that one experiences in the comfort and warmth of a hot bath.

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<sup>5</sup> „Der Begriff ‚Innovation‘ spielt im Management-Bullshitbingo-Ranking in einer Liga mit ‚Customer Centricity‘ und ‚Nachhaltigkeitsstrategie‘. Es sind Lippenbekenntnisse, die unter der Oberfläche Abwehrreaktionen hervorrufen, wenn jemand die Frechheit besitzt, Innovation tatsächlich mit Kraft voranzutreiben.“ [6, S. 181]





Some people live from their ideas. For them, it is not so much the fact that they earn money by doing so. They would be completely unhappy if they were not able to come up with new ideas. These people are creative geniuses. They are bubbling over with ideas. Our definition of creativity, however, has only marginally something to do with these people. If we look closely at the pre-requisites for the development of ideas, we will be able to find a considerable amount that can be transferred to the general promotion of creativity. Just as Csikszentmihalyi did in an investigation involving creative personalities when he looked at their **pre-requisites for creativity** and how they dealt with the creative moment. [9] The period of the creative processes with the emergence of ideas is the 'Flow' – a state of unconditional happiness and absolute ease that was common to all. He discovered that varied and very individual pre-requisites are needed to reach this common condition to promote ideas and to make them available to all.

Our experience with students at university has shown that happiness is one of the pre-requisites that play an important role. The author Frank Berzbach has mentioned this in his book too. Just as we were able to determine that the best pre-requisite for ideas is the feeling of happiness and security, so Berzbach describes in his book "Die Kunst ein kreatives Leben zu führen" [12] (The art of living a creative life) a number of pre-requisites for those who are professionally creative. These are the titles of a few of the chapters in his book 'Attaining Happiness', 'Zen and Creativity' or 'The Art of Drinking Tea'. He devotes a large section to 'Living and Suffering' in which he deals in considerable detail with negative thoughts and feelings, good and bad moods as well as depression [12]. Periods of depression are a similar phenomenon, similar to "flow" but with reversed signs. There too, ideas and thoughts are produced that would not be possible in normal everyday consciousness.

It is a very complex task to promote and foster the right ideas and bring slumbering thoughts to light with care for oneself and others. No matter whether a human being or a place is being addressed, if this task is taken seriously, both will need to be equipped with a high degree of sensibility. Part of this study will be concerned with how space can provide this sensibility. At the same time, the question needs to be asked on how the ideas that need to be promoted can be evaluated. In addition to a number of definitions, tools and methods, Christian Gänshirt describes in his book "Tools for Ideas – Introduction to Architectural Design", the dilemma facing the critique and evaluation of ideas.

*The new, the original, the innovative features of a design create their own rules. And it is precisely this that since the start of the modern age has been the essential criterion of a design: making inventio more important than imitatio, invention more important than imitation. [13, p. 207]*



## Risks and Choices

A creative process is crucially a process of decision making and choices. It is a process involving analysis, comparison, selection, reconsideration, rejection and starting anew. In most cases, the processes are iterative, a procedure involving loops. During the process, one moves with each loop one level higher as if in an upward spiral. Every time decisions are taken, the question is raised as to where and when these decisions were made and how the decision making process can be supported in a positive way. The decision making process can certainly be influenced by interaction whether organised or spontaneous.

All decisions are coupled with the question about the risk that one is willing to take. Gerd Gigerenzer is one of the leading risk researchers. He has been Director of the Max-Planck-Institute for Human Development in Berlin since 1997. Since 2009, he is also the Director of the Harding Center for Risk Literacy which is in Berlin too. He advises companies and has investigated them in order to see how middle management evaluates the quality of its own decisions. In a survey, he asked managers about which decision they would submit to the next level of management should there be alternatives. Those questioned regularly confirmed that it was frequently the second or third-best solutions that were submitted. Those questioned found it difficult to communicate the best solutions to their superiors because these were intuitive and not rationally based and for this reason too risky for a rational decision making process.

Among the Petersberger Gesprächen 2012 [14], there is a lecture by Gerd Gigerenzer with the title “Wie trifft man gute Entscheidungen” (How do we make good decisions?). At the beginning of his lecture, he makes the following statement:

*We consider intelligence to be an activity that is conscious and deliberate, which abides by the laws of logic. However, in our intellectual life, a lot is not of a conscious nature but is based on principles that have little to do with logic, intuition and gut feelings. We have intuitions about sport, friends, the right bank and other dangerous things. We fall in love; we feel that the DAX is going to go up. Could it be that such gut feelings lead to better decisions? That appears to be naive if not absurd.*<sup>6</sup>

Later on in his presentation, he provides support for the thesis that, in certain decision making situations, intuitive intelligence will make the better choice. Often, this

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<sup>6</sup> „Intelligenz stellen wir uns als eine überlegte, bewusste Tätigkeit vor, die den Gesetzen der Logik folgt. Doch vieles in unserem geistigen Leben ist unbewusst und beruht auf Prinzipien, die mit Logik wenig zu tun haben. Intuition, Bauchentscheidungen. Wir haben Intuitionen über Sport, über Freunde, über die richtige Bank und andere gefährlichen Dinge. Wir verlieben uns, wir spüren, dass der Dax wieder nach oben geht. Können solche Bauchgefühle zu besseren Entscheidungen führen? Das scheint naiv wenn nicht absurd.“ [14]



happens without us being aware of what is going on. Gigerenzer also points out when it is better to make a rational choice and reflect on it a little longer and when it is better to follow one's gut feeling. In most decision making situations, however, we need forms of intelligence, rational and intuitive. Knowing that we use intuitive intelligence when making choices shows how important it is to raise the awareness of a working intuition as the basis for creative processes.

## Errors and Error Culture

*Intuition is experienced knowledge that reaches our consciousness very quickly but we do not know the reasons for it. They are not in language. Intuition is related to that part of our brain that is not conscious and that is the largest part. To brush aside intuition would mean to want to avoid using the largest part of our brain.*<sup>7</sup>

Instead of brain, we could also use the term intelligence. There is a large part of our intelligence that takes place in the subconscious and not in the rational part of our consciousness. Various methods are available during the decision making process and again and again the question is, which of these methods is the right one. It can be compared with a toolbox from which you can choose the most suitable tool for each task. But we are not certain which tool is the most suitable and so we make mistakes. If we recognize our mistake, we can learn from it. If we can communicate this error and discuss it with others then this is an even better learning process. A fundamental pre-requisite for creative activities is to be able to deal with errors in the decision making process. That means that an open error culture that makes it possible to discuss mistakes contributes substantially to whether creative work is possible or not. According to Gigerenzer, defensive decision making is one of the key problems of our society.

As we have mentioned already, the moment in which a new idea arises out of which an innovation develops, is a very special moment that is necessary, valuable and fragile for creativity and innovation. Prof. Holm-Hadulla uses the term "Illumination" [5], Goethe talks of *Apercu* and from ancient Greek came the term "Eureka". "Daily Rituals" is a further description for this moment and is the title of a book by Mason Currey that describes the daily routine of famous artists. There, we can gain an impression of the strategies of famous people from the creative environment in presenting their ideas and again and again producing new ones. Apparently, these rituals are necessary in order to cement the opportunities for muse within the daily routine. It

<sup>7</sup> „Intuition ist gefühltes Wissen, was sehr schnell im Bewusstsein ist aber die Gründe dafür sind nicht bewusst, sie sind nicht in Sprache. Intuition bezieht sich auf jenen Teil unseres Gehirns, der nicht bewusst ist und das ist der Größte. Intuition grundsätzlich beiseite zu schieben bedeutet, den größten Teil Ihres Gehirns nicht benutzen zu wollen.“ [14]



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is crucial that muse is seen as part of the working day and not as a form of compensation. The promotion of ideas can be implemented if an awareness is present that it is not the efficient and target-oriented approach that is promising. Then, the very special moments of the daily routine arise almost by themselves – at least when viewed from the outside.





## Chapter 2

### What does WORK really mean? –

Extracts from publications

The way in which work is viewed in special publications about the workplace, especially in terms of creative activities in the office reflects an attitude that we need to take a closer look at in its function as the basis for our discussion about space for creativity and innovation. Some of the front covers of current specialist publications have been examined as well as a number of research studies and books. On the title pages, the catchphrases demonstrate in just a few words what is considered to be relevant. The choice of words used in the titles reveals the emphasis that is placed on the topic of the office workplace and reflects the general understanding of what it is.

Since 1981 the Fraunhofer Institute for Industrial Engineering (IAO) has focused its activities on the working environment and has played a leading role in an internal research project in the area of **non-territorial workspaces**. The Report 'Working Environments 4.0' attempts a forecast about '**How we will work and live tomorrow**' [16, p. 14]. Already at the beginning of the 1980s, the Fraunhofer IOA examined the fundamentals and effects of non-territorial working places in an internal research project that took place in Stuttgart. At that time, the institute did not find itself in a futuristic new building like today but in a standard office building with a standard office ground plan. There, a plan was tested in which the employees had a free choice of workplace combined with what was considered at that time to be an advanced IT infrastructure. On top of that, there were thoughts about additions to the workplace that were seen as necessary and also desirable and which would provide the employees with the feeling of not having to forego anything but rather of gaining something. I can well remember a room for relaxation and quietness in which there was a couch as well as the possibility of playing music and a choice of coloured lighting.



### “Working Environments 4.0”

Fraunhofer IAO

The working environment is a type of software or hardware update?

Photo: Book cover, Fraunhofer IAO

The IAO always had a strong interest in the technical conditions and needs of office concepts and it continues to follow this course in its bilingual publication ‘Working Environments 4.0’. These possibilities have grown rapidly especially with the technical developments of computers, the internet, the telephone and other forms of networking and so the ideas of the IAO about the working environments of tomorrow have developed in a parallel way. The glance into the future is based on current developments such as home office, co-working and matching digital possibilities. First and foremost, the IAO concentrates its research on the presentation of possibilities not on challenging the needs that evolve through people in the office, from the demands placed on them or through cooperation with other employees.

The Flexible Office Network is an international forum and platform for the exchange of experiences and know-how. It was initiated by iaofb in 2002, Institut für Arbeitsforschung und Organisationsberatung (the Institute for Labour Research and Corporate Consultancy) and in the title of its publication “Flexible Work Worlds – Change Management in Office Planning” [17] the terms **Change** and **Office Planning** are related to each other. Apparently the reasons for change in office planning are very capitalistic and are always the same. The authors state the following:

*Taking global trends into consideration, the primary aim of office design is the **productivity** and the **innovative capacity** of the company.*<sup>8</sup>

Here, besides innovative capacity which cannot really be measured and which we will address in the framework of creativity, they talk about productivity. For example, productivity should grow by increasing the capacity of the employees and of the

<sup>8</sup> „Primäres Ziel der Bürogestaltung ist – unter Berücksichtigung der globalen Trends – die **Produktivität** und **Innovationsfähigkeit** des Unternehmens.“[17, S. 16]

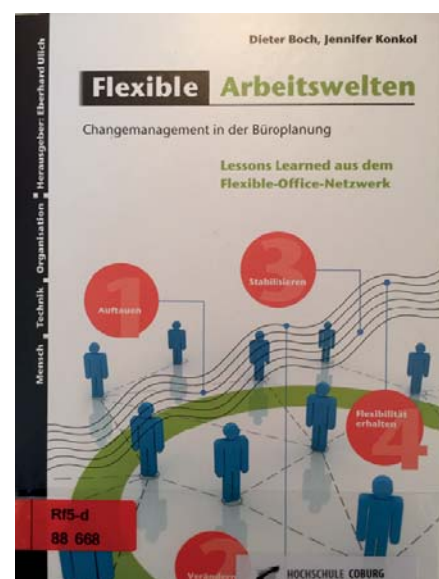


workplace. Such a concept can be nicely seen in the film by Harun Farocki 'Ein neues Produkt' (A New Product) with the example of the construction of the new Vodafone Centre with the Quickborner Team as consultants. Change transfers the modifications in the company structure to the office reality and in the best case develops flexible working worlds for a flexible company. Whether that is the right place to discuss change management in office planning, the subtitle of the book 'Change-Management in der Büroplanung' is open to question. In this context, it would be interesting to establish a link between company culture and the planning of the office instead of looking for a relationship between the structure of the company and office planning.

In her lecture at the Orgatec Symposium in November 2015 Birgit Gebhardt described the use of the term "change" as hackneyed [18]. The relationship between change management and office planning is certainly not sufficient to motivate employees to accept a new distribution of workplaces. At first glance, it is also not clear how a higher level of innovation is to be achieved by this. Should higher productivity be the goal of the process of change, then one could refer to a piece of recent research. At the above mentioned symposium, Dr. Craig Knight from Exeter University reported on his research results [19] which have also been published in the book by Jeremy Myerson and Imogen Privett called 'Life of Work'. [20] The **productivity** of work spaces and the concentration of employees (certainly) do not increase when the user is provided with a workplace that is neutral and austere and where no alterations are allowed to be made.

„Flexible Arbeitswelten - Changemanagement in der Büroplanung“. The term 'change' was described by Birgit Gebhardt in her lecture at the Orgatec Symposium in November 2015 which she described as 'hackneyed'.

Photo: Book cover, Publisher







Both of the above mentioned presentations were made at the symposium of the leading German office furniture and equipment fair, Orgatec in November 2015 under the theme 'Büro.Raum.Trend.' (Office. Space. Trend.). In cooperation with Trendbüro and the 'Verband der Büro, Sitz und Objektmöbel' (Association of Office, Seating and Object Furniture), a study was conducted by Orgatec about trends in the **new working culture** and who the driving force was. The author and conference speaker, Birgit Gebhardt, interviewed Philipp Riederle as part of an in-depth study on this topic called 'Organisationen in Wandel' (Organisations in Transition). The interview has the title '**Wir wollen anders arbeiten**' (We want to work differently).

*The digital native, Philipp Riederle, speaks for his generation Y about values, work attitudes, expectations and perspectives and these are in many ways in contrast to those that companies practise.<sup>9</sup>*

Apart from a new set of office requirements, 'New Work Order' adapted from the term 'New World Order' manifests a new **set of values**. This means that through a working culture, the working environment is awarded the role of communicating values. These are values that are provided by the company and its corporate culture and something with which the employees should identify themselves.

*'What would you do if you didn't fear anything?'*

*This is an inscription on the wall of Google Headquarters in Mountain View. Even the emancipated superior and confident author, Sheryl Sandberg, felt doubly motivated to relate her personal goals with those of the company.<sup>10</sup>*

The employees addressed are often those who will join the company at a later date. So it makes sense to think about whether the office regulations reflect the values of future employees. This is because the new generations Y and Z have different demands on the company and the separation or connection of work and private life. They develop various areas in their lives that need to be dealt with equally as if in a network rather than a hierarchical order in which they – work, friends, family, and recreation – exist parallel to one another. It goes without saying then that work can rarely have 130% of the person's attention.

<sup>9</sup> „Der Digital Native Philipp Riederle spricht für seine Generation Y über Werte, Arbeitshaltungen, Erwartungen und Perspektiven, die vielfach konträr zu den in den Unternehmen praktizierten stehen.“ [21, S. 22]

<sup>10</sup> „Was würdest Du tun, wenn Du keine Angst hättest? – so lautet eine Inschrift auf einer Wand im Google Headquarter in Mountain View. Sogar die emanzipierte Vorgesetzte und selbstbewusste Autorin Sheryl Sandberg fühlte sich durch die Inschrift doppelt motiviert, ihre persönlichen Ziele mit denen des Unternehmens zu verbinden.“ [21, S. 22]



bsb TREND\* b

### New Work Order 1

Photo: Book cover of the publication, bso, orgatec



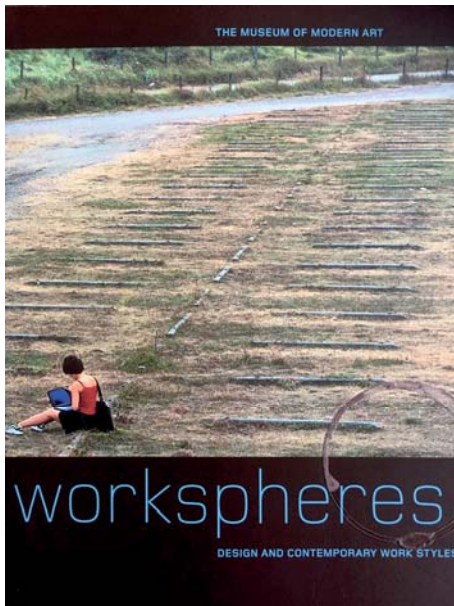
bsb BIRGIT GEBHARDT Trend Consulting b

### New Work Order 2

Photo: Book cover of the publication, bso, orgatec

It is interesting to note that the Museum of Modern Art in New York already examined this question at the beginning of the 2000s, namely, in connection with the question as to whether the design of the office environment is a reflection of changes in society. The exhibition catalogue and accompanying book on the exhibition about the office at the Museum of Modern Art in New York in 2001 has the title 'Workspheres – Design and Contemporary Workstyles' [22]. The term '**spheres**' in connection with the topic of the office as well as the **stain from the coffee cup** on the cover of the book both demonstrate the approach to the topic as a cultural theme just as the location the Museum of Modern Art does. Which image of humanity and self-conception of generations is reflected in the office environment and how has this self-perception developed to what it is today?

The **café** also symbolised by the stain of the coffee cup on the exhibition catalogue and all forms of external extension to the office play an important role both here and in the book. In addition, the development of office furniture for human beings and their needs is documented within the framework of the exhibition but not so much for the efficient furnishing of the office space. On the cover of the catalogue, a **grass area** can be seen to which the work has been outsourced. Work no longer takes place at the office desk but everywhere and at all times. Modern digital communication contributes to this and in fact, makes it all possible. The title "Workspheres" makes this clear as there is no longer talk of workplaces.



**“Workspheres”**

**an exhibition in MOMA New York City that focuses on the history and design of contemporary work spaces in 2001**

Photo: Cover of the Catalogue, Museum of Modern Art

In a historical overview based on the exhibition catalogue, it is possible to extract four waves of work culture:

1. Subsistence
2. Ambition and Achievement
3. Self-Expression and Impact
4. Future Waves: Extreme Autonomy and Project Work

The last wave has already arrived and reflects a working world that is extremely **individual** and in which companies like Google have reached **infantilisation** and declared the office to be a playing field. The side effects of the new blooming **office landscape** are feeling comfortable, having fun, being motivated and it is these that face the “war for talent” in view of the lack of skilled workers.

In 2014, Thomas Wagner wrote an article for Stylepark that was published in the section *News* and there he called Google’s new **working world** a ‘**playground**’ [23]. In 2012, Ulf Poschard wrote an article for ‘WELT kompakt’ with the title:

*Seldom laughed like that – With its office in Berlin **Google** has set standards:  
The centre of digital power looks like a **day nursery**.<sup>11</sup>*

Almost as a follow up to the nearly undivided enthusiasm for this New Economy Office, one can hear and see a critical review that questions whether and how these rooms provide support for work and motivation.

<sup>11</sup> „Selten so gelacht: Mit seinem Berliner Büro setzt **Google** Maßstäbe. Das Zentrum digitaler Macht sieht aus wie eine **Kita**“ [24]



The reasoning behind the interior design of the rooms is particularly open to question with table-tennis tables, bathtubs and gondolas as meeting cabins. The term 'playground' is certainly an appropriate description of the impression that the design gives. In the discussion whether a playground symbolises recreation and how this symbolism is understood and used by the employees when they are at work poses a significant question namely whether playing and/or sleeping are also work?

It is possible that some companies create spatial conditions for work, recreation, meetings, lunch breaks, team meetings, etc. that can no longer be understood and used by the employees intuitively. Sometimes the cultural background is missing, an appreciation of the corporate culture and the internalisation of this culture in order to understand such environments. Appropriate surroundings are a pre-requisite for feeling comfortable and what is considered appropriate changes with the needs of the employees. Currently, there is a development towards a clear division between work and leisure, between the office and the home and between colleagues and friends. The Generation Y also questions whether these areas should merge.

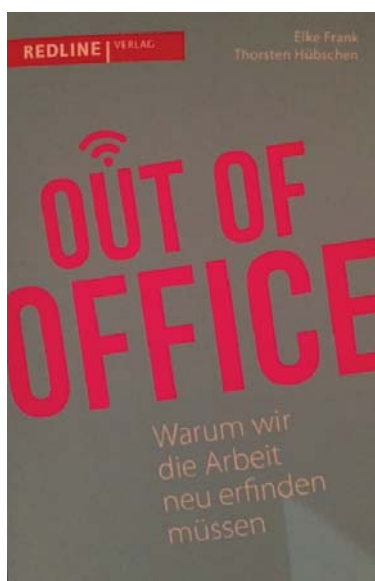
A similar movement although with a different motivation is moving away from the home office back to the traditional office. One variety of this is working everywhere and at all times, at different places, whether in the lobby or the lounge. However for this, different technical requirements and agreements in the corporate culture are needed.

"Out of Office" a book by Elke Frank and Thorsten Hübschen from Microsoft, Germany, about the self-awareness of Microsoft's **reinvention of work** depicts how the office environment should react when we no longer have to be physically present in the office in order to go about our work: "Warum wir die Arbeit neu erfinden müssen" [25] (Why we must Reinvent Work). There is a fitting anecdote from Ellen Kuder, Microsoft, which she gave during her lecture at the Orgatec Symposium in 2015. [26] As the Head of Skype for Business, she recalls her start at the company and the codes of the technology of a new form of work: on the virtual desktop, there were three symbolic colours that informed the colleagues where you were very likely to be or whether you could be disturbed or not. Green indicated presence / **at work** and red was for absent / not at work, in a meeting or uploading. Yellow is also clearly defined as out of office AND at work. Due to the double meaning that Ellen Kuder felt, she wanted to click off the yellow symbol when she was working at Home Office, in the lounge at an airport or in a café. However, green had to be shown because she was present / at work even if she wasn't in the office.

Here, it is very important to note that the culture in dealing with employees, their working possibilities, the technical achievements and their implementation should never be taken for granted. Instructions about the use of every type of office plan-



ning, whether real or technical are essential in addition to background information especially about motives. It is important and motivating for the employees to learn why certain thoughts have been implemented. After all, many of the new features have the objective of increasing or maintaining communication among the employees. The change in parameters leads to a reduction in face-to-face communication because work is carried out at various places. This reduction is counteracted through the trend back to presence in the office as well as through such technical aids in communication as “Skype for Business”. After all it is widely recognised that to a large extent work is characterised by working together.



“Out of Office” – never present in the office but still at work?

Photo: Book cover, Redline Verlag

“Zusammen arbeiten” [27] (cooperating) is the title of Bauwelt 35.2015 and offers an interesting new interpretation of work in that a term has been chosen in which ‘coop’ is an integral part. This perspective awakens interest and makes one look for solutions that provide support for cooperation and not simply working together.

The slight difference in meaning makes sense and provides a picture of us humans in which being together is of as much value as working together. If we take the title seriously, then we can raise very interesting questions such as why this form of togetherness has its value adjacent to work, what can develop from this and what support can be given to this togetherness. The magazine provides a number of examples of projects without really doing justice to the topic. For this reason, there is the need to illuminate on the question of ‘being together’ at work. Here, not only methods such as **coworking** need to be viewed as a mode of working together but working together as a communicative concept in general. This will be viewed in connection with its influence on the needs of creative work.



Cooperation at work in its literal sense, implies the need for communication and interaction about work. Interaction about the activity as such is foremost, much more so than working on a joint project or sitting in the same room. Of course, the activities of individual employees may be different. Cooperation does not mean that teams have to work in the same room or even in the same area. It means much more. It means that different employees from various areas have the need to exchange ideas about what they are doing with each other. Cooperation begins with the exchange of ideas. Even more important, this exchange is the very foundation of work. Impulses for one's own work only arise through interaction with others. This is what makes progress possible.



**„Zusammen arbeiten“ -  
lebst Du schon oder arbeitest Du noch?**

Photo: Cover Bauwelt 35.2015

## What does WORK really mean?

In post-modernism, we have gone on beyond the purely rational 20th century view of the employee in the office to a humanistic evaluation. However, the humanistic view is strongly influenced by a rational approach which the examples of publications already cited have demonstrated. This attitude is nicely expressed in the film by Harun Farocki called “Ein neues Produkt” [28] (A New Product). The world of workplaces really does seem to be a product that can be the subject of consultation, design and programming. It is flexible, can be changed and can be sold. In any case whether inside the office or elsewhere, the question arises as to how this form of design is compatible with the requirements that are implied in a creative activity.



The attitude about what work is really understood to be, manifests itself in the design of the work environment. Should creative work in an office really require support, then both aspects have to be more strongly involved in the views, concepts and plans no matter whether this is the definition of creativity or rather creative work as well as all of the spaces that are available for this. What is creativity? How does it function? What has work got to do with creativity? We will look more closely at these questions first. Here, it is interesting to see which generally accepted pre-requisites exist for creative activities and whether there are specific human behavioural patterns which result in decisions being taken. Something will only be created after a decision has been taken. So in terms of the original Latin, *creare* = create, it is only then that something new comes into being. Also in the literal sense of another Latin term, *innovare* = renew.

In the second part, we will look at those spaces in which these activities are supposed to take place. The question arises as to whether certain rooms appeal to our human system, our intuition or intelligence. We will try to present what the planners had in mind and what really happens in the offices, conference rooms, office spaces and landscapes that we have so far developed as part of the office concept. In the third part, the question will be raised as to whether the findings from looking at creativity can be applied to the planning of office spaces namely that a space concept encourages those activities that are coupled with our creative systems. Should a space concept be in the position to promote exactly those activities that we turn towards automatically or intuitively when we, as human beings, undertake creative activities, then we need to have these spaces in our offices. In that way it would be possible to achieve a further step towards the humane office and working environment and make a contribution to a humanistic view of the office worker.

An important contribution to this has been made by the psychologist and researcher, Prof. Dr. Craig P. Knight from the University of Exeter whom we have mentioned already. In his PhD thesis and lecture at the Orgatec 2015 [19] entitled “The psychology of the workspace: Driving workplace performance”, he presented how the influence of four different working environments on the so-called productivity of the employees was investigated in a scientific manner. By using standardised tasks that had to be completed in the individual rooms, he was able to assign speed and error frequency to the individual work environments. The room was always the same. In the first instance, the room was arranged in a rather clear and sober way which is usually viewed as enhancing concentration. In the second, coloured pictures and plants were distributed around the room. In the third, the test candidates were allowed to decide for themselves where and how they wanted to arrange the pictures and plants. In the fourth situation, these choices were controlled by a supervisor and deliberately altered again.



The result clearly shows that in situation 2 and 3 there was a distinct improvement in productivity, concentration and error minimisation. In addition, the test candidates rated their subjective impression of the office in situations 2 and 3 as being better. They attributed better air, a better atmosphere and better lighting to the room. This was objectively not the case as the rooms themselves were always the same. A humane environment leads to an improvement in working conditions. Whether this is due to the fact that people just felt better or received more attention as human beings is very difficult to determine. It is virtually impossible to draw conclusions on creative activities. However, the conclusion can be drawn that some activities can be improved objectively when the room fulfils certain criteria. On top of that, the subjective feeling about the quality of a room can be influenced depending upon the extent to which the room depicts certain needs of the user.





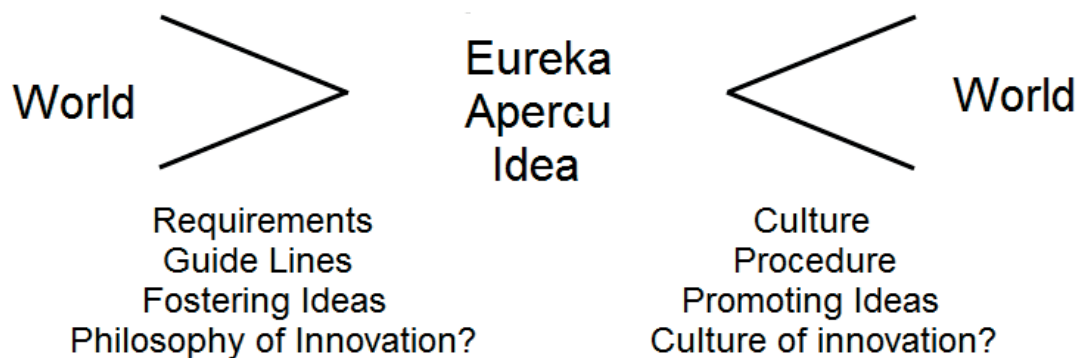


## Chapter 3

### Creativity – State of the Discussion

Before and after innovation

Two funnels



#### Graphic. Two Funnels

Symbolizing the initiation of an idea: there is a way to an idea and a way for the idea in the world

With my project students from the Faculty of Design at Coburg University, I approached this special moment from two angles and I used two collection methods. In addition to the theoretical viewpoint, we want to gain insights on how we experience this moment hands-on. How we manage to reach this point from our own world and how in this one moment something real comes into being for the whole world.

I use the picture of two funnels, one funnel leads to the idea and the other funnel brings the idea into the world. As we have already mentioned, certain requirements are necessary to lead to creative moments. I will briefly illustrate this by using an example from Greek antiquity as the 'first funnel'. The first funnel bundles the influences of the world right up to the very moment of our idea. On top of this, a certain culture and approach is needed for the further development of this moment. This is the second funnel and we have already learnt about some of the pre-requisites for this.

How does innovation arise out of something known?



## The first funnel

- What is the design like?
- How does something come about?
- Intuition or rational logic?
- Logic or feelings?
- Fast or slow thinking?
- Security or risk?
- Rest or dispersal?
- Concentration or exchange?
- Individual or social?

We can learn a lot about what matters on a journey into the unknown from the odyssey. The provider of the name, Ulysses refused to accept his fateful predefined path. His journey tells about what it means to continuously be confronted by something foreign and having to repeatedly re-orientate oneself. The philosopher and psychotherapist, Dr. Rebekka Reinhard explains this phenomenon in her book “Odysseus oder Die Kunst des Irrrens” [29] (Ulysses or the Art of Being Mistaken). When talking about Ulysses, she describes an integration of errors and **failures** in the developing and decision-making processes. The odyssey lasts ten years and is not a normal journey with pirates or bad weather. It is a journey into the unknown.

Using the example of Ulysses, we can clearly present how this open attitude towards positive attention distinguishes it from the unknown and leads to results that would otherwise not have been possible. The experience is creative and innovative in the best possible sense. Ellen J. Langer, Professor of Psychology at Harvard University, describes the following as “Mindfulness” as opposed to “Mindlessness”

*... to actively turn to things that are new and unknown, be open for learning situations, continuously view circumstances from a different angle and create one's own learning strategies. [30, p. 14]*

For her, this deliberate confrontation with things that are new is the pre-requisite for creativity or innovation. “Mindfulness” is the deliberate will to open one's own consciousness for the environment and “attentiveness” is awareness for one's own needs and both are of equal importance.

In a sense, our intelligence makes us a closed system. Something new can only occur though ‘intrusion’ from the outside. A closed system can only be changed through targeted openness with awareness about what is foreign and attentiveness on what

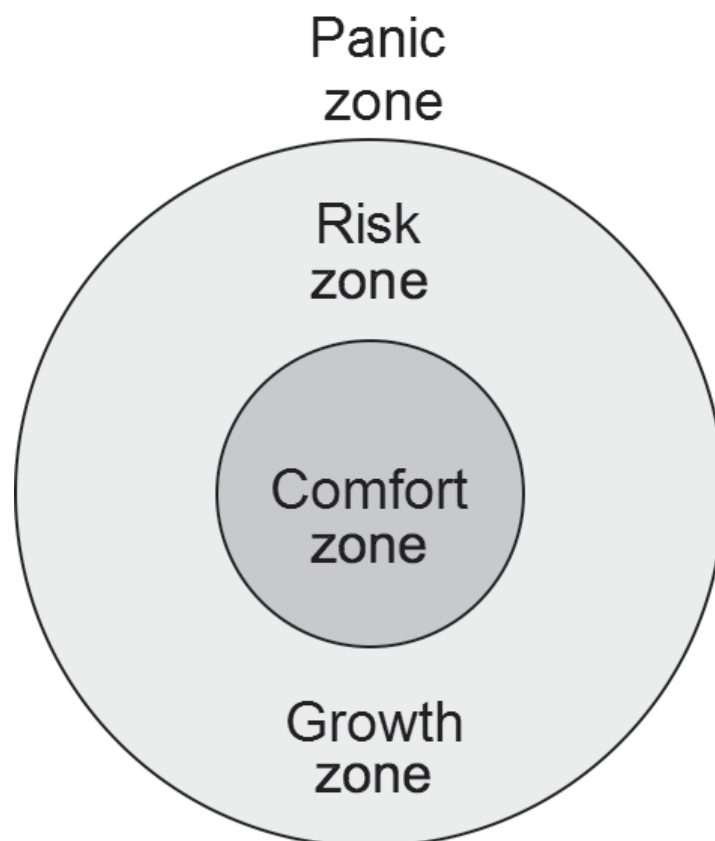


is one's own if these influences are permitted. For this reason, openness is the prerequisite for the development of something new within a system which supports this openness and at the same time protects us.

How does something new arise out of an idea?

### The second funnel

- How is it turned into a project?
- How does something real come to being?
- Intuition or rational logic?
- Logic or feelings?
- Security or risk?
- Specifications or openness?
- Solitude or exchange?



#### Graphic. Zone Model

**Growth can only take place in the Risk Zone. One feels too secure in the Comfort Zone, and too insecure in the Panic Zone.**



As we have seen already, openness means accepting risks. A personal idea can develop into something new for society through targeted and controlled risks that are within the framework of the attentiveness and awareness of one's own needs as well as the cultural parameters. Little that is new will arise within our Comfort Zone – we feel too secure there. In the Growth Zone, we are willing to become involved with new challenges and unknown situations. Should the challenges however, be inappropriately large, we find ourselves in the Panic Zone and fear is the result. This is why we have to grapple with the parameters, with ourselves and our inner drive.

Innovation and creativity are often mistaken for perfection and growth. Attempts are also made to be perfect in innovation and creativity. This tendency towards perfectionism can be seen everywhere. The results of these processes should lead to improvement and growth. In doing so a particular level of expectancy is generated about the quality of the results. Comparisons are made and predictions are expressed. Steps are taken to avoid disappointment. Offers of insurance to avoid risks and disappointment can be seen on every corner. Creativity and innovation with open results as we understand them to be are different. Absolutely in line with the meaning of the words (*creare* = create and *innovare* = renew), they should provide the opportunity to think in a completely new way.

Prof. Ellen J. Langer provides us with some myths about learning for learning is also 'creating something new'.

The seven myths from *The Power of Mindful Learning* [30]:

1. *The basics must be learned so well that they become second nature.*
2. *Paying attention means staying focused on one thing at a time.*
3. *Delaying gratifications is important.*
4. *Rote memorization is necessary in education.*
5. *Forgetting is a problem.*
6. *Intelligence is knowing "what's out there".*
7. *There are right and wrong answers.*

*"These myths undermine true learning. They stifle our creativity, silence our questions, and diminish our self-esteem." [30, p. 2]*

A holistic development and approach is only possible under the right conditions. An appropriate error culture is also necessary as well as the integration of errors and failures into this process. As one's own logic and intuition is included as well as slow and fast thinking, risk culture and social interaction, so the possibility of being innova-



tive and creative increases. This can lead to real innovations. High risks are a part of this approach, risks in terms of the drop height but also the potential. Current publications on research in didactics, risks, creativity and the brain as well as economics and the social sciences by authors such as Gigerenzer, Brodbeck, Pöppel and Kahnemann underline the potential of such an approach.

As designers, we are familiar with this approach (intuitively). With the help of the current status of research, we can reflect on it and use it to define generally applicable approaches for all innovative processes that are relevant to society. Our society needs such knowledge today in order to change the conservative and preservation attitudes that exist to an attitude with more courage, risk and, as a result, more innovation. These are also important as economic parameters for the future sustainability of a particular place as well as for the future prosperity of our society.

The future should produce a spatial environment that provides support for both intuitive as well as rational work. Our aim is to use practical design research to obtain real evidence that is supported by scientific methods. This is not being done by simply observing from the outside in a scientific way. We are making ourselves the object of the research. In this way, we can make a contribution to producing universal rules for an innovative structure that deserves the name. For an error and risk culture that will change our society in a sustainable way.

### **Creativity and Innovation**

A decision-making process:

In order to experience or learn what conditions are needed for creativity and innovation, we can define both as decision-making processes. When something new arises, it is not the result of chance, inspiration or a type of vision. Apercu and Eureka moments need preparation and a follow-up as well as certain preconditions. Such moments are moments of decision within a row of decisions. In all, they are part of a decision-making process in which the decisions are taken in various ways and these processes are closely linked to our personality.

The following publications provide us with an impression of the extent to which creativity and innovation are related to decision-making. For this reason, it is especially important to examine this process. By looking at decision-making processes and how they function, we will come a step closer to establishing these preconditions. After that we should be able to draw conclusions about what will provide support for the decision-making process in the desired way and thus, promote creativity.



How are decisions made? What helps us when we are making decisions and what distracts us? Are there indications that certain situations, structures, groups, places or environments provide support for those decision-making processes which we have described as ‘creative’ and ‘innovative’?

Mahil Csikszentmihalyi has published a book about his investigation of creative personalities and their **prerequisites for creativity** and how they dealt with the creative moment. [9]. This book is a classic in the field of creativity theory and for the first time provides a kind of comprehensive database that resulted from standardised questions posed to well-known and creative personalities. Csikszentmihalyi answers the question whether and how creativity arises and how those interviewed managed to promote and develop their own very personal form of creativity. The author, who coined the term ‘flow’ from his investigation, reports in a very clear manner in an online lecture. [31] There, he describes his work as a psychologist with the question about what makes our life worth living and his research with the question about the origin of happiness and the relationships between our daily lives and the feeling of happiness. From this, he goes on to develop the question about the demands that those who earn their money from creativity place on themselves. He describes the feeling of ecstasy that was achieved during a specific process and which led to the own existence – hunger, thirst, sense of time – being completely forgotten for a creative process of the ‘flow’.

The numerous interviews with creative persons from all sorts of professions and various vocations show that creativity is something very individual. One of the most surprising results from his analysis is that the question, “What is creativity?” can be replaced by the question, “**Where does creativity arise?**”. Every creative person has developed in a specific local and spatial context. This includes such things as the room one grew up in, the friends one is surrounded by and meets in a particular place as well as those who provide us with support and who simply appear at certain stages in life and are just there.

### *Creativity and Spaces*

A colleague of mine has investigated the question as to what effect space has on human beings. He was recently appointed to the Faculty of Social Work at Coburg University. Before his appointment as professor, Niko Boris Kohls undertook research within the “Generation Research Program – a chosen place” which is part of the competition “Germany – Land of Ideas”, on the effect that light has on health and came up with results that are hardly surprising. At the institute of Prof. Pöppel, scientists had discovered that there are effects on your health and well-being if for example, part of the light spectrum in the non-visible area is deleted by using energy efficient light bulbs. Our brain reacts to blue light through the visual stimulation of the



optic nerve which for example, during the “blue hour” tells us that the day is coming to an end and we are allowed to feel tired. This stimulation causes the secretion of hormones that make us feel tired. If this stimulation does not take place, we will become ill.

Unfortunately, we cannot go into all of the correlations within the framework of this book. However, we can conclude that the way our built environment is constructed and the spaces where we spend our time, have a direct influence on our brain, our well-being and our performance. In the same way, we can conclude that we generally do not know what really influences our well-being. Further, we can conclude that we probably do not want to know what really has an influence on our well-being and performance. This is the case because we really do not want to face anything new and we do not want to change ourselves because we find doing that very difficult. This is because change means abandoning the known, moving away from a traditional conservative, protecting mind-set towards an open attitude of awareness that looks positively forward to things new as well as the unknown. Changes are exhausting, hazardous and unpleasant. On the other hand, being open for change can lead to something new.

### *Creativity and Openness*

As the example from Niko Boris Kohl’s research has shown, the topic of creativity is the concern of philosophy, brain research, economics, art and artists, sociologists and psychologists. I have my background in the tradition of applied creativity where the challenge is always to find the optimum solution to a specific task. Here, creativity is an individual process that is repeatedly triggered off for every new task, and which whilst focusing on new requirements and in the light of ever changing initial positions, produces something new. At Coburg University, I work with students on interdisciplinary projects as well as projects in a single discipline. In all of these projects, it was and is still important for me to be open right from the time of setting the task and this can be confusing for the students especially at the beginning. The students do not receive sufficient information to be able to solve the task at hand. In fact, they do not receive enough information to be able to even start to solve the task. And the information is not enough to be able to recognise the task let alone understand it. I do not express any concrete expectations but allow the students themselves not only to describe and determine the task in their own words but also their own expectations.

### *Creativity and Discourse*

Openness automatically means the desire for discourse. This fits nicely with a quotation from *Karl-Heinz Brodbeck’s book “Kreativität als individueller und sozialer Prozess”* (Creativity as an individual and social process). Brodbeck, a professor





emeritus of Economics, Statistics and Creativity Techniques at the University of Wuerzburg in Germany, is interesting in this connection because he has approached the phenomenon of creativity from the social science point of view. In doing so, he shifts the social process which he claims to find by Plato as poiesis, into the centre of focus.

*For Plato, there are two forms of poiesis: the action that transforms and continues the world and what theologians later called creatio ex nihilo ... If we take a look at the outer form of the Platonic dialogue, then a totally different source for the origin of ideas comes to our attention, namely discourse. Ideas are found in the context of dialogue, have their origin in language and in doing so make their appearance through social behaviour. <sup>12</sup>*

Here, we recognize then that such a discourse is one of the most important requirements for creativity and consequently for social exchange.

**Creativity is a social act** and does not take place in solitude but during interaction with others.

*Karl-Heinz Brodbeck shows us how restricting routines can free us from the spell of habits and lead to new ideas. Here, numerous examples and illustrations are used to show the relationship between thought and perception, the art of asking questions, emotional restrictions, barriers to thought models and creative forms of dialogue as well as possibilities for change. <sup>13</sup>*

<sup>12</sup> „Platon kennt zwei Arten der poiesis: Das nachschaffende Tun und das, was in der Theologie später creatio ex nihilo genannt wurde ... Wenn man indes auf die äußere Form der platonischen Dialoge blickt, so rückt bezüglich des Ursprungs der Ideen noch eine ganz andere Quelle in den Blick: Der Diskurs. Ideen werden auf dialogische Weise gefunden, haben ihren Ort in der Sprache und treten damit gerade durch ein soziales Verhältnis in Erscheinung.“ [32, S. 1]

<sup>13</sup> „Karl-Heinz Brodbeck zeigt, wie sich einschränkende Routinen aus dem Bann der Gewohnheit befreien lassen und zu neuen Ideen führen. Hierbei werden vor allem das Verhältnis von Denken und Wahrnehmen, die Kunst des Fragens, emotionale Hemmnisse, Schranken von Denkmodellen und kreative Dialogformen an zahlreichen Beispielen und Illustrationen vorgestellt und Veränderungsmöglichkeiten aufgezeigt.“ [33] Buchrücken



**Prof. Karl-Heinz Brodbeck**  
**Professor emeritus for Economics, Statistics and**  
**Creativity Techniques at the University of Wuerzburg,**  
**Germany**

Photo: Book cover, Publisher

### *Interdisciplinarity and Efficiency*

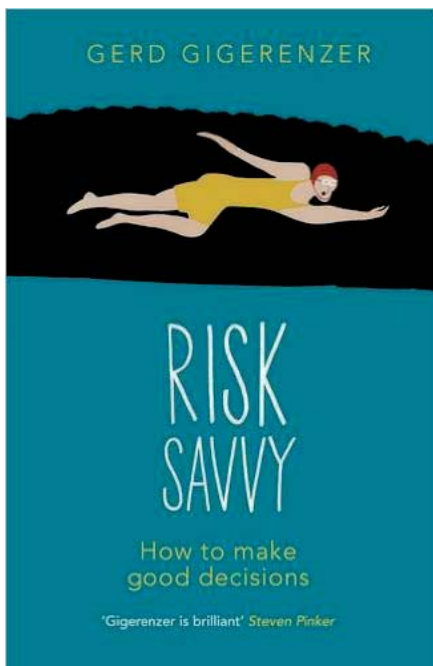
Interdisciplinarity, the involvement of different disciplines in finding solutions is associated with a transdisciplinary social exchange that is self-evident. [34] It goes even further and is the essential reserve for deviations and openness. Deviations and openness on route are of vital importance. Due to our efficiency-orientated thinking, we are afraid of them and treat them as if they are undesirable. However, innovation can only really happen if we are willing to deal with the fear of making a mistake in a positive and conscious manner, if we are open for the unknown, the subliminal and for things that are new. It is common knowledge that as human beings we are more likely to be motivated to avoid making errors than to make a profit. This is the common tenet of Educational Psychology and can be generally transferred to decision-making. Consciousness plays a role here but also the subconscious in a special way. The subconscious and certain regions of the brain, the Amygdala, are effected in such a way that they identify negative emotions, highlight their dangers and in the end lead to their avoidance.

**Daniel Kahnemann**, winner of the Nobel Prize for Economics in 2002 (holder of an honorary doctorate from the Faculty of Philosophy at the University of Wuerzburg), who is really a psychologist, describes this phenomenon in detail in his book, 'Thinking, Fast and Slow' [1], in which he has provided many detailed examples. In his book, he describes the subconscious complement to rational logic, the intuition as a part of our intelligence and calls it System 1 in comparison to something more rational which he calls System 2. Our intuition is also the subject of Gerd Gigerenzer's book, Risk Savvy: How to Make Good Decisions [35]. The Swiss author and risk researcher sees our intuition as being superior to rational logic in finding solutions in



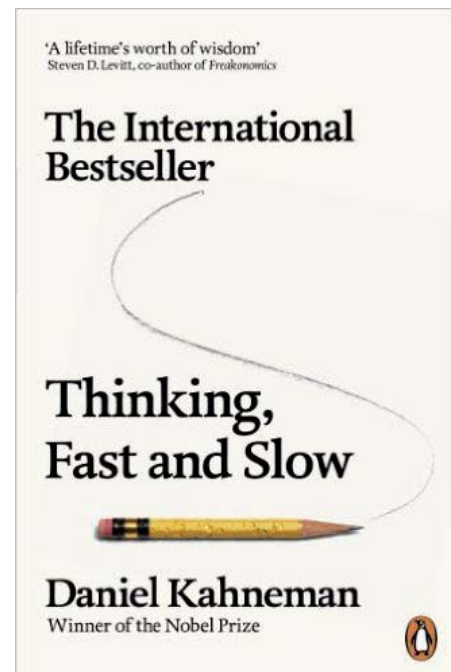
open-ended innovation processes, that is, in processes that are without a sufficient number of known risks (uncertainty).

According to Kahnemann, we are not sufficiently aware of the fact that we have **two systems** with which we think and whilst thinking, make our decisions. We are especially unaware of the control that the one system has over the other. This means that we frequently use the wrong system when making decisions. When making decisions that have something to do with creativity, the faster and intuitive system is questioned again and again by the slower system. In doing so, a lot gets lost. In situations where the risks have not been sufficiently defined, intuitive decisions are verifiably the best. There is however, a difference between 'uncertainties' – unknown risks – and 'risks' – known risks. In making decisions where there are uncertainties, intuition is usually superior. For innovation and things that are new, this means relying on one's intuition more, taking on risks and installing an error culture which is capable of providing the required support.



**Prof. Gerd Gigerenzer**  
**Director of the Max-Planck-**  
**Institute for Human Development**  
**and the Harding Center for Risk**  
**Literacy in Berlin founded in**  
**2009**

Photo: Book cover, Publisher



**Daniel Kahnemann,**  
**Nobel Prize Winner for Econom-**  
**ics in 2002 (Honorary doctorate**  
**from the Faculty of Philosophy in**  
**Wuerzburg)**

Photo: Book cover



Daniel Kahneman's statement about the systems involved in making decisions is worth looking at more closely. In the introduction to his book, "Thinking, Fast and Slow", he says the following

*"The distinction between fast and slow thinking has been explored by many psychologists over the last twenty-five years. For reasons that I explain more fully in the next chapter, I describe mental life by the metaphor of two agents, called System 1 and System 2, which respectively produce fast and slow thinking. I speak of the features of intuition and deliberate thought as if they were traits and dispositions of two characters in our mind. In the picture that emerges from recent research, the intuitive System 1 is more influential than your experience tells you, and it is the secret author of many of the choices and judgements you make." [1, p. 13]*

The examples and statements in Kahneman's book are especially of interest as soon as one comes to the conclusion that creativity has something to do with decisions and thus, with fast and slow thinking. It is through both of these systems that decisions are prepared and made i.e., it is here that something new begins. We do this on our own out of our thought systems, our rational and intuitive intelligence.

In his lecture at Coburg University in October 2013, Professor Pöppel, a leading brain researcher at the Ludwig Maximilians University in Munich, said the following:

*What possibilities do we have in the future to deal with the increasing complexity in the world in which we live so that quality of life and dignity can be safeguarded in the long term? No matter which trajectories crash in on us or force themselves on us, the first instance for all that happens is still the human brain. How we recognise things, feel them, think or learn is determined by structures and functions of the brain. This is, at least, the pragmatic approach in modern brain research that adopts a monistic position. Even if we do not want to share this position for epistemological reasons and prefer a dualistic position due to the "body-mind problem", we will not be able to deny the significance of neuronal processes for our conduct and behaviour. <sup>14</sup>*

This dualistic position does not deny that the human brain is the central organ in the decision making process. It simply adds in terms of Kahnemann, a level of intelligence that seems to be a gut feeling that is neither rational nor logical but is intuitive.

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<sup>14</sup> „Welche Möglichkeiten haben wir, die zunehmende Komplexität der Welt, in der wir leben, in Zukunft so zu bewältigen, dass Lebensqualität und Lebenswürde langfristig gewahrt bleiben? Welche Trajektorien auch immer eingeschlagen werden oder sich aufdrängen, die zentrale Instanz für alles Geschehen ist das menschliche Gehirn; wie wir erkennen, fühlen, denken oder lernen, bestimmt sich aus Strukturen und Funktionen des Gehirns. Dies ist zumindest die pragmatische Grundeinstellung in der modernen Hirnforschung, die von einer monistischen Position ausgeht. Auch wenn man diese Position aus erkenntnistheoretischen Gründen nicht teilen mag, und hinsichtlich des ‚Leib-Seele-Problems‘ eine dualistische Position bevorzugt, so wird man dennoch die Bedeutung neuronaler Prozesse für unser Erleben und Verhalten nicht in Abrede stellen.“ [36]



This form of intelligence is the focus of a number of publications at the moment and in this context, we are interested in those processes that can be discovered through System 1, namely fast thinking. This form of decision making and influencing contributes considerably to anything new arising and that was not known before. Rational decisions are based on a logical intelligence that works on facts and in this way leads to decisions being taken. Our intuitive intelligence is in a position to go beyond known borders, to take risks and to view uncertainties as if they are possible. It is exactly here that creativity and innovation as we understand it to be occur namely in thinking up something new which up till now had not been thought possible.

The more we can find out about this system of fast thinking, intuition or gut feeling, the more we should be able to recognise and formulate the requirements for them. One prerequisite might be that we have to activate the fast system for creative processes and the discovery of something new. The slow system would have to be switched off to prevent it from controlling System 1. The unforeseeable and spontaneous seem to benefit from this.

*“System 2 receives questions or generates them; in either case it directs attention and searches memory to find the answers. System 1 operates differently. It continuously monitors what is going on outside and inside the mind and continuously generates assessments of various aspects of the situation without specific intention and with little or no effort. These basic assessments play an important role in intuitive judgement, ...” [1 p. 89]*

When we have found out more about the background to the decision making of System 1, the intuitive intelligence, it should be possible to improve the conditions for this process. Unfortunately, the unforeseeable and spontaneous are difficult to plan. Sometimes the circumstances or the environment can be changed in such a way that spontaneous and unforeseen experiences and encounters are more likely to take place. In office planning, this would be just the opposite of an efficient organisation of space which aims at avoiding just this. A logically constructed partitioning with short distances could also be counterproductive. In various definitions of work and the office, we have been able to determine which conditions have been planned and realised. The conditions for intuitive, spontaneous experiences that were not planned were not amongst these.

### *Room for Intuition*

Almost as a matter of course, creative people need a particular space for social interaction and their personal concentration. This particular space cannot be left to chance or organised in just any old way. We must carefully think about this space for with it, the most important source of innovation and creativity is to be developed



namely the essential basis for reform and future progress. In a special way, this space also provides a feeling of security in the process of self-experience and in confrontation with the movement that arises through change. We need to be clear about how this space has to be designed in order for people to be able to be creative there. How can they be encouraged and inspired to be creative and to interact with others? The space must at least provide facilities for concentration, exchange and should also be spacious. And it must really be available.

Our dilemma is that we generally define this space as intellectual freedom and sometimes even as financial flexibility. The local dimension of the space is missing. Time and intellectual freedom are viewed as something flexible. Financial resources are available. However, there has not been a specifically planned and designed place allocated for the projects. In this sense, they are hanging in some way in mid-air and are moving in the vacuum between the individual buildings, corridors and communication zones. These are the spaces that are of special interest to me, spaces in which this form of creativity is possible and indeed expected. What are the prerequisites on spaces that have been developed to provide support for geniuses or researchers at work? Could there be a system behind it all?

*Here are three examples:*

1. **Salk Institute**, La Jolla, architect Louis Kahn for Jonas Salk.

Jonas Salk once stated that only after he had left his laboratory in the USA and travelled to the monastery in Assisi was it possible for him to solve the puzzle about polio. He felt that the colonnades at Assisi, the clear architecture and the views across the hill had provided the right mental conditions for his creative and intellectual masterpiece. This story is taken from an article about neurosciences by Emily Anthes in the Scientific American that has the title “How Room Designs Affect Your Work and Mood”.<sup>[37]</sup> Salk was so convinced about the influence that this particular place and its architecture had had on his work that he later commissioned Louis Kahn to build his now famous Salk Institute in La Jolla, San Diego.

2. Spaces for Creativity book **“I Wish I Worked There!”** by Kursty Groves.

In her wonderful little book with the somewhat extraordinary title, “I Wish I Worked There!”, Kursty Groves talks about the most creative places in business. In so doing she primarily documents projects from the so-called creative sectors of companies in California. Much more interesting than Google, Sony Music or Virgin is the office of Johnson&Johnson. In a “lab” there, a highly flexible space is created by putting tables and walls on castors. In addition, there is a sturdy, raw, rough and soft flooring on which these furnishings can be pulled around as well as a casual seating area.<sup>[38]</sup>



The first point on the list of the four characteristics that a space must have in order to be creative or to be able to stimulate creative work is especially fitting:

- Space that stimulates
- Space for reflection
- Space for cooperation
- Space to play

3. **Rolex Learning Center**, Lausanne, designed by the SANAA architects for the Ecole Polytechnique Fédérale de Lausanne (EPFL).

Patrick Aebischer, President of the EPFL on the Rolex Learning Center website:

*'... Spread over one single fluid space of 20,000 sq. metres, it provides a seamless network of services, libraries, information gathering spaces, social spaces, spaces to study, restaurants, cafes and beautiful outdoor spaces. It is a highly **innovative** building, with gentle slopes and terraces, undulating around a series of internal 'patios', ...'*

*'The Rolex Learning Center,' says Patrick Aebischer, President of the EPFL, 'exemplifies our university as a place where traditional boundaries between disciplines are broken down, ...' [39]*

Our intuitive System 1 is fast. It reacts immediately. However, creativity as a process is something slow. Communication with others has to be part of it. Through the examples above, we have already learnt how and at which places this **slowness** really functions and where it has been consciously planned. Where do these thoughts come from and where do we have a chance to experience this slowness in our daily routine?

Steve Johnson, author and journalist, published his book "Where good ideas come from" [40] in 2010. In it, he describes the necessity for there to be a **real physical space** if we want to promote creativity. "Where" in 'Where do good ideas come from' can be taken literally. The question about "where" could see our attention addressed for example, to pubs, cafes, meeting rooms and temporary buildings. And the question about "how" – how do these ideas arise and under what conditions – is directed at what spatial conditions are necessary.

Johnson's arguments can be easily followed but require more extensive scientific support than is available in the book. The author divides his book into seven chapters and the titles of these chapters already explain what he considers important in order to achieve social changes, something new, innovative, creative and, expressed simply, new ideas. The expression "new ideas" is well chosen as he shows how gener-



ally applicable such statements are without going into details about brain research, innovation management, creativity theories, etc.

The **seven chapters** and principles are:

1. The Adjacent Possible
2. Liquid Networks
3. The Slow Hunch

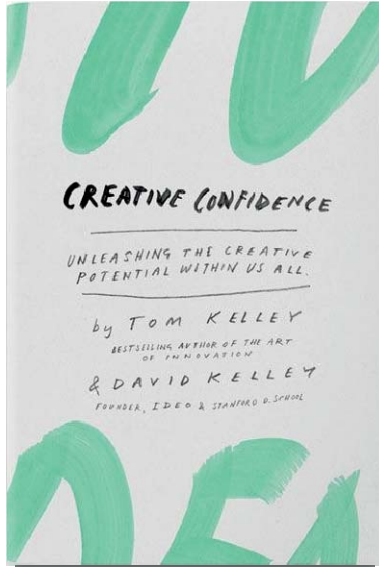
This is the most interesting part and very well illustrated by the animated film that was used to market the book. [41]

4. Serendipity
5. Error
6. Exaptation
7. Platforms

It has become clear that we can learn about the decision making processes in our brain and our gut – our rational and irrational intelligence, our Systems 1 and 2, etc. **from psychologists, neuroscientists, philosophers, sociologists and designers.**

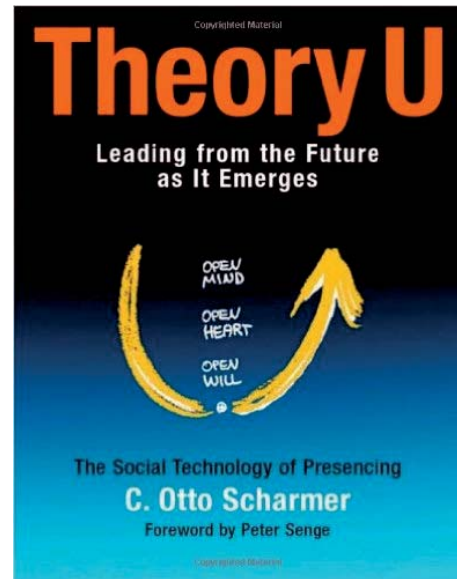
We were also able to learn that for certain activities, the one decision making process leads to measurably better results whilst for other activities the other decision making process is better. On one hand, these are supported by the right environment and on the other, by the right tools and methods. There are a number of methods for creativity and two of the most important theories come from Stanford and MIT. There, the method associated with David and Tom Kelley's "Creative Confidence" and C. Otto Scharmer's "Theory U" [42] were developed. In the meantime, together with Tina Selig and IDEO, they have spread far beyond their own locations and are present in various branches throughout the whole world.





**Creative Confidence**  
Tom Kelley & David Kelley

Photo: Book cover, Publisher



**Theory U - Leading from the Future as It Emerges**

**C. Otto Scharmer**  
Tina Sellig,  
Massachusetts Institute of Technology

Photo: Book cover, Publisher

The words chosen in some of these methods and collections are significant. They indicate that the source of these methods come from the field of design. Design is no longer defined in terms of its association with beautiful finishes and products but with a fundamental approach to solving the problem i.e. with decision making.

The book “Durch die Decke denken, Design Thinking in der Praxis” [6] (Thinking through the roof, a practical view of Design Thinking) presents methodological possibilities that can also be applied outside of design, “To Do: Die neue Rolle der Gestaltung in einer veränderten Welt” [43] (To Do: The new role of design in a changed world) is a **collection** of strategies, tools and business models for creativity.

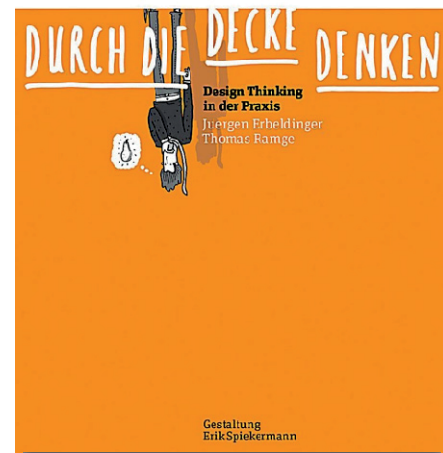
In this context, interior design is one aspect of the holistic design of the spatial environment.



**To Do – The new role of design in a changed world. Strategies, Tools, Business Models**  
by **Florian Pfeffer**

Photo: Book cover, Publisher

REDLINE | VERLAG



**Jürgen Erbedinger und Thomas Ränge: Practical examples of design thinking**  
**German standard reference**

Photo: Book cover, Publisher

In the ideal situation, our environment provides the preconditions for the application of methods for creativity, such as interdisciplinarity, collaboration, communication, trust, error culture as well as the appropriate space for it all to happen in. This includes the most suitable furnishings to meet the respective needs. Out of all of this evolve the conditions for the above quoted principles of creativity and one can imagine the appropriate spatial requirements for these: the adjacent possible, liquid networks, the slow hunch, serendipity, error, exaptation and platforms.

Amongst the principles that have been evaluated, interdisciplinarity and spontaneous encounters have revealed themselves to be important components in the exchange of ideas and for the emergence of creativity and innovation. Further conditions, such as error culture, trust and openness have already been presented as preconditions for creativity and innovation to deliberately encounter what is foreign and to be open for things that are new. This **curiosity** is well illustrated in the example of Ulysses and his wanderings. “Die Kunst des Irrrens” [29] (The Art of Being Mistaken) on the other hand can be interpreted in two different ways:

1. Ways of making mistakes and/or
2. Wandering around without direction with the chance of collisions and random encounters.



“Sei nicht so neugierig” (Don't be so nose-y) is the title of Brand Eins, a business magazine on the topic of curiosity and the magazine makes quite clear that the desire for something new is a decisive factor in every process. The desire for something new that includes the possibility of failure needs support and certain parameters for this to happen. To have no fear of exchanges is certainly one of these parameters. Just like having no fear for errors. Tim Harford addresses this topic in his book “**Adapt: Why Success Always Starts with Failure.**” [44] By using the term “adapt”, he creates a different approach to the topic of errors that leads to success.

The book begins with the story of Peter Palchinsky, a Russian engineer and manager who fell into disgrace due to his relentless criticism of Stalin's gigantic building projects. Palchinsky developed three principles for planning the projects:

1. Seek out ideas and try new things.
  2. When trying something new, do it on a scale where failure is survivable.
  3. Seek out feedback and learn from your mistakes as you go along.
- [44, p. 44]

Basically these principles can be seen as the quintessence of Harford's book. For him, they are mirrored in evolution. Only a certain variation of genetic material (comparable with “New Ideas”) leads to new forms and only a few of these are able to adapt to changed environmental conditions. The possibility of failing without the whole system being destroyed is an important mechanism taken from nature which allows companies to remain on the market for a long time. Harford collects a number of examples from various spheres of life: nature, economics, scientific research, politics, Broadway shows, military strategies, climate protection, large and technical projects. Above all he looks at what happens when these principles are not adhered to. A few chapters deal with catastrophes and these are usually complex systems with close interdependence, i.e. when one part no longer functions, this causes a chain reaction for example, nuclear accidents, explosions on oil rigs and economic crashes on the financial market. However, the basic principle of adaption by learning from mistakes is so relevant because on one hand it has to do with our decision making systems and on the other with the plasticity of the brain for arduous change processes. This seems to be a universal principle of nature.

There really are indications that certain situations which arise at specific places provide support for the decision making process which we describe as ‘creative’ and ‘innovative’. A deeper investigation of places and their conditions might provide information on whether there have already been thoughts about providing support for creative decisions and if that were the case what would these look like. We are looking for spaces and places where we can find the conditions for interdisciplinarity, col-



laboration, communication and random encounters. Based on three examples, Salk Institute, Rolex Learning Center and Kursty Groves' publication we were able to recognise that spaces, places and buildings can be catalysts for creativity and innovation. How and where the conditions prevail is closely dependent upon how these conditions are defined. In this chapter, I have attempted to show how specialist authors define these conditions. During our research, we have been confronted by such themes as interdisciplinary encounters, room for intuition, 'liquid networks' and 'serendipity' as well as curiosity.

Which spaces provide support for these conditions? How can we define these conditions and implement them in spatial design? In the next chapter, we want to have a closer look at some of the places where we suspect that there might be good conditions for informal encounters, opportunities for chance communication as well as for the unexpected. In doing so, the following three questions will be of particular importance in order to be able to ascertain possible rules for future concepts.

1. Are there indications that buildings have been planned, consciously or subconsciously to promote creativity and the spirit of innovation?
2. What examples are there from the past and the present?
3. What are the planning concepts behind them?





## Chapter 4

### Office Spaces – Results of Research

On the status of the treatment of creative potential in university and office landscapes

Should we want to examine the question as to whether there are indications for the conscious or subconscious planning of buildings so that they provide support for creativity and the spirit of innovation, we will need to look at a number of historical examples as well as current ones. The planning of all of the examples presented here has been based on a specific concept. By looking at the chronological order of the buildings, we are able to reconstruct the development of the concepts over time.

The examples I have chosen are the **Engineering Building at Leicester University** from 1964, **Building 20 at Massachusetts Institute of Technology (MIT)** from 1943-1998, the **d.school at Stanford University** (spread around the Campus until Building 550 was completed in May 2010), and the **Rolex Learning Center at the Ecole Polytechnique in Lausanne** from 2010, which we have mentioned in some detail already.

In addition, we will look at the spatial concept in “Out of Office” by Microsoft as well as examples of co-working in various cities in Germany. From this historical angle and the examination of two examples, it should be possible to conclude which planning concepts exist for the conscious or subconscious planning of buildings in order to provide support for creativity and the spirit of innovation. It is striking that often these are not administrative or office buildings at all. They are university buildings or administrative buildings at universities that at the time had a specific planning concept to provide conditions for creativity and innovation. The idea of providing support for creative work in the planning concepts for office buildings is relatively new. For this reason, it is only possible to find very recent examples in which these conditions played a role in the planning process.

This is reflected in the book, “A-Typical Plan” [45] by Jeannette Kuo from the EPFL, in which students reviewed and presented many office buildings. The reviews were based on traditional criteria such as identity, flexibility and atmosphere but not from the point of view of creativity. Just the opposite is the case in Kursty Groves’ book, “I Wish I Worked There!” [38] where examples of the creative world are depicted that have only evolved in the last twenty years. Co-working, a topic that we will take a closer look at towards the end of this chapter is a term which has arisen over the last twenty years. It was coined by the hacker scene in Berlin during the 1990s. According to the internet magazine Deskmag, the term was first used in 1999 by Brian



DeKoven “as a way to identify a method that would facilitate collaborative work and business meetings coordinated by computers.” [46]

Many of the innovative methods for collaborative work stem from the university environment and so it makes sense to refer to a few of them when looking at collaborative work in the office.



**Engineering Building Leicester University**  
In 1963, James Stirling designed a stacked campus. Encounters are provoked by having a variety of users.

Photo: NotFromUtrecht CC BY-SA 3.0  
(<http://creativecommons.org/licenses/by-sa/3.0>) via Wikimedia Commons

Designer: Stirling and Gowan

James Stirling / Michael Wilford fonds Collection Centre Canadien d'Architecture/ Canadian Centre for Architecture, Montréal

The **Engineering Building at Leicester University** which was completed in 1963 was designed by James Stirling as an innovative building concept. It is a stacked campus in which functions are vertically oriented rather than horizontally and spread amongst different buildings. The users of the various functions are almost forced to meet each other as the floors are stacked on top of each other. This can be clearly seen from the outer shell when you look for example, at the two lecture halls. In this way, the encounters and interactions that follow are all part of the space plan and architectural idea.

The Engineering Building provokes informal and spontaneous encounters much more than the traditional campus in which the individual functional buildings are situated next to each other or grouped around an outdoor area and as such, they are used individually. This is especially true for encounters of the various users such as students, office staff, researchers, library users, etc. It seems quite natural that inter-



action between the individual members of these groups will take place. Back in 1963, the idea of integrating this exchange as part of the concept of a university in order to provide support for innovative ideas was certainly very progressive.

A similar building was completed in 2015 at the University of Baltimore by Benisch Architekten. The John and Frances Angelos Law Center is a building consisting of three interlocking L-shaped volumes that have a narrow atrium which rises up through the heart of the building and connects the three volumes with ramps and staircases. In this atrium there is a lobby and two coffee bars as well as informal work and meeting places. All of these have a high welcoming quality and provide an area for informal and random encounters some of which might last longer than in the middle of a staircase. These spaces for informal encounters were designed at the explicit wish of the client and were part of the space plan. A considerable amount of money and space has certainly been invested in providing these facilities. This was done with the idea in mind that these will not only make a considerable contribution to studies, but also to content development.

The planning of **Building 20 at Massachusetts Institute of Technology (MIT)** was based on a completely different idea. In this case, the building was to be of a temporary nature with a flexible space plan so that different institutes of MIT would be able to work side by side. It was erected in the 1940s due to the growing demand for space and was in use until 1997. It is reputed that it was planned in one day. The building was structured in such a way that it provided very flexible opportunities for adapting the provisional space to meet individual needs and at the same time allowing it to remain to some extent in its provisional state. On top of this, the various disciplines that used it were able to interact. Both of these aspects, a provisional place for testing and an area in between for random encounters led to the unique atmosphere.

**MIT Building 20**  
**A temporary building for many years**  
Photo: conknet.com  
Designer: McCreery & Theriault







The users frequently described the creative chaos of the building and pinned it down to three tangible factors. Firstly, the colourful interfaculty combination of institutes for which no space was available elsewhere on the campus and which had to be relocated in this building. Secondly, the possibility in a provisional building of repeatedly adapting the space structures to fit individual needs. Thirdly, there were surplus spaces and meeting areas because the building was never completely used to capacity. It is interesting to note that an incidentally designed building which was constructed as a system building without any specific requirements, simply due to the lack of space, should develop into an “innovation hub”. Apparently, there is a connection between spatial conditions and the creativity of employees. Many were convinced that the layout of the building contributed to this cooperation.

**The d.school at Stanford University** was founded in 1997 by David Kelley.

At the beginning, the d-school did not have its own building. It developed spatially as a combination of provisional buildings and these experiences defined the functions of the permanent place. Through this process, those responsible for the school developed a specific understanding about which spatial needs were required in order to provide support for creative work. The book ‘Make Space’ provides information on how these places for interaction and communication, for innovation and creativity, were designed. In this book, the factors that are important for such spaces within a design school building are described, a design school that understands design as being the universal competence of methods for all disciplines. In this context, it is important to note that creative work and innovation have nothing to do with what are described as the creative professions. Creativity is needed in every profession in which decisions have to be made. Innovation, in the sense of an improvement of processes or the introduction of something new, is also to be understood in a very general way. This means that the d.school was to be a place where various disciplines could learn about and test innovation processes on themselves and during interaction with others.

The book documents various modules that demonstrate that, in this particular case, we are concerned with a system of flexible furniture and atmospheric qualities. These have been consciously combined in order to be able to react in a flexible manner to demands that are not yet known and will only arise as part of the innovation process. On the other hand, these modules should clearly present a certain provisional character in which few fixed structures are visible. The places in between these structures should be used in the same way as the modules themselves and were part of the original planning process. This resulted in a distribution of space into four parts, home base, gathering spaces, thresholds/transitions and infrastructure [47]. It is quite surprising that threshold and transition spaces were consciously seen as a part of an



office that was in the process of being designed. Here, we can gain a feeling for the role that these locations can play.

**Rolex Learning Center  
Ecole Polytechnique Federale de  
Lausanne**

Photo: EPFL press photo  
EPFL-Alain Herzog Designer: SANAA



The **Rolex Learning Center** is a new learning centre for the university in Lausanne. We already know the statement made by its President about the innovative space that meanders through the whole building as a flowing landscape which enables and provokes such a variety of encounters. The architects at SANAA have thought very carefully about the appearance of a learning centre that is still present in the 21st Century and that should stimulate innovative activities amongst the people that learn there. The one large fluid space that extends through the whole length of the building is certainly a very modern answer to the question about spaces that provide support for creativity. The large fluid space meanders like an undulating landscape with gentle slopes which widen to surround a series of internal patios and produces slanted levels with seat bags that invite you to just flop into them. It does so because it is open – open for the interpretation of whatever use it is subject to, how it is to be used and what is going to take place in this space. It does so because through its horizontal single story design, it encourages its users to wander through the building – yes, really to go for a walk and at the same time to meditate, hold a conversation with someone or just make an unexpected encounter. In addition, it provides support for creative interaction by offering spaces within the planned unit that allow informal encounters to develop into a longer conversation. For this, spaces with a variety of qualities are available which one can quite naturally ‘dock into’ with one’s conversational partner.



## Interdisciplinarity

### Collaboration?

### Coworking?

There are a number of current examples for spaces that provide the conditions for interdisciplinarity, collaboration, communication and random encounters as catalysts for creativity and innovation. This type of exchange does not happen at places that we are accustomed to, not at our office desk, nor in conference or meeting rooms. It does happen however, at places where we purely meet by chance. And it takes place among different employees from different employers, or different companies from different branches. Coworking is one such concept for radical cooperation.

*“The word for a new form of work. In the age of digital media, a chair, table and W-LAN is all you need to be able to work. An expensive office or one’s own furniture is no longer necessary. A working place that is fully equipped to the highest design requirements can be rented on a daily, weekly or monthly basis from **places**. And because other ‘heads’ work to the left and to the right, an exchange of ideas can be more personal and not only take place via email.”<sup>15</sup>*

This is how the “places” website describes its coworking facilities in Hamburg that have been furnished with the assistance of vitra, a furniture producer. The Fraunhofer Institute for Industrial Engineering (IAO) has closely looked at coworking and produced the bilingual publication called “The Fascination of Coworking – Potentials for Companies and their Employees” [49]. According to this publication, one of the first coworking spaces was the Hackerspace C-Base which opened in Berlin in 1995.

The term ‘Coworking Space’ is used in both English and German for the place where coworking takes place. However, there are very few publications on the topic that review what characterizes this ‘space’. The comprehensive publication by the IAO leaves this question unanswered except for the desk and a meeting area that can be used by everyone. What is it that creates an atmosphere for interaction? Even in the press release on the occasion of the opening of “Design Offices” in Stuttgart, little could be read about the real spatial conditions that are available.

*“Design Offices places special importance on the human aspect: guaranteeing a place for individual development as well as providing support for working processes through flexible and quick spatial solutions. Design Offices is committed to dealing with many details. Above all, Design Offices is focused on its vision to of-*

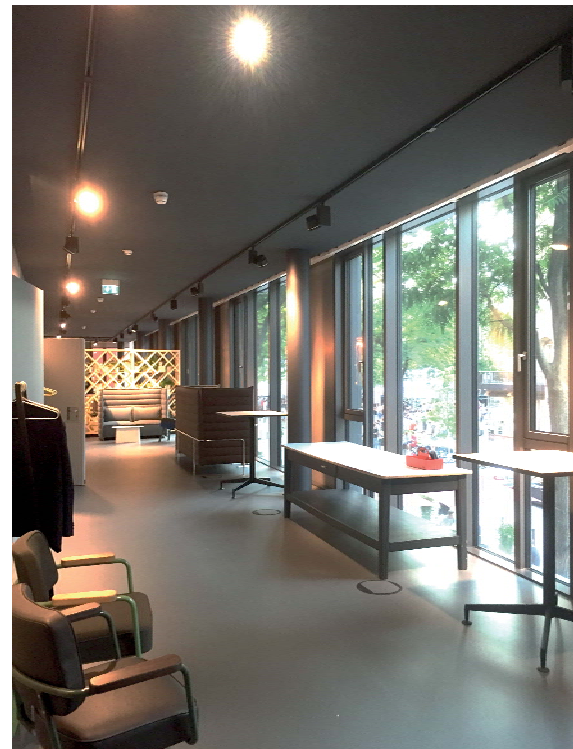
<sup>15</sup> „Die Vokabel für eine neue Arbeitsform. Im Zeitalter der digitalen Medien reichen heute ein Stuhl, Tisch und W-LAN vollkommen aus, um arbeitsfähig zu sein. Dafür braucht man kein kostspieliges eigenes Büro oder eigene Möbel. Bei places ist ein voll ausgestatteter Arbeitsplatz nach höchsten Designansprüchen tages-, wochen- oder monatsweise anmietbar. Und weil auch noch andere Köpfe links und rechts arbeiten, ist ein Gedankenaustausch noch persönlich und nicht nur per Email möglich.“ [48]



*fer individual workflows that are adapted in an optimal manner as well as office and coworking spaces that can be used in a variety of ways. The need for a working environment that promotes creativity is gaining in importance because employer marketing is more than just a trend, it is a necessity. As a result, modern working places and methods are crucial. The special thing about Design Offices is that time, space and equipment are always based on the wishes of the customer and can be booked according to need.” [50]*

When you visit Design Offices in Stuttgart, you can certainly see that a high standard of design is present. This is primarily related to the design of surfaces and the provision of infrastructure such as meeting rooms, lounges with open fireplaces and conference areas. However, it is not clear whether there is a solid theoretical approach about what design might mean in the holistic sense with a concept for space and what effects this might have on creative work. In the company owned magazine “DO. Moderne Arbeitswelten” (DO. Modern Working Worlds), you can read the following:

*“What we offer is based on the results of international research and numerous investigations on the topic of work and of course on our own experience.”<sup>16</sup>*



**Design Offices Stuttgart Zentrum  
Corridor zone with furniture from vitra**

<sup>16</sup> „Unser Angebot fußt auf internationalen Forschungsergebnissen und zahlreichen Untersuchungen zum Thema Arbeit und natürlich auf eigener Erfahrung“ [51, S. 13]



When I met the founder and managing director, Michael Schmutzer, to discuss the company's concept, it became very clear that it was primarily his own experience and inspirations that were being implemented in a constructed reality of the Design Offices. This was augmented with information from specialist studies.

Concepts on the topic of the modern work environment such as coworking are often based on personal experience rather than on founded results from scientific research. Perhaps this is due to the fact that trends in the working environment change rapidly whereas scientific research takes somewhat longer. Or perhaps, simply because trends change faster than the interest that conservative companies show in research on working environments. Simply defining coworking as a particular kind of spatial design or workplaces or places of work does not do this phenomenon justice. Back in 2006, a book was published with the title "Wir nennen es Arbeit" [52] (We call it work). In the preface, the authors, Holm Friebe and Sacha Lobo described a new self-definition of the term work.

*"We believe and do so even more after we have now completed the book than we did at the beginning that there are alternatives to the solid system of permanent employment which has given us not only mass unemployment but also mass dissatisfaction. And we believe that many more people could and will live and work independently in accordance with the regulations of digital Bohemianism. Individualisation, which was the most important social trend in the 20<sup>th</sup> Century may in this way reveal its intrinsic quality in the 21<sup>st</sup> Century by individuals not only unfolding their individuality through what they consume but also through what their work is and when and how they do it. Digital Bohemianism, however, does not simply mean being a lone warrior but the development of new forms of communities beyond the spheres of nation, company and family. Even if individual responsibility and public spirit also play a role, this should be understood more as an alternative concept to neo-liberalism and the new bourgeoisie."<sup>17</sup>*

The concept of coworking, then, is based on freelancers, a type of self-employed person, who, according to "The Fascination of Coworking" [49, p. 57] are amongst the most frequent users of coworking spaces. Interdisciplinary interaction automatically takes place at coworking spaces because all kinds of people meet there. On the

<sup>17</sup> „Wir glauben – und glauben es jetzt, wo wir das Buch abgeschlossen haben, noch mehr als zu Anfang –, dass es Alternativen gibt zum erstarrenden System der festangestellten Erwerbsarbeit, die uns neben der Massenarbeitslosigkeit auch eine Massenunzufriedenheit beschert hat. Und wir glauben, dass noch viel mehr Menschen nach den Regeln der digitalen Bohème selbstbestimmt arbeiten und leben können und werden. Die Individualisierung, die der wichtigste gesellschaftliche Trend des 20. Jahrhunderts war, könnte damit im 21. Jahrhundert erst ihre eigentliche Qualität offenbaren: indem Individuen ihre Individualität nicht mehr nur über den Konsum, sondern auch darüber entfalten, was, wann und wie sie arbeiten. Die digitale Bohème bedeutet aber nicht Einzelkämpfertum, sondern dass neue freiwillige Gemeinschaften jenseits der bürgerlichen Sphären von Nation, Unternehmen und Familie entstehen. Auch wenn Eigenverantwortung und Bürgersinn darin eine Rolle spielen, ist sie eher als Gegenentwurf zu Neoliberalismus und neuer Bürgerlichkeit zu verstehen.“ [52]



one hand, these could be the freelancers but increasingly also the permanent employees of a company that has reserved areas at that site and which makes them available to its employees. In this way, the coworking space develops into an alternative to the home office. Increasingly, elements of coworking become part of the planning and implementation of office buildings in which specific companies are located. The positive aspects of coworking need to be transferred to the cooperation of all employees. However, there is more to coworking than just a form of cooperation. It is certainly possible to collect and analyse the most important aspects, however, these can only be transferred to other situations to a limited extent. The specific user structure and the sense of belonging together that exists in real coworking spaces form the basis for a system that works. A look at the hacker scene where all this started shows that this form of cooperation was designed to bring the lone warriors together at a place where interaction, exchange and cooperation or even collaboration could take place. [49, p. 16-17] The coworking spaces for freelancers attempt to achieve the same. The benefit for companies that are thinking about developing their own work environment in this kind of way lies in the opportunities that exist within the system for informal and random encounters. These would almost automatically be stimulating for the employees.

The information in 'We call it Work' sounds more like a socio-political manifesto in contrast to the publication by the Fraunhofer Institute that draws its fascination more from an analytical position. Often social and societal changes are particularly characteristic for changes in other fields and in this case, they are transferred to the area of the office environment. The term 'manifesto' in the title of the book, "Das Manifest für ein neues Arbeiten – Sie nannten es Arbeit – für uns ist es unser Leben" [53] (The manifesto for new work – they called it work – we call it our way of living) already implies something different. The authors, Elke Frank and Thorsten Hübschen, developed their book "Out of Office – Warum wir die Arbeit neu erfinden müssen" [25] (Out of Office – Why we have to re-invent work) due to Microsoft's interest in the opportunities of digital media, changes in the work process and associated with these changes to the workplace.

*If, as mentioned, a large proportion of the knowledge workers are toying with the idea of departing at any time, then, every company and ultimately society too will need to re-invent work. The sector, knowledge work, must at least be more strongly oriented around the needs of its employees and provide these with more freedom because most of the knowledge workers are well aware of their competences and are willing to rapidly change their employer should it not offer optimal conditions of work and work design.*



*The most important question is almost a truism: knowledge work is not bound to one particular place. In the age of the platform idea, clouds, cloudworking and collaborative work, work is in the process of change, borders are blurred. It is not in the distant future that employees will move in company or talent- clouds rather than in central offices or company headquarters.<sup>18</sup>*

Today's work should be tailored to the needs of the employee of today. If it is possible to believe these and other authors and reports based on personal experience, then these needs are determined by a fundamentally different understanding of what work is. From the thoughts in "We called it Work" about what happens, how it happens and where it happens, the authors of 'They called it work – for us it is our way of living' go a step further. The way of working is declared to be an integral part of life. There should be no difference any longer between self-perception during the daily routine, during vacation time or during working hours. This view comes primarily from the influences of the digital media on our daily environment and our working life. Such things as streets, squares and coffee bars, characteristics of the daily environment, as well as our daily routine can happily find their place in the design of workplaces in the professional environment. One interesting aspect of this is that, for centuries, these ordinary sites in European cities have functioned as places for informal and random encounters with the possibility of these being very fruitful.

The authors reflect this in the "Manifest für ein neues Arbeiten" (Manifesto for a new way to work) by saying

*Why do we voice this now: we have no desire to do the work of yesterday.<sup>19</sup>*

And further:

*We will learn how we can best utilize modern tools, working conditions and responsibilities. And we are looking forward to what to expect when we cross the borders, create new spaces and encounter fear of the unknown through courage and trust in our own abilities.<sup>20</sup>*

<sup>18</sup> „Wenn wie erwähnt ein Großteil der Wissensarbeiter jederzeit mit einem Abschied liebäugelt, muss jedes Unternehmen für sich und letztendlich auch die Gesellschaft die Arbeit neu erfinden. Mindestens aber müssen sie den Sektor Wissensarbeit stärker nach den Bedürfnissen ihrer Mitarbeiter ausrichten und diesen mehr Freiheiten einräumen, da die meisten Wissensarbeiter sich ihrer Kompetenzen in hohem Maße bewusst und schnell dazu bereit sind, den Arbeitgeber zu wechseln, wenn er ihnen keine optimalen Arbeits- und Arbeitsgestaltungsbedingungen bietet.

Die wichtigste Feststellung ist fast schon eine Binsenweisheit: Wissensarbeit ist nicht an einen Ort gebunden. In Zeiten des Plattformgedankens, der Clouds, des Cloudworking und kollaborativen Arbeitens befindet sich Arbeit ohnehin im Wandel, die Grenzen verschwimmen. Es liegt nicht in ferner Zukunft, dass sich Mitarbeiter eher in Firmen- oder Talent-Clouds bewegen als in Zentralen oder Firmensitzen.“ [25, S. 59]

<sup>19</sup> „Warum wir uns jetzt zu Wort melden: Wir haben keine Lust mehr auf Arbeiten von gestern.“ [53]

<sup>20</sup> „Wir werden lernen, wie wir am besten mit modernen Werkzeugen, Arbeitsverhältnissen und Verantwortlichkeiten umgehen. Und wir freuen uns auf das, was uns erwartet, wenn wir Grenzen über-



Already today, it is necessary to grapple with the design of these forms of real spaces in order to meet the demands of creative work that is described in this manner. For the office environment is only then conducive when it really has the effects that we say it has.

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*schreiten, neue Räume schaffen und der Angst vor Unbekanntem mit Mut und Vertrauen in unsere eigenen Fähigkeiten begegnen.“ [53]*







## Chapter 5

### Three Areas – Three Systems

Whether and how the spaces in our system are related to one another.

In the first chapter, we discovered that there are different decision making systems to which creativity is associated. Spaces in the office environment are used for different purposes and can be attributed to the following four main groups: workplaces, meetings, thresholds/transitions and infrastructure. Of course, it is possible to make a stronger differentiation within these main groups especially in the context of different activities at the workplace and various types of meetings as well as the interaction that is planned in them. On the other hand, in such progressive office concepts as coworking or a concept about work, these four groups repeatedly occur. A workplace might be a dining table, the meeting room, perhaps the lobby of a hotel or the kitchen. Threshold and transition spaces can be found everywhere in heterogeneous environments such as coworking.

Every activity brings with it a different need for designing the workplace and every meeting a different space for good communication. This is because these spaces address our decision making mechanisms in different ways. All the various groups mentioned above also promote our activities in different ways. Based on this, these groups can be described and assigned to various decision making systems.

We will start with a few examples that illustrate how spaces have been designed in a creative environment in order to promote so-called creative activities. Then we will continue by looking at how the individual space groups can be assigned to the individual decision making systems and whether any examples of this are available. Finally, we will have a closer look at which examples we can find that show that threshold and transition spaces can be designed for intuitive decision making. The greatest potential for forthcoming consideration certainly lies in the latter area because as we have already mentioned above, the conditions for creative work and the features of the office environment are brought together there.

#### Creative Workplace

Back in 2004, the author, Matt Stewart collected examples of creative offices as well as interviews with those who planned them in his book published by Birkhauser entitled “The Other Office: Creative Workplace Design”. The development of the personal telephone (cell phone or smartphone) was of decisive importance at that time and this is reflected on the emphasis given in the book and the texts that were chosen. For this reason we can find the following annotation:



*“The idea of the virtual office was the greatest revolution in office planning to appear in years, a product of the dot-com wave, which itself was the greatest revolution in business in decades.” [54, p. 5]*

Unfortunately, what exactly Stewart understood under the term “creative” and “creative workplace” is not explained in detail. Instead, we find the following information about the choice of examples:

*“What is the best way to positively influence the everyday work behaviours of the employees” [54, p. 6]*

i.e. design but for what purpose? e.g. communication:

*“Bloomberg, an organization of employees without titles or executive offices demonstrated their commitment to communication in a design by Powell-Tuck Associates that used clear glass corridors to illuminate office-wide activity and promotes interaction between staff and visitors through the strategic placement of important functions.” [54, p. 9]*

In the Chapter “Designing for Behaviours” – the title speaks for itself – there are two interesting pictures of projects. On page 84, a picture from the DNA Headquarters by Stefan Lindefors depicts the lobby in front of the WCs with its wooden flooring, black leather couch and interior blinds on the windows. All of these are typical elements of cosy furnishings. In this way, the place becomes a temporary lounge area for interaction and a chat after having used the cloakroom.

There is also a picture of C Two Network: Wonderwall with its planner, Masamichi Katayama with the caption

*“Katayama added another level of flexibility into the office with Nelson’s Perch stools – a boost to both work and casual office encounters.” [54, p. 94]*

It shows George Nelson’s high stools, which were designed in 1964, along a corridor together with a shelf that is about 50 cm in depth and all of this together forms a temporary, spontaneous and intuitive meeting zone.

These examples illustrate that we are concerned here with something that is capable of augmenting the daily routine of the employees. In this way, the door for creative opportunities is opened but not through a creative design, but rather through a design that facilitates random encounters and in so doing stimulates the human intuitive system.

Management consultancy quickly revealed that not all activities in the office are identical and that these differences place varying demands on the structural design of workplaces, meeting rooms, office structure and environment as well as on the organisation of working time.



*Office work has always been more than simply producing at the desk. It also involves undertaking research on facts and this requires concentration in order not to be distracted. In addition, it is necessary to exchange the ideas that have been found and to communicate these ideas to others. Results from research in the social sciences on communication and creativity have revealed, amongst other things, that four-fifths of all ideas result from unplanned communication.<sup>21</sup>*

When viewed from the economic perspective, many have discovered the potential in office spaces which are suitable for creative work:

*Till now, office spaces have not been used enough as the driving force behind innovation. The various work and recreation processes in the different work spaces still need to be depicted. The architecture of work and the architecture of building and design must go hand in hand in the creation of a work environment. A desk and a chair are no longer sufficient to fulfil the criteria for defining workplaces. The spatial needs of human beings in terms of production, research, concentration, communication, learning and relaxing must be met.<sup>22</sup>*

In her book, “I Wish I Worked There!” which we have mentioned above, the author, Kursty Groves uses various examples of projects to depict how spaces can stimulate creative work through functional design.

*“Stimulating spaces expose the mind to a variety of stimuli – planned or random – in order to encourage people to think differently... Places that access the brain through senses other than sight are particularly stimulating.” [38]*

This is inspiration for the subconscious through stimulating materials, spatial situations, colours, patina, inside and outside views – whether planned or not.

In the Lego Headquarters in Denmark, you can find something interesting and somewhat unusual for a headquarters, namely a climbing wall, a swing, a basketball court and other objects. They are not there for the purpose of sports for everyone but rather for informal encounters, for example, playing a short match at the basketball court. The author writes the following comment on a photo from Sony Design that shows two people in a corridor:

<sup>21</sup> „Büroarbeit war schon immer nicht nur das Produzieren am Schreibtisch, sondern auch das Recherchieren von Sachverhalten, das sich Konzentrieren, um ungestört zu denken, die gefundenen Ideen mit anderen zu kommunizieren und auszutauschen. Sozialwissenschaftliche Erkenntnisse zu Kommunikation und Kreativität zeigen u.a., dass vier Fünftel aller Ideen durch die ungeplante Kommunikation entstehen.“ [17]

<sup>22</sup> „Büroflächen werden bisher nicht ausreichend als Triebfeder für Innovation genutzt. Die Abbildung der unterschiedlichen geistigen Arbeits- und Erholungsprozesse in verschiedenen Arbeitsräumen ist erforderlich. Die Architektur der Arbeit und die Architektur des Bauens und Gestaltens müssen Hand in Hand gehen beim Schaffen einer Arbeitslandschaft. Nicht mehr Schreibtisch und Stuhl sind das Kriterium für die Definition des Arbeitsplatzes, sondern die Erfüllung der Raumbedürfnisse des Menschen in Bezug auf Produzieren, Recherchieren, sich Konzentrieren, Kommunizieren, Lernen und sich Ausruhen.“ [17, S. 18]



*“Ideas and stimuli in thoroughfares encourage contribution. Magazines and journals from around the world are constantly refreshed and left on display easy to access to stimulus” [38].*

Next to a noticeboard, you can see a row of tables in the corridor with a collection of magazines on them and all of these are lying open.

In an article in her own blog entitled “Four Types of Creative Spaces”, Kursty Groves adds under “Places to share” a few photos of stairways in agencies that have been intentionally planned to be spaces for encounter.

*“Ideas need to be shared in order to get better progress and ultimately to happen. The best creative collaborative spaces are more than just meeting rooms. In fact they’re usually **not** meeting rooms – they’re hallways, food stops or outside areas – and they encourage the sharing of tacit knowledge in a non-hierarchical way. Great collaboration spaces are designed to engineer collisions, cross over functions, accommodate impromptu get-togethers, share thinking ‘live’ and they also send cultural ‘open door’ messages that encourage informal conversations despite seniority or tenure.” [55]*

Under the topic Arbeiten und Kommunizieren (Working and Communicating) in Raumpilot [56], there is a definition and a few examples with diagrams about what informal communication is:

*We differentiate between formal and informal communication structures: the formal ones are the communication forms that take place in the administrative organisation where the content of discussion and the decision content must be known in advance (minutes). On the other hand, informal structures are without regulations and take place continuously. They are extremely important (lubricate the gears), but are also dangerous because they can undermine formal communication (secret language).<sup>23</sup>*

Examples of places for informal communication are lifts, coffee bars, and the bus to the office, the balcony, the cafeteria, the lounge, the garden or the patio.

## Possible Spaces

- Home Base [47]
- Gathering Spaces [47]
- Thresholds/transitions [47]
- Support Structure [47]

<sup>23</sup> „Wir unterscheiden zwischen formellen und informellen Kommunikationsstrukturen: Formell sind die offiziell in der Verwaltungsorganisation geregelten Kommunikationen, deren Diskussions- und Entscheidungsinhalte bekannt werden müssen (Protokolle). Informelle Strukturen sind dagegen ungeregelt und finden laufend statt. Sie sind sehr wichtig („Öl im Getriebe“), aber auch gefährlich, da sie die formelle Kommunikation ‚unterwandern‘ können (Geheimsprachen).“ [56, S. 179]



When we look at the environment in the office from the perspective of communication, then it can be divided up into the four areas mentioned above that will need to be designed. In their book, ‘Make Space – How to Set the Stage for Creative Collaboration’, the authors, Scott Doorley and Scott Witthoft discuss the above mentioned division. They also named and defined each of these areas in the chapter entitled “Design Template\_Places”. Their book is a documentation of the results of the d.school in the design of a creative working environment. [47, p. 40–42]

The company, carpet concept, has a very similar definition. The four areas are:

I-Space, We-Space, Infrastructure, Threshold and Transition Spaces (see diagram below) [57].



### Graphic of Space Groups:

#### I-Spaces, We-Spaces, Infrastructure and Threshold and Transition Spaces.

Graphic: Carpetconcept

For the rest of this book, we will use the terms ‘home base’, ‘gathering spaces’, ‘threshold and transition spaces’ and ‘support structure’. However, we will not go into further details about the fourth, namely support structure (printer room, copying room, store room, etc.). It is interesting to note that of all the other areas, very little notice has been given to threshold and transition spaces. But it is exactly in these spaces



that unplanned and informal encounters take place. These spaces do not even need to be within the office area. They could be in front of the office for example, a corridor or a stairway or perhaps even the Smoker's Zone or the route to the coffee shop on the other side of the street. These could fulfil the function of thresholds or transitions. In Italy, meeting for a quick chat in the bar round the corner is part of the culture. If such places are felt to be part of one's own office, then the route there is also part of the office. It is exactly these spaces, the corridor, the stairway, the hallway in front of the elevator and of course, the elevator itself that offer the greatest potential for informal and random encounters.

Using examples, we will look at what potential we might be able to find there. For as we have said, it is especially here in the third group, threshold and transition spaces, that the greatest potential for informal interaction lies. If we associate informal interaction with intuitive decision making and define it as a criterion for the latter, then, we can quickly see how the cause and effect chain is organized:

Threshold and transition spaces →

Informal interaction →

Intuitive decision-making →

Creative impulse

We can use a simple table to illustrate the connections between the three groups, home base, gathering spaces and thresholds/transitions and the three systems of decision making, namely rational intelligence, the body and intuitive intelligence. In compliance with the book "Make Space", I have called it the Make-Space-Matrix. The core of this matrix is the bottom right-hand field. The form and design that these thresholds/transitions can have or have to have in order to stimulate System 2, the intuitive intelligence, will be listed.



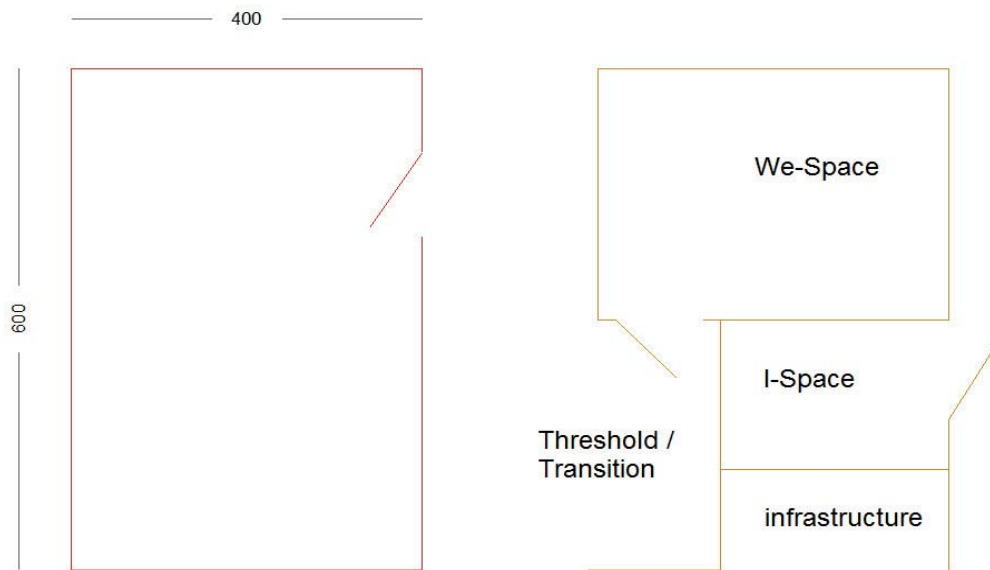
	Home Base	Gathering Spaces	Threshold and Transition Spaces
System 1 (rational intelligence)	effective workplace	flexible conference rooms	additional use of circulation areas
The Body	healthy workplace	meeting and moving	healthy office of routes
System 2 (intuitive intelligence)	creative workplace	pleasant, individual meeting places	creative interaction

### Make Space-Matrix

Over the last few years, various studies have tried to look into the future and produce concepts that attempt to further develop the office environment. Here, we will briefly present some of these concepts in order to see which of the studies have already integrated threshold and transition spaces into their research, perhaps only implicitly, and the influence that these have on creative processes.

Afterwards, real objects will be presented that are representative for the areas of the matrix. In so doing, we will look particularly closely at examples that document home base, gathering spaces and threshold and transition spaces. Then, we will see which examples are available for threshold and transition spaces and System 2 (intuitive intelligence). It is these areas that interest us most of all and which probably are the places and spaces that stimulate creative work more than any others.



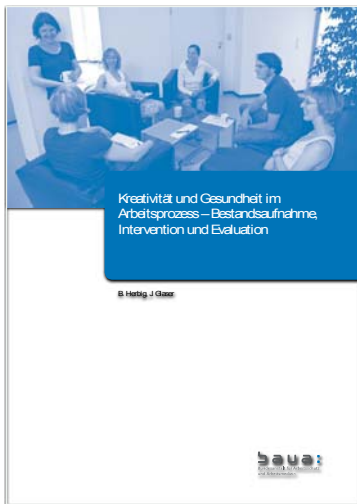


carpetconcept

**Graphic of room plan:  
I-Space, We-Space, Infrastructure and  
Threshold/Transition**

Graphic: Carpetconcept

The following are places where creative and intuitive encounters take place in threshold and transition spaces: stairways, corridors, anterooms in front of cloak-rooms, the area in front of meeting rooms, at the reception desk, between the project groups, on route to the kitchen, in the workshop, in the smoker's zone, in front of the elevator, in the elevator, in the porch area, in the material library and in the library itself.



B. Braun Office Concept

Your office is where you are



B. BRAUN  
SHARED EXPERTISE

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Regus  
Work your way



Studies, Articles and Publications on Office Workplaces

Photo: book cover, publisher



Some of the studies on current and future office workplaces have produced statements such as “Flexibility drives Productivity” [58], which is based on a questionnaire, or concluded that there is a “New Work Order” [21], which is based on the insights of various authors and interview partners. Very few however, use scientific and exact methods to try and find out which changes really do have a positive influence on the company concerned. This is all the more surprising because there is extensive knowledge available for example, on user behaviour from data for shop fitting.

Ben Waber and his co-authors have discovered a considerable amount about the behaviour of employees at office workplaces and have done so using scientific methods and investigations. Ben Waber is the founder of humanize and guest lecturer at the MIT Media Lab. His scientific interest lies in “Organisational Behaviour”, i.e. the behaviour of organisations and within organisations. He wants to know whether companies investigate which spatial design has a positive or a negative effect on the working performance of employees.

*“Few companies measure whether a space’s design helps or hurts performance, but they should.” [59, p. 140]*

The authors drew conclusions from this which are relevant for the design of the office environment.

*“We’ve also learned that spaces can even be designed to produce specific performance outcomes – productivity in one space, say, and increase innovation in another, or both in the same space but at different times.” [59, p. 140]*

Later, they came to the conclusion that design that allows collisions brings with it a positive change and this is independent of the kind of encounter. Those changes that were made in order to introduce structures that facilitated encounters led to an increase in productivity and performance of the whole company in all of the companies investigated.

*“Sometimes circulating, exploring, engaging and increasing the number of people’s collisions is more important than individual productivity or creativity.” [59, p. 145]*

The term “collisions” as it is used here includes random encounters. As opposed to encounters at meetings or at the workplace, random encounters are collisions that are not planned in any way. According to Waber, such encounters really do promote the further development of a company in terms of performance and creativity.

In addition to studies, articles and publications about office workplaces, many office environments and office products have been designed over the years. The Make-Space-Matrix was developed to catalogue these and has been divided up into nine



categories. This classification enables us to show that in a number of areas, there have been leaps and bounds in innovation in the past because these were the centre of interest when dealing with the office environment. For example, the Action Office by George Nelson for the Herman Miller Company was a milestone in workplace planning, a pioneer of open-plan offices and an initiator of the development of an ergonomic workplace. The Wilkahn approach in dealing with various forms of meeting rooms is on a similar scale. It was documented in the book by Guido English and Burkhard Remmers, *Planning Guide for Conference and Communication Environments: Conference. Excellence* [60]. In this book, all possible forms of meeting places are dealt with in detail together with appropriate furnishings, only to be eventually caught up by ideas from the New Economy with meetings taking place on table tennis tables or in gondolas.

Already in 2008 in a chapter on 'Transit areas, foyers and lounges', the authors almost as an afterthought discussed informal encounters and in accordance with the developments at that time, also produced concrete proposals for their implementation.

*Informal communication has – on the one hand – always been regarded as the most effective and energetic way of strengthening social community and, on the other hand, of initiating change processes and developing new ideas. The increasing complexity of entrepreneurial interconnections, by means of which the possible implications of decisions can no longer be monitored and formally considered in advance, requires places for informal encounters to be located in the center of communication-oriented buildings and interiors.[60, p. 278]*

Using a historical analysis on the power structures in a company and the reservations that exist in this context towards informal communication, it is seen as undesirable gossip and the authors make the following statements:

*The analysis of random and informal conversations within organisations prove that in addition to the exchange of private information, a discussion of company affairs almost always takes place as well.*

and further

*Whoever wishes to foster random encounters in a targeted manner must create the spatial prerequisites for this so-called "opportunity" communication. [60, p. 279]*

The aspects that the authors have listed are certainly of interest because they clearly indicate that these are based on an awareness of the potential that threshold and transition spaces really have. Unfortunately, however, the statements have not been substantiated (yet).



*Usual places for informal communication include entrance area, lounge zones, for example, in front of a lift or at the copying machine, the post room, the tea kitchen, the staircase, lavatories, in-between zones, foyers and areas for breaks. [60, p. 280]*

Transit zones and infrastructure spaces have been taken into consideration in this list of places. In addition, other parameters have also been laid down, for example, that joint activities are needed at the same time in order to motivate employees to visit such places and that there should be as many crossings in transit zones as possible in order to provoke informal encounters.

*Informal communication will profit even more if these points of convergence encourage people to linger, for example, if throughways widen out into a square, and monitors, newspaper racks, a bulletin board or a beverage vending machine are provided. [60, p. 280]*

The intuitive requirements of the employees and users of such places must also be taken into consideration. These will be implemented in the design by having appropriate proportions, protection against eavesdroppers, “dangers” and drafts.

All the comments in this chapter are addressing the thesis that in the modern office environment for creative work, it is important to take threshold and transition spaces as well as those for infrastructure spaces into consideration and to give them the attention that they deserve in design and furnishing processes.

In our analysis however, we want to clearly differentiate between spaces for “thresholds/transitions” and those for “infrastructure”. The fourth area, infrastructure spaces or “support structure” [47, p. 42] with facilities like the printing room, the kitchen, the postal room, etc., are all areas that have received close attention in recent times because informal encounters always take place there and almost as if they are taken for granted or perhaps even planned. The coffee maker in the kitchen has as it were been discovered as a decisive factor for communication. [61]

The office furniture manufacturer, bene has dedicated one chapter in its documentation “The Office as Living Space” [62] to the cafeteria.

*“Cafeteria. Short breaks for new initiatives. Areas for informal communication, short meetings and recreation – above all for employees.”<sup>24</sup>*

However, we will now leave these areas and concentrate on the third group, the threshold and transition spaces.

<sup>24</sup> „Cafeteria. Kleine Pausen für neue Initiativen. Bereich für informelle Kommunikation, kleinere Besprechungen und Rekreation – vor allem für Mitarbeiter.“



As opposed to the kitchen and printing room, these threshold and transition spaces offer enormous potential which can be directly related to what we have already established about creativity. It is certainly worthwhile having a closer look at the areas “workplace” and “meeting and communication spaces”. Here, we should also note that current developments have led to an ever increasing mix of spaces that up till now had a singular function. For example, a webpage of inc.com [63] shows pictures of large open kitchens, unconventional meeting places such as greenhouses within an open plan office, an amphitheatre as a conference room, places that promote health like a climbing-wall-equipped-playroom, ergonomic designs and green interiors with artificial turf and a tree.

This is why it is so very important to be able to present in the ninth field of the matrix the link between creative interaction and the area “threshold & transition spaces” and what potentials really exist in the relationship between intuitive intelligence (System 2) and real threshold and transition spaces.



## Home Base

The classical, flexible, non-territorial home base

	Home Base
System 1 (rational intelligence)	classical office, e.g. Johnson Wax
The Body	Action Office George Nelson 1960
System 2 (intuitive intelligence)	e.g. Citizen Office, Vitra 1992 Studio Office, Vitra 2015 adidas Pitch, Microsoft

## Home Base and System 1 (rational intelligence)

### Effective Workplace



**Johnson Wax:**  
One of the first classical open-plan offices

Photo: <http://www.printcollection.com>

Designer: Frank Lloyd Wright

As an introduction, we will take a quick look at the classical type of open plan office, for example, Johnson Wax, which was designed in 1939 by the architect Frank Lloyd Wright and is viewed as one of the first of its kind. These offices are especially noted for reflecting as precisely as possible the spatial and personnel processes in the office. Rows of desks were placed in a large room in a way quite similar to a production line. Every employee was given a specific task and after completing the task at hand, passed the work package on to the next desk. The typical characteristic of the floor plan of this type of office landscape was great depth because it was not considered necessary for all of the employees to have daylight at their desks. This was the birth



of the open plan office without any form of division or separation. The desks were placed in such a way as to increase efficiency and effectiveness. The work should be completed more quickly, errors reduced to a minimum through an increase in the concentration of each single employee and the process of monitoring employees simplified.

The needs of the employees were certainly not the point of orientation but rather the assembly lines from the car industry. Most of the workers were female and they were usually supervised by a male. The rational handling of processes was of primary importance. The aim of such working environments was neither to break away from rationality nor to introduce creative developments.

### **Home Base and the Body**

#### **The healthy workplace**

When we look at further developments in the office environment at the end of the 50s and the beginning of the 60s, we come across the designer, George Nelson, who unlike almost anyone else, addressed the question of the conditions at the workplace. Nelson developed the idea that only a healthy workplace would be able to stimulate employees to have a motivated approach to work. For this, he developed an office system for Herman Miller's company that was called 'Action Office' and which anticipated many of the later principles of office workplaces in the open plan offices of the 60s and 70s. Besides ergonomics and the creation of different workplaces for different work, Nelson was especially interested in the spatial and acoustic separation of the workplaces themselves. In a nutshell, we can say that he developed his thoughts about the optimal furnishings in the office from the point of view of the person who was really going to work there.

The Action Office 1 consists of a variety of modules with various working heights and for different types of work, for example, one with a standing desk and with a standing aid, a telephone cabin with a phone that is mounted onto the protecting wall or with a vertical shelf. All of these had the following in common: a work area that was ergonomic and a desk that could be locked up at the end of the working day with the help of the tambour door. In this way, it was possible to give the impression that everything was tidy and at the same time simply leave files on the desk thanks to the gap between the shutters and the surface of the desk.





**Action Office 1**  
**George Nelson for Herman Miller 1964**  
 Photo: Vitra Design Museum

According to an article by Mathias Remmle in the publication ‘George Nelson – Architect, Writer, Designer, Teacher’ from Vitra Design Museum [64], Action Office was developed in close cooperation with the Herman Miller Research Corporation which was directed by Robert Probst. Nelson and Probst had developed a concept that was characterised by the user’s desire for a natural working position, privacy and an individualisation of the workplace. Their reflections on the needs of human beings for mobility instead of a monotonous working position and the office furniture that resulted from this were milestones in the development of office furniture.

## **Home Base and System 2 (intuitive intelligence)**

### **Creative Workplace**

*e.g. Citizen Office, Vitra 1992*

*Studio Office, Vitra 2015*

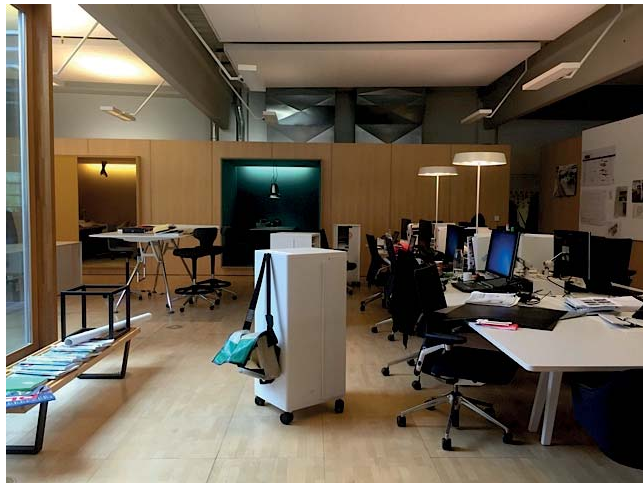
*adidas Pitch, Microsoft, airbnb*

### *Vitra*

Various companies have dealt very closely with the topic ‘workplace’. Over the last 20 years, the furniture manufacturer, Vitra, has played a significant role here. As the company sees itself more as the producer of interior design concepts rather than as a manufacturer of products, these office concepts are often tested on the employees of the company themselves before they are allowed to enter the market. It is decisively important that solutions are tested in real situations and that they can be viewed by visitors and can therefore, be experienced in a tangible way. Out of this process, suitable products for further development will occur from time to time. These individual products are always associated with particular solutions that go far beyond



the product itself into the areas of lighting, floor planning, acoustics, employee behaviour as well as the question of how the particular company wishes to present itself.



**Citizen Office, vitra**  
**Different spaces for different needs**

The office concepts that Vitra has developed have been given appropriate names such as 'Citizen Office' or 'Studio Office' and are presented in an area on the company campus in Weil am Rhein called "Workspace". Since 1988, the company owned magazine called 'Workspirit' has published ideas and thoughts about what work will be like in the future. Currently, there are two new interior design concepts on the campus, one for the employees in the Vitra Design Museum and the other for the IT Department. These clearly show that they have been developed to meet two different requirements. It is important to realise that this individuality is the programme behind the approach, the conception and the implementation of an office concept.

'Citizen Office', a prototype developed in 1992, as well as its successor, looks very carefully at the question of allocation and for this reason, forms of non territorial workplaces are tested here. For this, different places were created in 'Citizen Office' that are suitable for different types of activity and that take individual needs into consideration. Employees still have their own workplace but it is also possible to move to a place that has been especially created to suit a particular activity in a better way. Concentration boxes are provided for quiet work, long benches for sales representatives with their laptops who are only temporarily on-site as well as all sorts of communicative areas and also a library. The new concepts have for example, room-in-room constructions made out of ship containers, relaxation spaces made of maritime pine plywood or the current Workbays designed by Ronan & Erwan Bouroullec.

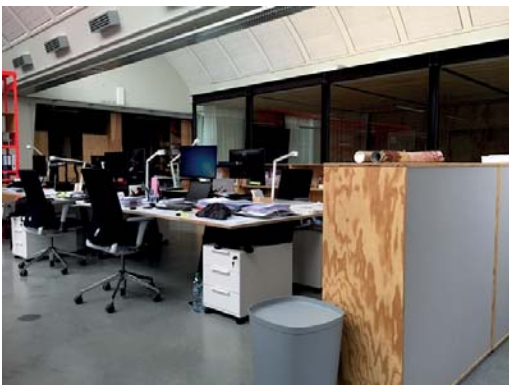


**Office Vitra Design Museum, vitra**  
OSB-boards, tables and long benches as workplaces and a quiet room



**Office IT, vitra**  
Wiring via ceilings and half-height partitions. With the use of textiles, the latter creates zones for infrastructure and meetings

All of these thoughts have the objective of discussing the common workplace as intensely as possible first and after that, to begin with the planning process. For it is the requirements at the specific place where concentrated work is to take place that form the solutions for that space. Such a space is then creative if it does not only consist of one single spot but of a number, each of which meets the varying needs of concentrated work, telephoning or simply just letting one's thoughts wander, etc. For variety puts life into creativity.



**Office Vitra Design Museum, vitra**  
The combination of raw and delicate provides an individual work environment



**Work space, vitra**  
Testing office environments and settings at the factory in Weil am Rhein



**Pitch, adidas in Herzogenaurach:**

**A different concept was implemented on each of the three floors.**

Photo: adidas.com press photo

### *Adidas Pitch*

Adidas is one of those companies that analyses the needs of its employees in the office more than most others.

*Our employees are the heart of our business. We know that an attractive work environment is important in order for people to develop themselves personally and professionally. That's why we are constantly striving to create a work environment that stimulates innovation, collaboration and engagement. With My Arena, we make sure that we provide creators with a creative climate to make a difference. [65]*

In its capacity as one of the project partners of the Fraunhofer Institute for Industrial Engineering (IAO) in its current research phase of OFFICE 21, the adidas group is attempting to obtain specific information on what the office of the future might really look like. PITCH serves this purpose and is consciously captioned with “not just physical space.” [66, p. 2] This self-assessment by adidas about its new office building is followed by the slogan: “activity based working adjusted to your needs” [66, p. 15]. Such statements allow considerable room for what we can expect in the future. My visit to the three storey building in Herzogenaurach gave me the opportunity to experience the building myself. An important aspect that we need to keep in mind is that adidas views the building as an experimental field.



The interior design of each of the three floors was done by a different organisation. USM planned the ground floor, Bene, the first floor and Vitra, the second floor. In addition, reconstruction is supposed to take place after the completion of the first phase which will implement the results of a questionnaire given to the users. On top of that, scouts were selected from the individual departments who should pass on ‘insights’ to the planners so that they are able to implement such improvements in the next reconstruction phase. On one hand, the openness with which the design was approached is astonishing as the architectural task was really a conventional one. On the other hand, it was quite surprising that the decision was taken to start right from zero. Benchmarks do not appear to have been set. As a result, there are meeting rooms that are internally arranged without any natural ventilation and workplaces that are situated in such a way that anyone who walks past can throw a glance at the monitors.

The openness in the task description and the results of the implementation are certainly important arguments for an individual solution. However, accepting errors that have long been known in this context and that were copied without learning from the past is somewhat sobering. In the context of the design of office spaces, it seems as if it is necessary to work on establishing fundamental rules that result from scientific research. A scientific approach that is based on facts and experience would have made more sense in this case too. Of course, empirical testing is certainly a good way of finding solutions that fit individual needs. However, fundamental rules and considerations are what we really need and these would have to be ones that provide assistance and a basis for the design of office spaces. They would also be something to fall back on provided they have been evaluated and are universally applicable at least for a certain period of time.

The work presented in this book is an attempt to develop a hypothesis on a statement that is universally applicable. The chance to make an evaluation with the possibility of adjustment in accordance with the wishes of those who use it, as is the case with PITCH by adidas, is certainly a precious asset. This is not possible within the framework of this piece of work. It is all the more remarkable that a company like adidas has chosen this path. A combination of theoretical fundamentals and evaluation would be desirable so that clear insights can be obtained that are both reliable and replicable. Otherwise, one will quickly have to face the criticism of not really recognising the needs of one’s own employees, as depicted in the article by Christian Scholz in the German national newspaper “Die Welt”.

*The office concept which has just been presented could at the best fit the carrier minded generation Y. However, it certainly does not fit the somewhat older generation X: perhaps that is the reason why Karen Parkin was naturally given her*



*own individual office. But one thing is really clear: that form of flexible office landscape is an absolute no go area for the young generation Z, that is, for those junior staff that were born after 1990. Here, studies clearly signal the desire for personal areas offering privacy with an individual desk on which a photo of the friend/girlfriend and a cactus have their place. It is a matter of well-being, of feeling at home, of having a kind of second apartment.<sup>25</sup>*

### *Microsoft, airbnb*

In some companies, the creative workplace is not a place to work in an office building at all. It could be anywhere. The home office is the real workplace or the coffee bar around the corner. Software developments by Microsoft, like Skype for Business, make it possible to still remain in contact with the other employees.

**Microsoft in Munich:  
Construction of an office environment with the opportunity at the same time of working from anywhere**

Photo: Microsoft press photo



According to the DO. Magazine “Issue 1, 2015” published by Design Offices, the most exciting concepts on the work of tomorrow come from the computer industry ... that branch which also carries part of the responsibility for the encompassing changes. Microsoft, which is looked upon as being especially innovative when it comes to human resources policy, has risked taking a radical step. The company allows the employees themselves to decide where they want to work and the amount of time they wish to invest in their work. Microsoft uses absolute flexibility and freedom to motivate its employees.<sup>26</sup>

<sup>25</sup> „Dieses jetzt vorgestellte Bürokonzept könnte allenfalls für die karriereorientierte Generation Y passen. Es passt aber sicherlich nicht für die etwas ältere Generation X: Vielleicht hat deshalb Karen Parkin wie selbstverständlich auch ihr eigenes Einzelbüro behalten. Eines ist aber klar: Derartige flexible Bürolandschaften sind ein absolutes No-Go für die junge Generation Z, also für die in etwa ab 1990 geborenen Nachwuchskräfte. Hier signalisieren Studien eindeutig den Wunsch nach persönlichem Rückzugsbereich mit eigenem Schreibtisch, auf dem ein Bild von Freund/Freundin und ein Kakтус steht. Es geht um Wohlfühlen, um Zu-Hause-Sein, um eine Art Zweitwohnung.“ [67]

<sup>26</sup> „Die spannendsten Konzepte für die Arbeit von morgen kommen aus der Computerindustrie...“, so das DO.-Magazin von design offices in der Ausgabe 1, 2015 und weiter „...also der Branche, die für die umgreifenden Veränderungen mitverantwortlich ist. Der in Sachen Personalpolitik als besonders innovativ geltende Microsoft-Konzern hat einen radikalen Schritt gewagt. Man überlässt den Mitarbeitern die freie Entscheidung über den Ort, an dem sie arbeiten, und die Zeit, die sie für ihre Arbeit auf-



A different current trend, however, goes in exactly the opposite direction. Companies from the software and digital world like Apple, Airbnb, but also Uber are building and designing their corporate headquarters and branch offices anew and doing so with the greatest of care. With the title “Create a world that inspires human connection” [68], airbnb advertises on its webpage for new staff. Photos of rooms in San Francisco or London or Dublin in which the new employees will be working and the description of the workplaces with expressions like “work caves”, “breakout space” or “camping meeting rooms” [69] reveal how deliberately spatial environments have been created that provide the employee with a reason for being present in the company. On top of that, such things are offered as “Daily Meals and Snacks”, “Culture of learning”, “Well-being at Work”, “Offsites and Happy Hours” [68].



**airbnb in San Francisco:**

**Spaces with names such as ‘Work caves’, ‘Breakout space’ or ‘Camping meeting room’**

Photo: Jasper Sanidad photography

Designer: gensler

All of these companies have one thought in common, namely, how to motivate the right person to work for that particular company and not for a competitor. And in so doing, the person should do what is necessary to bring the company forward and not simply complete one known task after the other, but find new solutions. These companies started out with the promise to find new solutions and now providing the spa-

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*wenden wollen. Microsoft motiviert die Belegschaft also mit vollkommener Flexibilität und Freiheit.“ [51]*



tial conditions for creative work is a fundamental part of their mission. This might include total flexibility as far as trust based working hours are concerned or the total design of spaces throughout the company. These extreme differences in dealing with the topic of creative workplaces and the discourse about intuitive decision making systems show how precarious the basis for all this is. What type of workplace is supportive in finding creative solutions? Is the solution moving the work so that it can be done anywhere and in so doing, confronting the employee with a variety of influences and encounters, or is it grouping the specialists within the company buildings and including specific cooperation in teams at one single place? Or is it perhaps both of these?

Empirical research in the companies themselves will provide the answer to this question. This is all the more the case because so far there are virtually no scientific studies with associated evaluation available on which workplace models are really suitable for creative work.





## Discussion

The classical, flexible and dynamic conference and meeting room.

	Gathering Spaces
System 1 (rational intelligence)	e.g. Conference. Excellence, Wilkhahn 2008
The Body	e.g. Google Office, MTV
System 2 (intuitive intelligence)	e.g. make place, d.school

### Gathering Spaces and System 1

#### Flexible Conference Rooms

*e.g. Conference Excellence, Wilkhahn 2008*

In its publication, the office furniture manufacturer, Wilkhahn, which one can safely view as the standard reference on the design of conference spaces, has compiled all of the various types of planning on this topic such as floor plans and examples of furnishings.

*It is possible to rate architectural spaces by the social facilities that they provide or in other words, which new reality they allow.<sup>27</sup>*

This quotation at the beginning of the book would seem to indicate that if you want to have a good space, then you will need good architecture. In single chapters, the authors define in great detail what constitutes a good space as well as produce themes about the planning of conference and communication spaces

*No planning without analysis<sup>28</sup>*

is one of the demands for a purposeful design of communication spaces. These spaces subsequently divide up into a detailed review of different types of organisations, each having its own communication goals and forms of interaction. The rele-

<sup>27</sup> „Man kann architektonische Räume danach beurteilen, welche sozialen Räume sie entstehen lassen oder anders ausgedrückt, welche neue Wirklichkeit sie zulassen“ [60, S. 20]

<sup>28</sup> „Keine Planung ohne Analyse“ [60, S. 21]



vant character of the meetings that take place there are also described. The collection is augmented by examples for various numbers of participants and facilities.

The forms of organisation range from static forms such as

*meetings and consultations, sessions and conferences, training and seminars through to dynamic conferences and workshops to digital presentation and video conferences.*

The publisher describes this scheme as

*classical, variable and dynamic conference forms.*<sup>29</sup>

The latter form is especially coupled in its design with changes in the media. The dynamic design, in the sense of the integration of various forms of media for a variety of uses, occasions and types of meeting, plays a decisive role in achieving the functionality of these communication spaces.

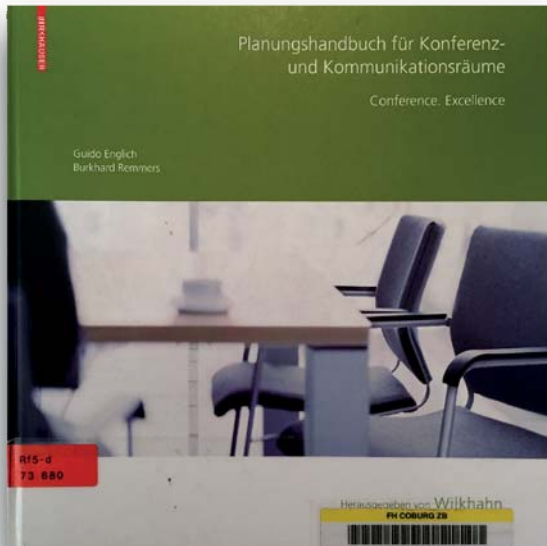
All forms and configurations of conference and gathering spaces in the conventional sense have one thing in common, namely, that they are not designed for use for informal, random encounters. In the office environment, they have a different function and that is to provide the best possible support for planned or regular exchanges among the employees themselves or suppliers and other external persons.

These spaces can also serve as infrastructural ones and consequently overlap as is the case when the kitchen also serves as a meeting place or consultation room. In this regard, three other categories can be introduced in addition to the system which is classical, variable and dynamic: “Drop-in”, “Curated” and “Self-Service” [47, p. 41]. These three do not differ so much in terms of equipment but more in what use is made of them. They can be described as

1. easy to reach and can be left to themselves with little flexibility or possibility of change, e.g. small coffee points,
2. catered for by a team from the organisation and which can be changed a little e.g. a lobby or the classical meeting room,
3. very flexible and adaptable to meet the individual needs of the user or the needs of the organisational team, e.g. open spaces like the administration area.

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<sup>29</sup> „Besprechung und Beratung, Sitzung und Konferenz, Schulung und Seminar über dynamische Konferenzen und Workshops bis zu digitalen Präsentationen und Video-Konferenzen.“ Der Herausgeber bezeichnet diese Systematik als „klassische, variable und dynamische Konferenzformen“. [60, S. 4]



**Planungshandbuch für Konferenz- und Kommunikationsräume:**  
**Publisher: Wilkhahn**

Photo: Book cover, publisher

## Gathering Spaces and the Body

### Meeting and Moving

*e.g. MTV, Google*

Meeting at the table tennis table, on the swings or at the table football table. We have now got used to seeing such things. They symbolise a spatial mixture of elements from leisure activities and recreation with the office space. They also symbolise a temporal mixture and are supposed to create welcoming qualities in the office to provide the employees with the sort of feeling that they have when they are at home. Or perhaps even better than at home because at home, there is no one with whom you can hold a conversation. Working hours have encroached into what was previously considered to be a zone reserved for private activities and this has happened to such an extent that the office and the colleagues there have become the primary personal environment.

The counterpoise for work through physical exercise, which companies had always advised their employees to do in their spare time, now becomes part of the office concept and as is the case at MTV and Google is available in the office itself. In addition to unusual meeting places, where work is naturally still the main theme, there are activities such as yoga courses, fitness studios or a basketball court as part of the infrastructure of the office environment. It is taken for granted that these activities augment the spaces that are available among the employees for interaction.



*Our offices and cafes are designed to encourage interactions between Googlers within and across teams and to spark conversation about work as well as play.*  
[70]

It is certainly quite pleasant to meet and converse whilst playing table football or basketball or on the swings. Perhaps it is also effective and expedient. At such places, physical exercise is offered that also provides support for interaction. However, interaction can also happen whilst taking a walk in the park and some companies provide such facilities for their employees too. Such forms of exercise are frequently used in staff appraisals and certainly make sense. Combining exercise and interaction activates other areas of the brain besides stimulating the body and provides completely different conditions for the outcome of meetings.

*Talking about things whilst on the move has many advantages: studies show that walking promotes creative thinking and in addition, there is good evidence that physical activity encourages constructive and open dialogue.*<sup>30</sup>

There is even a term for this: “moving meeting”. The wellness program at the University of California, Riverside gives the following advice in its flyer ‘Tips on moving meetings’:

*A moving meeting is a meeting to get something done.* [72]

The Herman Miller Company, a company with a rich tradition and reputation in the manufacturing of furniture in the USA, published the Solution Essay in 2013 with the title “Sit. Stand. Move. Repeat.” [73]. The importance of exercise as a natural part of the daily work routine was proclaimed in it and it contains many references to scientific studies as well as information on the long tradition of this company with such ideas about the design of workplaces like the Action Office of the 60s in cooperation with George Nelson. However, the major consideration is the ergonomic aspect and this takes place in terms of developing places for social exchange and interaction of the employees among themselves.

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<sup>30</sup> „Dinge im Gehen zu besprechen, hat viele Vorteile: Untersuchungen zeigen, dass Gehen das kreative Denken fördert; außerdem spricht vieles dafür, dass die körperliche Aktivität Menschen zu konstruktiveren, offeneren Gesprächen anregt.“ [71]



### MTV Headquarter

Berlin

**Table-tennis table as a place for relaxation and exercise**

Photo: diephotodesigner.de

Designer: Dan Pearlman Markenarchitecte



### Google Office Zürich

**Swings for exercise and creativity**

Photo: google.com/Pressefoto

Designer: Camenzind Evolution Ltd.

In a study made in 2014, American researchers documented that creative thinking benefits from exercise. [74] The scientists, Marily Oppezzo (Santa Clara University) and Daniel Schwartz (Stanford University) demonstrated in their article “Give your ideas some legs: The positive effect of walking on creative thinking” that exercise in the open or on a treadmill improved the results achieved by test persons in a creative test. The researchers asked 179 students to find solutions to two lexical games of different types. Firstly, they had to find as many new connotations for an object as possible and secondly, they had to find a word that augmented a word group. They did this test once when seated and once whilst walking. The test candidates performed significantly better in the first test when they were exercising and it did not matter whether they were on the treadmill or out in the open. The difference between the two tests is important here as well as the clear statement about what constitutes a creative activity for only then is it possible to verify the hypothesis.

It is not known whether the designers of MTV or Google offices knew about this study and its implications and used it as a basis for the design of meeting spaces or whether a certain company culture was decisive in making the decision to support team spirit or leisure activities within the company. An enormous potential lies in taking such studies into account in the design of workplaces and gathering spaces already during the office planning process. This needs to be done in conjunction with a clear definition of what creative work is understood to be.



## Gathering Spaces and System 2 (intuitive intelligence)

Pleasant, individual meeting places

*e.g. jung von matt, bene, Google*

**Jung von Matt on the Necker River**  
**Stair/seating as the heart of the agency**  
Photo: David Franck Designer: Bottega + Ehrhardt Architekten



The Bene Company introduced a category in its publication 'The Office as Living Space' with the name 'we-Places'. These places for interaction and creativity are 'intelligent, lively and flexible' and according to Bene, determine success. To a certain extent, they are individually designed because there are various types which are located on the fringe of the office environment. These are informal meeting places that should provide support for teamwork and facilitate the integration of media and fast communication. They are decorated in a colourful and cheerful manner and equipped with seating or standing tables that have unusual colours and designs.

'The Party is the Star' is the title of an article in the magazine, *Bauwelt* [75], which conveys immediately the content of a movement that has been established through the office concepts of companies from the New Economy like Google, Facebook or Twitter. Here, the aim is to provide employees with the opportunity of stopping for a while and interacting in a variety of spaces that have been decorated in a colourful and cheerful manner. This has led, for example, to cable-car cabins being erected as meeting places in the central administration office of Google in Zurich. Apart from being different, which is supposed to internally convey the self-image of the company as something different and in so doing, aim at the employees identifying themselves with the company, this was also designed to establish a relationship between a global company like Google and the local region.



*Sheltered in a working world (by) increasing the size of the furniture ... should give the innocence of childhood back to the employees.<sup>31</sup>*

In the case of the agency, HiReS in Berlin, which is also documented in the article quoted above, the size of all the fittings and furniture in one particular room were increased, as if in a walk-in myth, to give the employees a place where they feel safe and secure. Apparently, there is the need here and there for providing support in the development of a world of emotion and community spirit by establishing such spaces and for attributes such as regionalism and feelings of community and safety to be anchored there. This becomes clear in the multifunctional space of the agency, Jung von Matt on the River Neckar, Germany, where stair/seating over two storeys not only provides a facility where the complete office can meet together but also invites smaller groups to hold meetings there.

These and many other examples show that in the office environment, especially in spaces for meetings, the things that can be rationally and logically planned are not of singular importance but it is the atmospheric quality that plays such a significant part in stimulating planned interaction among employees. These designs are also important in recruiting specialists because skilled workers, who are both valued but also rare, are influenced in making their choice about where they want to work by the impression that the location has made on them. A feeling of comfort and of being appreciated is important in addition to a pleasant working environment which gives the employee a feeling of pride when customers and visitors come.

The question of whether the design of such places really fulfils their primary objective, namely, serving as places to meet and complete the task at hand, has to be left unanswered here. We can be sure, however, that gathering spaces that make you feel comfortable are also attractive stopping places. And as such, they either make sure that one relaxes and contributes to the team in a constructive manner or that one makes oneself comfortable in one's own nest and the meetings take longer than they might need to. So comfortable that the meeting spaces that cannot be reserved as is the case at PITCH by adidas are regularly occupied by the first employee in the team that arrives in the morning and these places become the second home of the team.

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<sup>31</sup> „Geborgen in der Arbeitswelt (durch) die Vergrößerung der Möbel ... sollen den Mitarbeitern die Unschuld der Kindheit zurückgeben“ [75]



# Die Party ist der Star

## Das Interior-Design der Berliner Digitalagentur HI-Res! soll Fachkräfte anlocken

von Robert Gasser – Foto: Thomas Feyer



Das neue HI-Res! Büro in Berlin-Mitte.

Das neue HI-Res! Büro in Berlin-Mitte ist ein Paradebeispiel für ein modernes Office-Design. Die Digitalagentur hat sich für eine offene, flexible und farbenfrohe Umgebung entschieden, die die Kreativität und Produktivität der Mitarbeiter fördern soll. Die räumliche Gestaltung ist geprägt durch eine Mischung aus warmen und kalten Farben sowie durch eine hohe Transparenz der Arbeitsbereiche.

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### Rückgangsortraumgefühl

Das neue HI-Res! Büro in Berlin-Mitte ist ein Paradebeispiel für ein modernes Office-Design. Die Digitalagentur hat sich für eine offene, flexible und farbenfrohe Umgebung entschieden, die die Kreativität und Produktivität der Mitarbeiter fördern soll.

**Bauwelt 35.2015**  
**The Party is the Star**  
 Photo: Publisher





## Threshold and Transition Spaces

	Threshold and Transition Spaces
System 1 (rational intelligence)	Coworking Lobby, Stabilo Lounges
The Body	Corridor zones and middle zones
System 2 (intuitive intelligence)	Useful threshold and transition spaces e.g. Rolex Learning Center

### Threshold and Transition Spaces and System 1

As opposed to the very active spaces of the first two categories, 'Home Base' and 'Gathering Spaces', which were planned with considerable theoretical background information, we now turn our attention to the spaces in between. Little attention has been given so far to movement areas and threshold and transition spaces in office planning. Transport areas and surplus areas for example, have received little consideration in coworking projects or in the planning of middle areas in combi offices or most recently, really usable threshold and transition spaces. Our review here will take place in three stages. Firstly, in the sense of them being

### Additional Movement Areas

*for example, at Coworking / Lobby or Stabilo / Lounges*

We have already discussed coworking as a phenomenon. One effect of the change in requirements that are placed on the construction of office spaces is that various possibilities are dealt with more consciously during the planning process. Coworking areas do not develop from a real need but from one that is assumed. This makes it relatively clear that a certain amount of flexibility and heterogeneity must be anchored in the concept itself in order for it to be able to do justice to future needs which are currently unknown.

This means that rigid plans hardly exist in this field and that instead, a different aspect becomes apparent. In the environment around coworking, it is possible to observe a constructive way of handling threshold and transition spaces. During the planning phase, these are left as buffer zones or extended transport areas to be used in future in a variety of ways. However, they do not remain empty but are reserved for



a variety of activities. These activities range from niches with sitting bags to small meeting cabins in corridors or a small lounge. These are not real gathering spaces with an appropriate infrastructure but places that can change their identity very quickly and which can also be used as workplaces. Currently, the areas that are residual are used as informal meeting areas by the various employees in coworking spaces.

Design Offices with their various locations throughout Germany are one of the most innovative providers of exclusive coworking and office workplaces who also provide coworking lounges within their facilities. A spot in this lounge is a place where you can work but also a network with an open structure.

*A review of the advantages of the coworking lounge: Plug & play – arrive and get started; professional workplaces, WLAN and extensive office services, use of communal areas: communication niches and communal kitchen.<sup>32</sup>*

This lounge is planned in a classic way as an open threshold and transition space with clearly defined additional benefits that have a stronger tendency in the direction of a workplace rather than a place for communication. The possibility of being able to reserve the lounge on an hourly basis as well as the equipment that is available there shows that here we are dealing more with a temporary place of work in a relaxed environment than with a place where concentrated work on one project after the other is of primary importance. A certain amount of distraction is also part of the concept.

Just the opposite can be seen in the threshold/transition stairway of the new Stabilo office building that has been planned as a place for communication. The so-called 'Marktplatz' [77] (market place) is a real place which is marked as such with special furniture, colouring and free standing luminaires. It has been designed to be very colourful and as such to set it apart from the office areas that are almost completely kept in white. The colouring and the furniture clearly address the subconscious and trigger off intuitive reactions. This is a place that can be used temporarily as a meeting place in the stairway but was not planned to be a real gathering space or workplace.

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<sup>32</sup> „Die Vorteile der Coworking Longe im Überblick: Plug&Play – ankommen und loslegen; professioneller Arbeitsplatz, W-Lan und umfangreiche Büroservices; Nutzung von Gemeinschaftsflächen: Kommunikationsnischen und Gemeinschaftsküche.“ [76]



**Stabilo new Brand Building**  
**Threshold and transition space as a**  
**stairway with the planned additional**  
**benefit of being used as a gathering**  
**space**

Photo: Stabilo

Designer: mvmaarchitekt +  
 starkearchitektur

## Threshold and Transition Spaces and the Body

### Healthy Office of Routes

#### *Corridor zones and middle zones*

As we have already seen in the example of the threshold and transition space in the Stabilo administration building, there are spaces in the office landscape that are neither planned as gathering spaces nor as workplaces nor equipped as such. The predecessors of these spaces were the middle zones in the so-called combi offices:

*Combi-Offices are a combination of individual single workplaces with multifunctional zones that are used by the community for informal communication or as gathering spaces and for the storage of working materials. They are especially suitable for companies which regularly combine concentrated work with project work in a team. Usually, the single workplaces are located in a row along the window facade. The multifunctional zone is located in the middle of the space. Glass elements are usually used to separate the single workplaces from the commonly used zone. The storage of work materials is generally done centrally. There is little storage space available in the single workplaces. For this reason, it is possible to reduce the floor space allocated to each single workplace compared to that in the classical one-person office.<sup>33</sup>*

<sup>33</sup> „Kombi-Büros sind eine Kombination individueller Einzel-Arbeitsräume mit gemeinschaftlich genutzten Multifunktionszonen zur informellen Kommunikation, für Besprechungen und zur Archivierung von Arbeitsmaterialien. Sie eignen sich besonders für Unternehmen in denen regelmäßig konzentriertes Arbeiten mit Projektarbeit im Team kombiniert wird. Üblicherweise werden die Einzel-Arbeitsplätze entlang der Fensterfront angeordnet. Die Multifunktionszone wird in der Raummitte platziert. Die Abgrenzung der Einzel-Arbeitsräume zur gemeinschaftlich genutzten Zone erfolgt in der Regel durch



This description is given by buero-forum in bso Verband Büro,- Sitz- und Objektmöbel e.V.

*Open-plan offices are offices with a floor space of more than 400 m<sup>2</sup>. The individual workplaces are separated by room-making elements such as partitions, cupboards or room-in-room systems. They are especially suitable for companies that have a high organisational dynamic of change.<sup>34</sup>*

The floor plans also depict a middle zone where various activities can be located, e.g. storage, short meetings, concentration areas, etc.

A further development is of interest, namely, the transformation of various forms of open-plan offices into so-called Business Clubs. As the name already indicates, the aim is to create more of a club-like atmosphere than that of an office. A visit to the office no longer primarily serves individual work but interaction.

*Business Clubs are a central point of contact for employees. Here, you can find a common infrastructure (like cloak rooms and lockers, mailboxes and cell phone stations, printers, copy and fax machines) and workplaces with a variety of forms for different activities as well as someone in the secretary's office.<sup>35</sup>*

The most important characteristic of all these various office types is that the infrastructure for storage and printing, etc., is centrally organized so that it is always necessary for people to move around. This movement is desired in order to provoke a change in the attitude of the employee at the workplace. Such office concepts offer a variety of workplaces in the middle as well as corridor zones in order to stimulate a continuous swapping of workplaces for different activities. This is the basic idea behind the further development of the Action Office by George Nelson when it is projected from a single workplace to a whole office unit. In the corridor and middle zones, all employees are offered places that have been designed and equipped differently in order to facilitate ergonomical working conditions and to counterbalance sitting with standing up, working whilst standing or in the lounge. The emphasis here as was the case in Action Office, is on taking into account the needs of the human

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*verglaste Elemente. Die Archivierung von Arbeitsmaterialien erfolgt überwiegend zentral. In den einzelnen Arbeitsräumen steht dann nur wenig Stauraum zur Verfügung. Deshalb kann die Arbeitsfläche je Einzelarbeitsplatz geringer ausfallen als in klassischen Einzelpersonen-Büros.“ [78]*

<sup>34</sup> *„Großraum-Büros – auch Open-Space-Büro genannt – sind Büros mit einer Grundfläche ab ca. 400 m<sup>2</sup>. Die einzelnen Arbeitsplätze werden durch Raum bildende Elemente wie Stellwände, Schränke oder Raum-in-Raum-Systeme strukturiert. Sie eignen sich besonders für Unternehmen mit einer hohen organisatorischen Veränderungsdynamik.“ [78]*

<sup>35</sup> *„Business Clubs sind eine zentrale Anlaufstelle für Mitarbeiter. Hier findet sich ein ständig besetztes Sekretariat, eine gemeinsame Infrastruktur (wie Garderoben und Schließfächer, Postfächer und Handystationen, Drucker, Kopierer und Faxgeräte) sowie verschiedene Arbeitsplatzformen für unterschiedliche Tätigkeiten.“ [78]*



body and is against the unsuitable mode of continuously sitting on chairs at the workplace or in gathering spaces.

## Threshold and Transition Spaces and System 2 (intuitive intelligence)

### Creative Interaction

*Useful threshold and transition spaces*  
e.g. Rolex Learning Center

*The curious person is understood here to be a wanderer who understands how to make use of chance and who values conversing with persons from a variety of subject areas. "This is a building which meets the requirements of the Bologna Reform" is the explanation that Patrick Aebischer, the President of the EPF Lausanne gives to journalists. According to Kazuyo Sejima, one central specification of the competition was to provide support for communication. In a field of high-ranking competitors, the Japanese office, Sanaa, which is headed by Sejima, together with Ryue Nishizawa, had been successful in asserting itself with its proposal.<sup>36</sup>*

This quotation taken from the magazine called art and published under the title 'Eine Bibliothek zum Flanieren' (A Library to Stroll Through) demonstrates how the builder and the architectural office, SANAA, viewed the project and how they understood the relationships between space, chance, encounters, intuition, interdisciplinarity and innovation to be.

There is hardly any other singular building that is currently capable of presenting these relationships. As we have already mentioned, over 20,000 m<sup>2</sup> stretch as one space over the single storey. The space undulates through two parallel concrete panels and forms an interior landscape behind a filigree glass facade. Due to its openness, the space presents an invitation to stroll and saunter about, it provokes random encounters among students and staff from all sorts of academic areas and in so doing, caters for interaction. The single storey landscape creates threshold and transition spaces that merge into gathering spaces and areas for communication. The fact that the spaces are without borders creates a singular conglomerate of possibilities to meet and around all this a shell was constructed. One might say that it is one big threshold and transition space with small functional rooms, such as the library, restaurant and Info Point docked around it. Without doubt, the threshold and

<sup>36</sup> „Der Wissbegierige ist hier als Wanderer begriffen, der den Zufall zu nutzen versteht und es schätzt, mit Angehörigen der verschiedensten Fächer ins Gespräch zu kommen. Das ist ein Gebäude für die Anforderungen der Bologna-Reform“, erläuterte Patrick Aebischer, der Präsident der ETH Lausanne, den versammelten Journalisten. „Die Kommunikation zu fördern, sei eine zentrale Vorgabe des Wettbewerbs gewesen, ergänzte Kazuyo Sejima, die mit Ryue Nishizawa zusammen das japanische Büro Sanaa leitet, das sich mit seinem Vorschlag in einem hochrangigen Bewerberfeld durchgesetzt hat.“ [79]



transition space plays the major role in the building and through the name, 'Learning-Center', it symbolises how learning takes place today. Learning and studying, in terms of a creative approach towards producing new knowledge and interaction for the purpose of innovation are based on random encounters.

When brought into a causal connection, this verifies the initial hypothesis that there is a connection between threshold and transition spaces and the creative impulse:

Threshold and transition spaces →

Informal interaction →

Intuitive decision making →

Creative impulse

The 'Rolex Learning Center' is not really an office building in the normal sense but a place of learning at a university. However, certain phenomena can be transferred from one category to the other because the initial question is the same: How can I provide support for creative action through spatial design? As such, this building, as an interior space, provides a number of useful indications as to how creative interaction among employees can be promoted through office design.





## Chapter 6

### Conclusion

#### on the Research

Both, creativity and work, need to be clearly defined. Only after this has been done, will the relationships that exist between both areas become clear and only after this has taken place is research on this topic possible. In the research undertaken in this book, both terms are applied to the office. Topics such as change management, flexible office, home office, etc., play an increasing role in office planning and office design. Such topics are of direct significance for the employees as users of these office spaces.

For this, we took the human 'System' [1], rational intelligence, intuitive intelligence and the body into consideration as they are viewed in psychology and health research. The aim of this investigation has been to see in what way spontaneous encounters in the threshold and transition spaces in the office can provide support for and promote the intuitive systems of human beings. In doing so, these spaces could make a significant contribution to creative activities and innovative processes. Office planning is located within the realm of interior architecture. Our current understanding of interior architecture is that it involves an interdisciplinary approach in which related areas such as psychology, philosophy, behavioural science, brain research or health management serve as the basis for its solid enhancement as well as new insights. It is the interaction of these disciplines that makes a humanistic and user-oriented approach possible and which is of benefit to mankind. Scientifically validated knowledge about the needs of human beings provides the basis for the environment to be planned and equipped according to these needs.

One cause-and-effect chain that can be developed out of this link is:

Threshold and transition spaces →

Informal interaction →

Intuitive decision-making →

Creative impulse

We can use a simple table to illustrate the connections between the three groups, home base, gathering spaces and threshold and transition spaces and the three systems of decision making, rational intelligence, body and intuitive intelligence. The core of this matrix is the last column. Here, the form and design of these threshold





and transition spaces are listed or what is needed in order to stimulate System 2, the intuitive intelligence.

kreative, intuitive  
Begegnung im  
Zwischenraum:

z.B. Treppenhaus,  
Flur,  
Vorraum WCs,  
vor den Besprechungsräumen,  
an der Empfangstheke,  
zwischen den Projektgruppen,  
auf dem Weg zur Küche,  
an der Werkstatt,  
in der Raucherecke,  
vor dem Aufzug,  
im Aufzug,  
im Windfang,  
in der Materialbibliothek,  
in der Bibliothek,  
...

**Threshold and transition spaces:**  
**They encourage random encounters with intuitive interaction.**

Creativity and innovation occur when there is a balanced relationship between intuitive and rational work and when the spatial facilities allow the right environment to be found for the respective activity. Neither the jolly 'Office-is-Leisure-Office' nor the rational 'Work-is-serious-Office' provide support for this dualism. A modern office environment for creative work should provide a variety of office environments but at the same time, also stimulate wandering and sauntering between these worlds. Our approach here is based on the idea of the duality of the systems with the focus on the spaces between these systems.

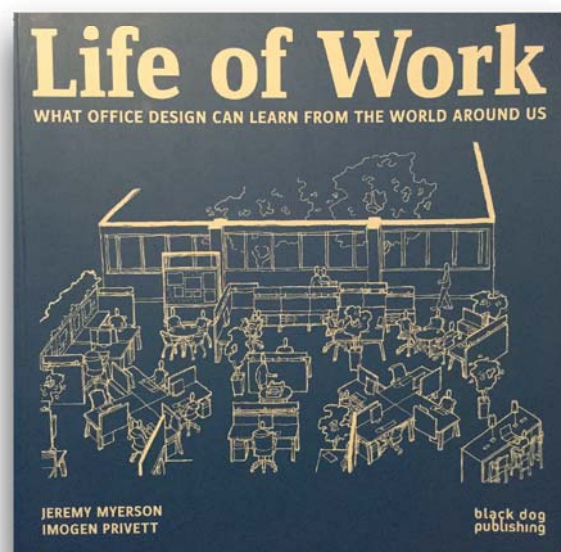
Mobility spaces exist in between the various office worlds that consist of workplaces and gathering spaces. These threshold and transition spaces are the third component in an office. The fourth are the infrastructure areas for the computer server or storage. We declare these threshold and transition spaces to be the most important places in the office for informal meetings and for random encounters. It is these threshold and transition spaces which provide support for our intuitive intelligence, our intuition and for this reason, we should award them increased attention and awareness.



In these threshold and transition spaces, we need a chaotic environment as a counterpart to the tidy offices and gathering spaces. It is important that these spaces are not totally organised. Actions there should happen by chance. In stairways, corridors, anterooms in front of cloakrooms, in the area in front of meeting rooms, at the reception desk, between the project groups, on route to the kitchen, in the workshop, in the smoker's zone, in front of the elevator, in the elevator, in the porch area, and in the library, etc. These threshold and transition spaces should be places to saunter through and to explore.

This insight can be summarized in one expression: 'learning from life'. In our daily lives, outside of the office and out on the street, we seek such random encounters and we create spaces in which they can happen. For this reason, it makes sense to investigate what the design of office spaces can learn from daily life around us. In the book 'Life of Work' with the pleasant subtitle 'What Office Design Can Learn From The World Around Us' [20], the authors, Jeremy Myerson and Imogen Privett, make an exact description of this phenomenon in their research. In one chapter, they address the informal exchange of knowledge through encounters and view the library as a good example where such exchanges take place. The researchers define places for the activities 'discover, gather, analyse, create and share' [20, p. 34-37]. They propose the theory that there are gathering spaces and threshold and transition spaces at such everyday locations which we use so self-evidently. Everyone knows these places and everyone can use them. Some of them may be a little unusual, for example, 'ski resort', 'literary festival' [20, p. 37] or 'learning from the theatre', 'learning from the frontline' [20]. This gives us the opportunity of analysing such places and then transferring their mode of action to the design of the office environment.

**Life of Work**  
**What office design can learn**  
**from daily life in the city**  
Photo: Book cover, publisher





Bene, a company that produces office furniture, has looked at this topic in its publication “The Office as a Living Space” in as much as the office is understood by them to be a living space which has various zones and areas. In the above mentioned publication, the following areas are listed: Reception/Lobby, Workplace, Thinker’s Cells, We-Places, Meeting/Conference, Management, Lounge, Cafeteria/Restaurant, Seminar/Workshop, Library, Recreation and Support. It is quite surprising that almost every possible type of space is listed and compared with places in a town landscape. This allows the transfer of aspects from the daily use of city spaces to office planning. Unfortunately, with the exception of ‘We-Places’, all of the terms for threshold and transition spaces, such as rear courtyard, pavement, alleys, streets, playground, corner pub, park or automatic pay station are missing. In the end, the unorganised areas with their particular atmosphere are missing, too, and with that the opportunity of going beyond the colourful and flexible furnishings in the We-Places.

Various examples of ideas about threshold and transition spaces show that there is a need that manifests itself in different ways in the built environment of the office. In a case study undertaken by Herman Millar, he designed a fuseproject as an extension to the desk and used it straightaway in their own offices as a prototype. It is literally a corner seat in the corridor with which one can lean directly on the desk and communicate for a short time at eye level. The corner seat is for one person and it is soft and comfortable and invites you to sit down and have a short chat with the colleague sitting at the desk. This makes it so easy to talk about things that, by chance, are lying on the desk or visible on the computer monitor. This piece of furniture make spontaneous interaction possible simply by being there and at the same time, it signals that this form of communication is also desired.





In one of my own projects for a large law firm, the question was also raised about threshold and transition spaces as a place for random encounters. As a result, the workplaces for the library were placed in the corridor and small meeting niches were located in the cupboards. In this way, these functions were readily integrated into the current use and augmented them with a secondary use as threshold and transitions spaces. The niches have proven to be especially practical for random encounters in the corridor because they openly express an invitation to take a seat and in so doing provide a kind of support for unplanned interaction and even express an invitation to stay longer.

These threshold and transition spaces are based on the support they provide for random encounters. Some of these spaces will change, disappear or be moved elsewhere. Their existence is dependent upon creating a spontaneous atmosphere and for this reason, they must be designed in such a way that they promote this kind of spontaneity. If the design of these places should really promote informal and random encounters and encourage people to stay there for a while, then, they must also meet some of the needs of the user and take his or her 'instinctive behaviour' [60, p. 281] into consideration:

- A fundamental motivation for employees to use these places;
- No full scale room height which could make the individual feel small;
- The presence of niches that are protected against the direction of the 'traffic' as well as eavesdropping;
- No drafts;
- Sufficient bright lighting, if possible, accentuated;
- Appropriate acoustics to minimise noise and promote conversations;
- A change of flooring or a change of wall or ceiling covering in order to differentiate between circulation zones and areas to linger;
- Plants, daylight and additional features;
- Pragmatic aspects such as seating or standing supports, storage surfaces and small writing surfaces;
- The possibility of using digital facilities or also the disconnection of all digital media to meet the need for peace and quiet.

Many of these things do not address us consciously but rather subconsciously, i.e. we react to them intuitively. This all goes in the direction that Erwan Bouroullec once expressed for brand 1:



*You must imagine a good office to be like an original, mysterious forest. There, open clearings and impenetrable thickets await you as well as bushes and streams, moss like lowlands and even remote corners into which you can disappear when you need peace and quiet. When during your working day, you wander through this forest, you intuitively find those paths and places that correspond to your current desire for peace and quiet, concentration or communication. Even more than this: Whoever moves around instead of remaining seated at his or her desk, automatically sees things, thinks differently and for this reason, comes to different solutions.<sup>37</sup>*

Intuition is a form of intelligence and we have already learnt about it in the chapter about creativity. We often act in this intelligent manner because the things around us appeal to us and we react to them.

*Gut feeling or intuition (is) a judgement that (1) quickly appears in our consciousness, (2) we are not really aware of the deeper reasons for it and (3) it is strong enough that we will act according to it.<sup>38</sup>*

This is the way that we react to our environment when we are at work, intuitively and fast. In the light of this, it makes sense to take a close look at this environment from both the planning and the designing points of view. For this reason, we will now turn our attention to the office environment, especially to the threshold and transition spaces and use an example to plan and depict them in a real location where they provide support for intuitive decision-making and the development of creative impulses.

*The intuitive mind is a sacred gift and the rational mind is a faithful servant. We have created a society that honours the servant and has forgotten the gift. Albert Einstein<sup>39</sup>*

<sup>37</sup> „Ein gutes Büro“, sagt er, „müssen Sie sich wie einen ursprünglichen, geheimnisvollen Wald vorstellen. Da erwarten Sie offene Lichtungen und undurchdringliches Dickicht, es gibt Büsche und Bäche, moosartige Niederungen und sogar abgeschiedene Ecken, in denen man verschwinden kann, wenn man Ruhe braucht. Wenn Sie sich im Laufe Ihres Arbeitstages durch diesen Wald bewegen, finden Sie intuitiv die Wege und Orte, die Ihrem aktuellen Bedürfnis nach Ruhe, Konzentration oder Kommunikation entsprechen. Mehr noch: Wer sich bewegt, statt an seinem Schreibtisch zu sitzen, sieht automatisch andere Dinge, denkt anders und kommt damit auch zu anderen Lösungen“. [80, S. 4]

<sup>38</sup> „Bauchgefühl oder eine Intuition (ist) ein Urteil, das (1) rasch im Bewusstsein auftaucht, (2) dessen tiefere Gründe uns nicht vollkommen bewusst sind und das (3) stark genug ist, um uns danach handeln zu lassen.“ [35, S. 143]

<sup>39</sup> „Der intuitive Geist ist ein Geschenk und der rationale Geist ein treuer Diener. Wir haben eine Gesellschaft erschaffen, die den Diener ehrt und das Geschenk vergessen hat“ Albert Einstein [35, S. 142]





## Chapter 7

### The Situation

ORANGE BLU building solutions is a new company of architects that developed out of the offices of Wilford Schupp Architekten and ZSP Architekten. A new office concept needed to be developed for about 50 employees in a three-storey building. These spaces should visualize the relationship between creative, innovative cooperation in the planning sector and the creative industry on one hand and the design and organisation of office spaces on the other.

This presented the opportunity within the framework of a pilot project, to implement the conclusions that have been reached during this piece of research in a real planning process.

The aim was to create together with partners from the building industry, a living showroom on the basis of which the planning could be presented, checked and demonstrated on the scale of 1:1. The following three issues were to be dealt with:

- Home base
- Gathering spaces
- Threshold and transition spaces

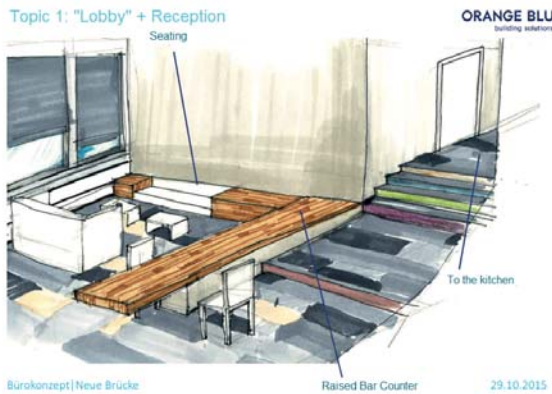
Here too, the emphasis was also placed on the **3rd issue** namely, **threshold and transition spaces**.

All the areas in the office space have slightly different functions. This makes it necessary to move about in the building and in so doing, random encounters will arise. It was our wish to provide specific places for these encounters. In general, our idea is that these spaces should allow more than one single use and for this reason, they should be designed and furnished in an appropriate way. We see this as being innovative and that is what makes the difference e.g. having meetings in the fireplace lounge, or in the kitchen, the bar or the workshop. The concept is based on a more homogeneous office landscape in which there are tables and other furniture of varying heights and where these provide the structure for the spaces as well as noise insulation. As the employees generally work with computers and at fixed workplaces, primarily such types of workplaces were created.

In addition, a number of spaces of varying sizes were provided that could be used in a variety of situations (on one's own, in pairs or in a large group spontaneously, planned, loudly, quietly). Cockpits and booths for telephoning were also provided.

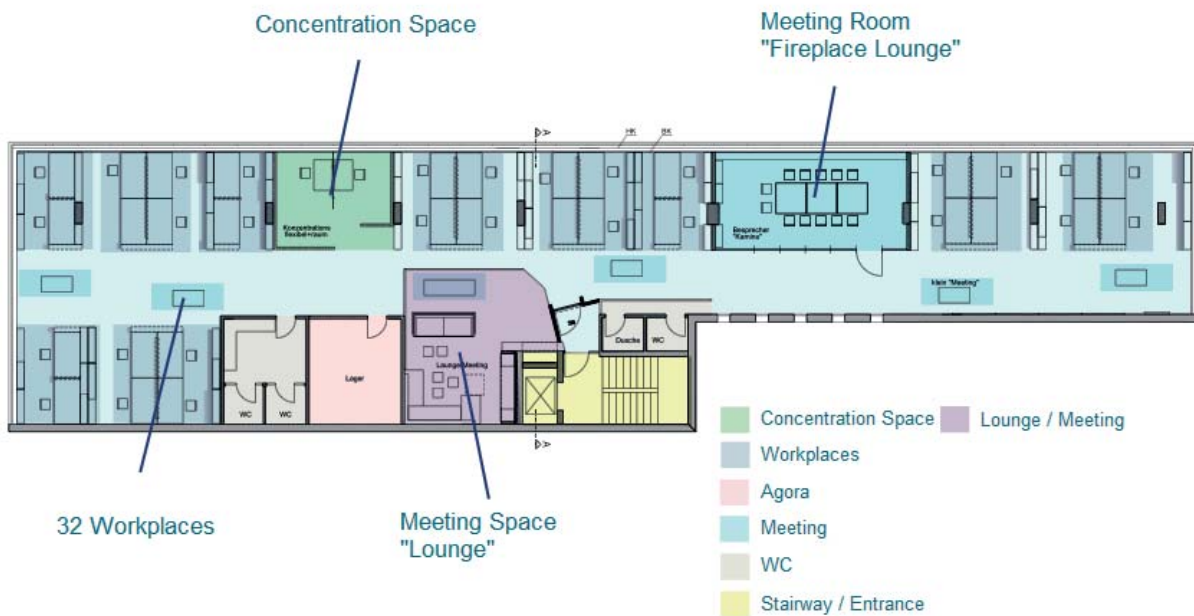






## Floor Plan Level 02

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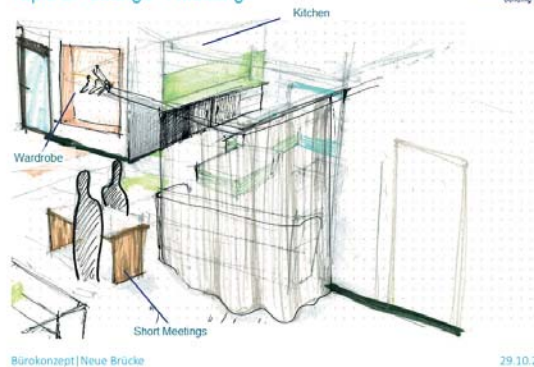
29.10.2015

### Topic Level 2:

- Large meeting room "fireplace lounge" (topic 5)
- Large meeting room "Lounge" (topic 6)
- as the central meeting point on the 2nd Floor with small kitchen.
- Flexible concentration spaces (topic 7) for individual use.
- Real cockpits (concentration spaces) with about 7.5 m<sup>2</sup> to be used as temporary single work-places.
- Smaller work spaces for group work.
- 32 workplaces.



## Topic 6: "Lounge" | Meeting



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## Topic 7: Flexible Concentration Room

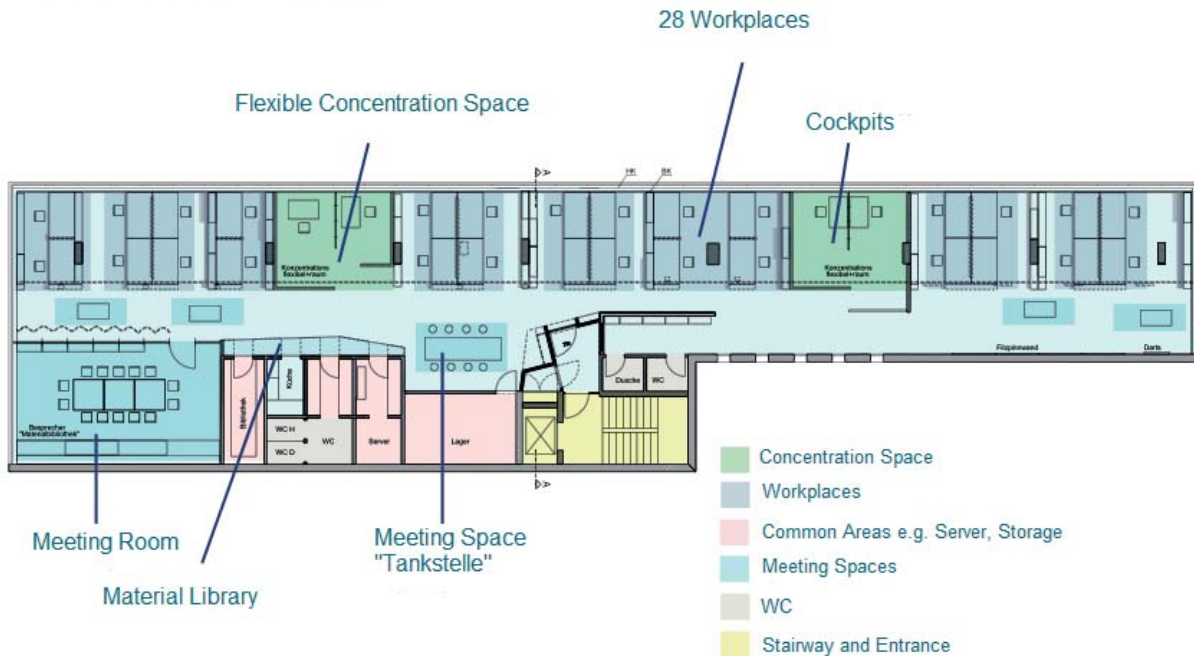


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## Floor Plan Level 03

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Bürokonzept|Neue Brücke

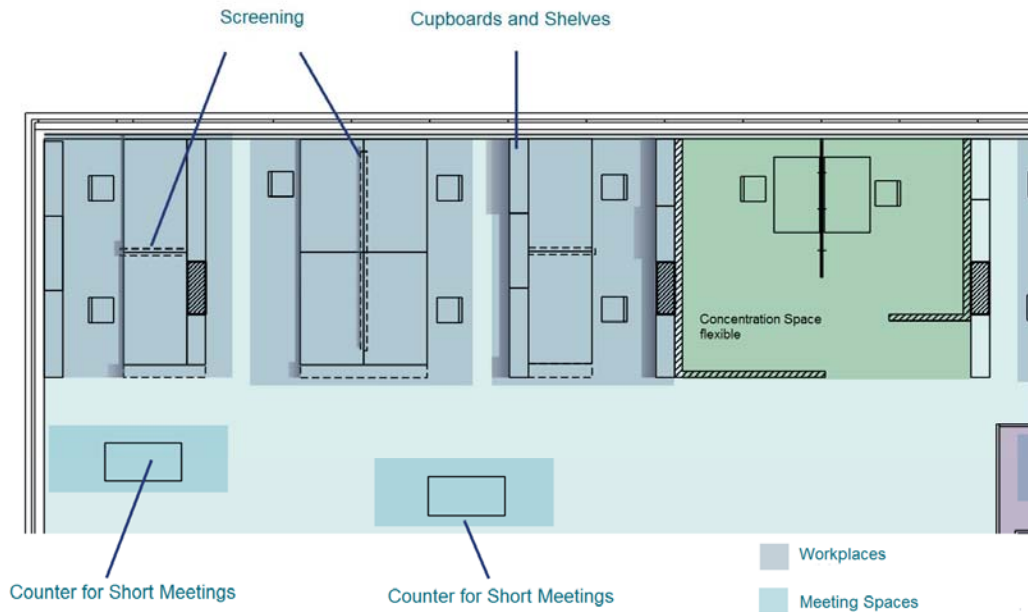
29.10.2015

## Topics of Level 3

- Flexible concentration spaces for individual use.
- Real cockpits with about 7.5 m<sup>2</sup> to be used as temporary single workplaces.
- Large meeting area "Material Library" (Topic 8).
- Large meeting space for standing "Tankstelle" (Topic 9) as
- Central meeting point on the 3rd Floor with small kitchen.
- Smaller work spaces for group work.
- 28 workplaces.



## Plan Section Workplaces

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Bürokonzept | Neue Brücke

30.11.2015

### Thematic Focus on Threshold and Transition Spaces

Threshold and transition spaces should provide something which augments the daily routine of the employees. This will open the door for creative opportunities not through a creative design but through a design that facilitates casual encounters and in so doing, stimulates the human intuitive system.

*Office work has always been more than just production at a desk. It also involves investigating situations, being able to concentrate in order not to be disturbed in the process of thinking, exchanging and communicating the ideas that have been found. Sociological findings about communication and creativity show that four-fifths of all ideas arise out of unplanned communication.<sup>40</sup>*

The threshold and transition spaces set themselves apart from the planned office with the classical home base and gathering spaces. Informal encounters with unplanned communication take place in the threshold and transition spaces. These spaces are for example, the wide office corridor as a meeting zone, the stairway with the open area in front of the elevator, the porch area in front of the individual floors,

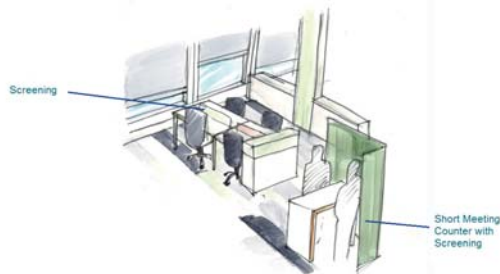
<sup>40</sup> „Büroarbeit war schon immer nicht nur das Produzieren am Schreibtisch, sondern auch das Recherchieren von Sachverhalten, das sich Konzentrieren, um ungestört zu denken, die gefundenen Ideen mit anderen zu kommunizieren und auszutauschen. Sozialwissenschaftliche Erkenntnisse zu Kommunikation und Kreativität zeigen u.a., dass vier Fünftel aller Ideen durch die ungeplante Kommunikation entstehen.“ [17]



the lift, the areas in front of the cloakrooms and the various meeting spaces, that is, all those areas that till now were not planned or furnished but were left as mobility spaces. A really interesting aspect is looking at possibilities for furnishing these spaces. These spaces could be furnished with the following:

- Standing tables in niches for quick talks;
- Movable seating furniture in the corridors;
- Benches in front of the meeting spaces;
- Seating on the stairs;
- Small niches with flexible standing aids.

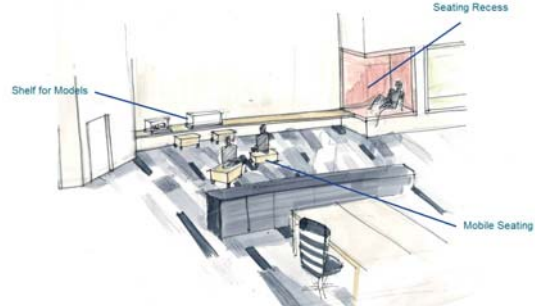
Topic 11: Threshold and Transition Spaces



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Topic 11: Threshold and Transition Spaces

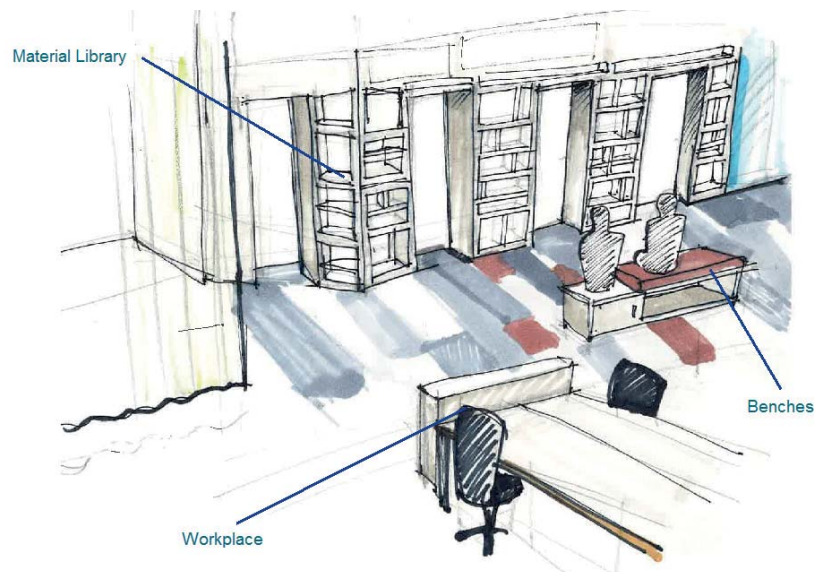


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Topic 11: Threshold and Transition Spaces

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## Chapter 8

### Implementation of Threshold and Transition Spaces

#### Theory and Practice

The ideas that were presented in the last chapter were implemented in the form of a project space in an office building. The building was located in Neue Brücke 8 in Stuttgart, Germany. On the 3rd Floor, a temporary space was available from March 1 till September 1, 2016. The idea was to implement a mock-up which corresponded to the theoretical concept and which had the appropriate size as well as the support of the partners. This all took place during regular operation. A working area was developed that could be used by various users in the form of a coworking space. Examples emerged that specifically demonstrated how threshold and transition spaces could be designed for creative exchange in an office environment. These examples were documented and photographed so that they could be used as a visual basis for discussion and further development of the idea 'Collisions, Room for creativity and innovation'.

In addition to the theoretical analysis, a hypothesis was developed that establishes a causal link between, for example:

Threshold and Transition Spaces →

Informal Interaction →

Intuitive decision making →

Creative impulse

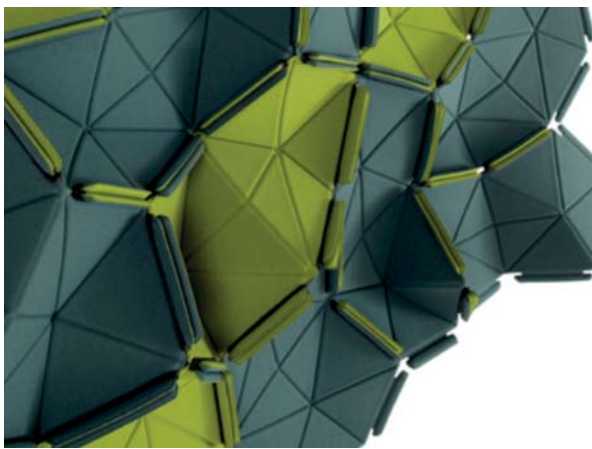
Some of the thoughts which have been made about the possible design of threshold and transition spaces were implemented in a real project. In so doing, attention was placed on the form of the design so that it was done in a way that provided support for informal and improvised encounters. The following elements were partly used on their own and partly in combination. In combination, they could mutually reinforce each other:

1. Acoustic objects 'Clouds' from Kvadrat.
2. Flexible chairs and standing aids 'Stand Up' from Wilkahn.
3. Needle felt 'Strong' as individual seating cushions from DLW Flooring.
4. Various 'islands' on walls and floors made from carpet tiles from Interface.
5. Small units of open spaces of 'CAS rooms' from Carpet concept.



Important characteristics of the furnishings were:

- Simple, uncomplicated and intuitively usable;
- Improvised and temporary character;
- Perfectly obvious in their appearance;
- Partly mobile, modifiable, adaptable;
- Creation of a place within the space;
- Colour adapted to suit the facilities but still independent.



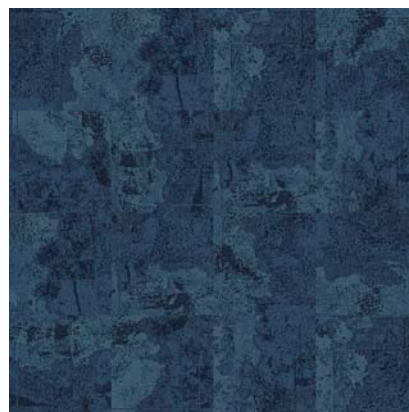
**Acoustic objects Clouds, Kvadrat**



**Flexible seating and standing aid Stand Up, Wilkhahn**



**Needle felt as tile,  
DLW Flooring**  
Photo: ramprobe.de



**Floor and wall coverings  
Interface**



**Flexible wall module CAS rooms,  
Carpet concept**





Photo: GORDON KOELMEL



**Threshold and transition spaces in the corridor**  
**On site implementation**

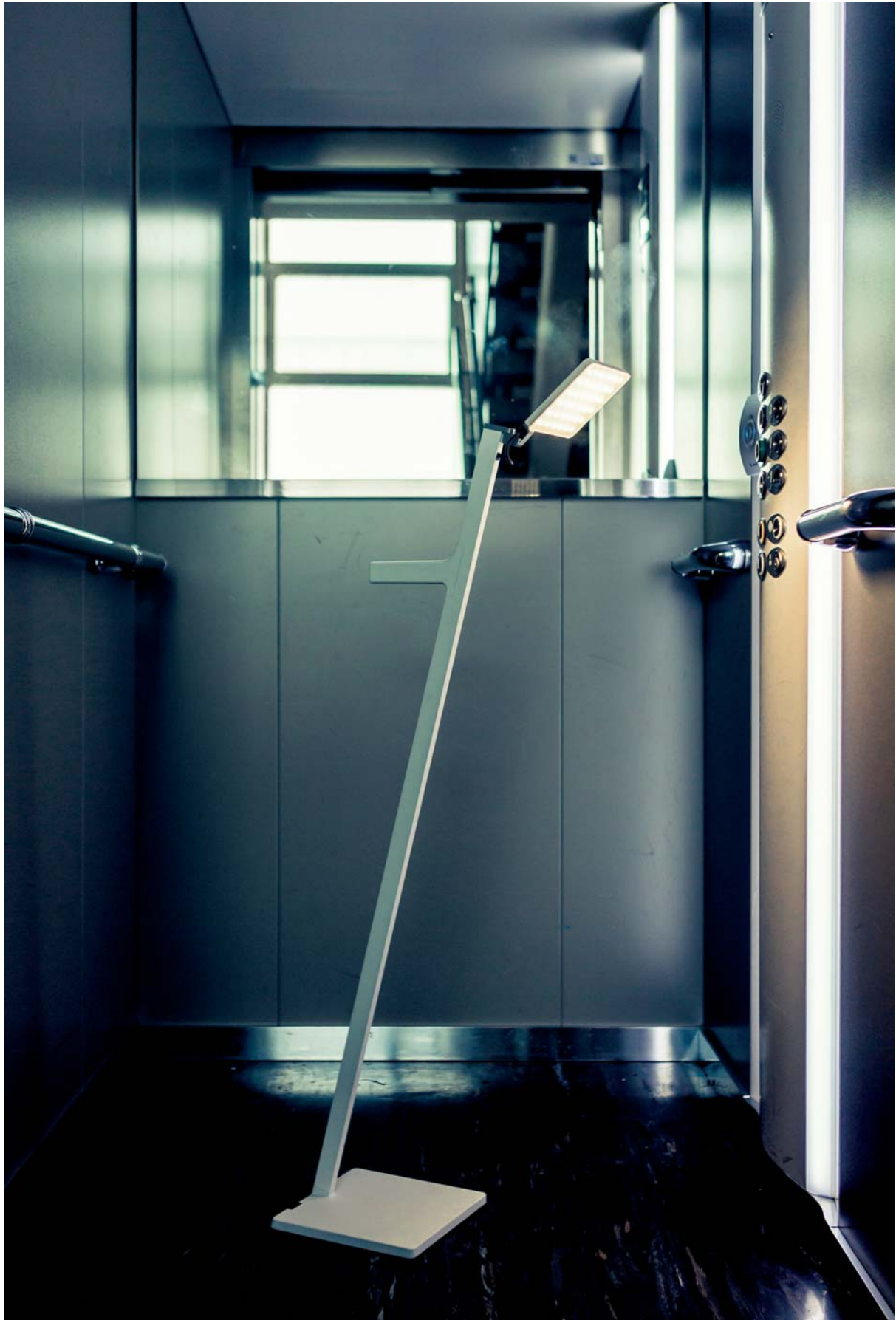
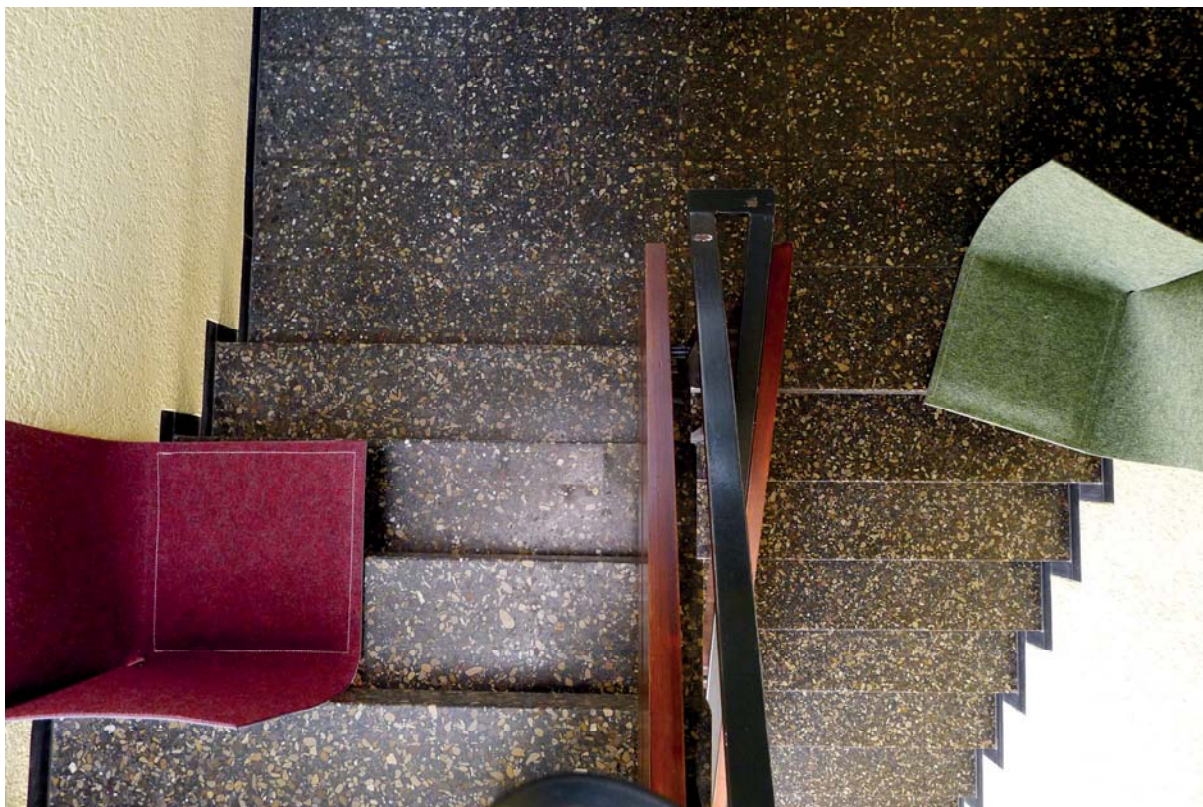


Photo: GORDON KOELMEL



### Threshold and transition spaces in the staircase

#### On site implementation

Photo: GORDON KOELMEL



Photo: GORDON KOELMEL





Photo: GORDON KOELMEL



**Threshold and transition spaces  
in new wall niches  
On site implementation**

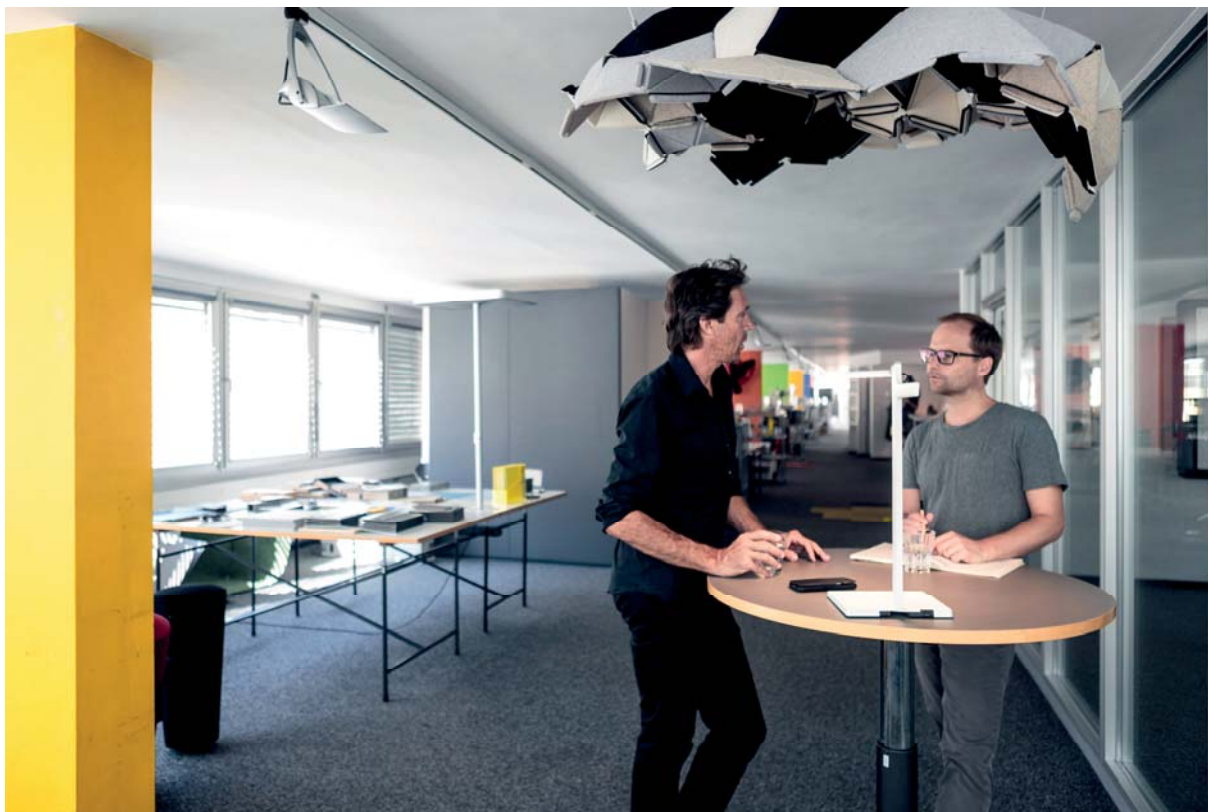
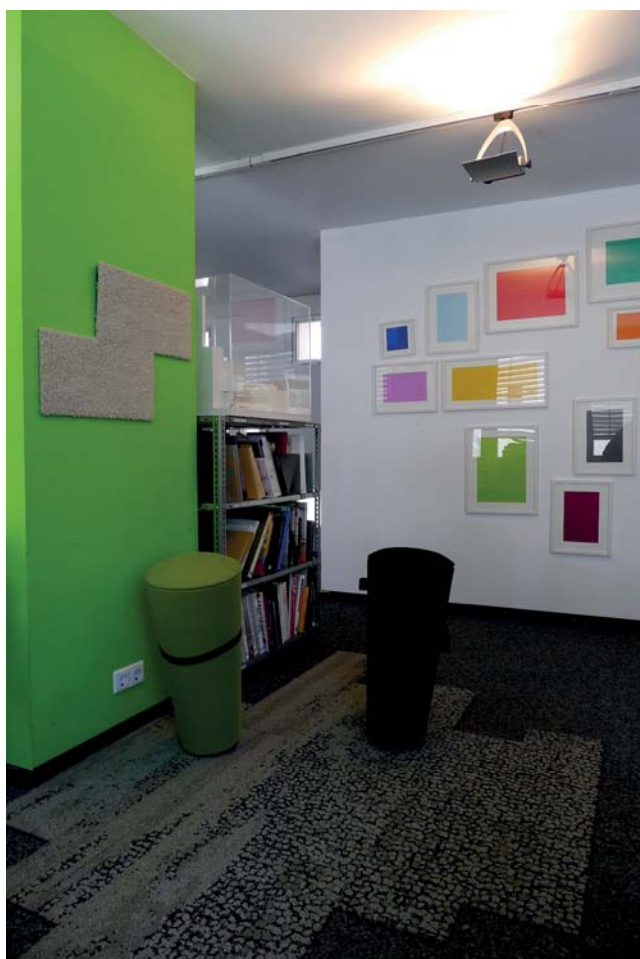


Photo: GORDON KOELMEL



**Threshold and transition spaces  
in front of areas such as  
kitchen, photocopier, conference room  
On site implementation**







Photo: GORDON KOELMEL



**Threshold and transition space in niches**  
**On site implementation**

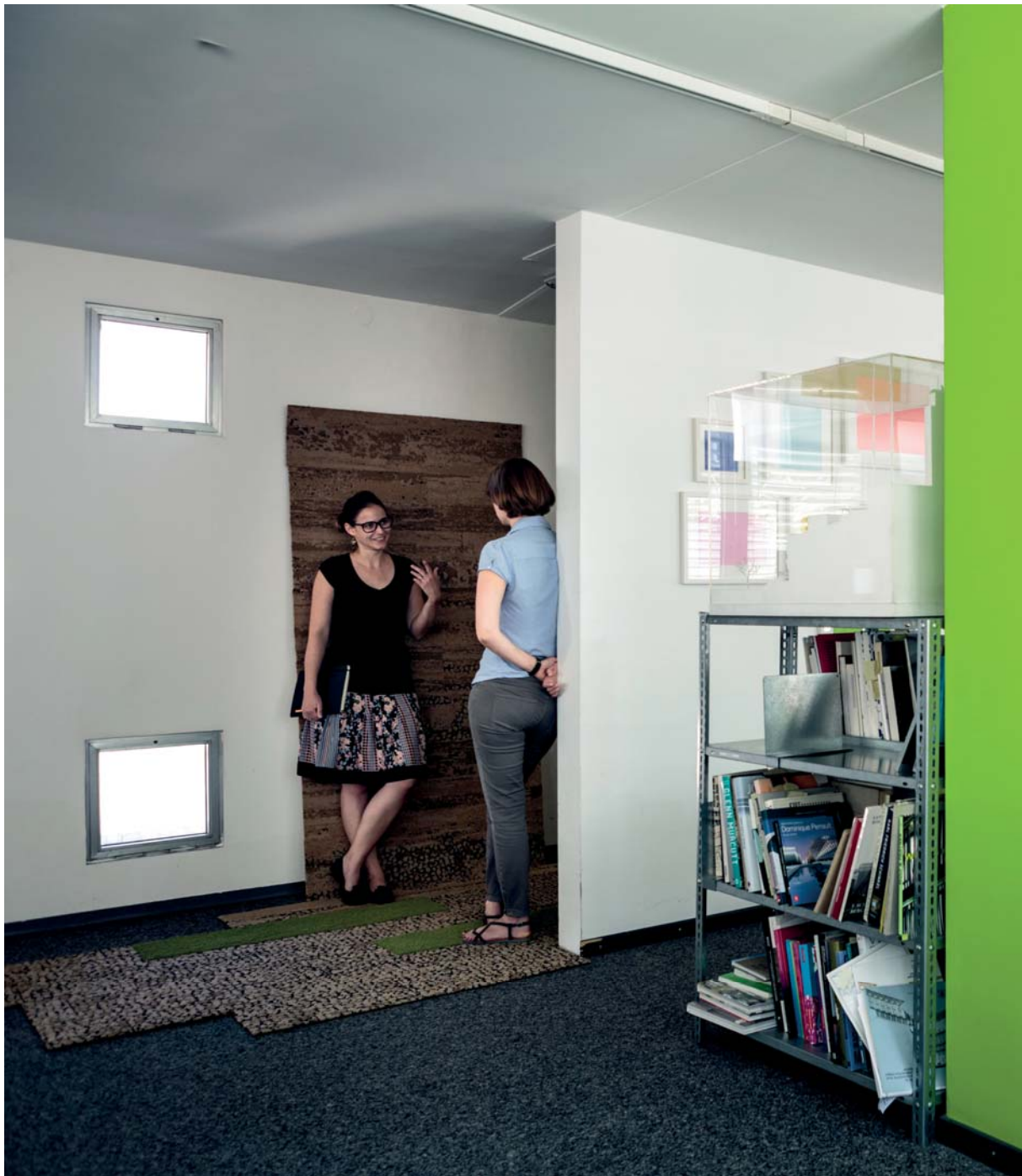


Photo: GORDON KOELMEL





## Chapter 9

### Future Perspectives

The aim of this research is justifiably the presentation of the hypothesis that creative work can be improved through the conscious design of creative spaces. In this context, creative work is reduced to the basis of creativity namely, the decision making systems in human beings and especially to the intuitive system. As this system profits from random encounters and in so doing the support for creative decision and innovation, spaces should be provided for creative work which really facilitate such encounters. These forms of informal encounters have been described as “collisions”.

It would therefore, make sense to support the hypothesis by undertaking an evaluation of two similar office spaces in a company that have been designed differently. One space should have the form as is described in the practical section of this book, with possibilities for providing support for informal encounters. Using questionnaires and cross-over studies among the employees, it should be possible to evaluate the effect of these areas on office work. In so doing, special attention should be given to show that creative work is really expected of the employees.

In this context, I would like to once again draw attention to the fact that creative work is not limited to the so-called creative sector, but as in its Latin sense “creare” = create, includes everyone whose work produces something new and who rely on ideas to do so. It has become clear that it is possible to show that there is a connection between the necessity for creative work and the possibilities of spatial design. Threshold and transitions spaces offer an almost unused potential for planners to intervene even in existing structures. These spaces are available in many offices and building and are underrated. How these can be upgraded by providing support for informal encounters and in so doing, creative work has been clearly depicted.

If the basis for creativity that has been described here is taken seriously, then this will have to lead to a different view of the potential of such spaces in offices. This is above all the case if one adopts a humanistic view of mankind for creative work which already during the planning process takes the needs of those employees who are working in such buildings seriously.

It will only be possible to establish to what extent the statements made here about the causal chain – threshold and transition spaces → informal encounters → intuitive decision making → creative impulse – can really be positively influenced by changes to threshold and transition spaces after an evaluation with a reliable scope has been



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undertaken. However, much evidence suggests that this is a very interesting and rewarding field which is in the position of being able to change a lot for human beings at little expense.



A research and practical project of the  
Coburg University of Applied Sciences  
Faculty of Design  
Am Hofbrauhaus 1  
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in cooperation with:  
ORANGE BLU building solutions GmbH und Co. KG  
Seyfferstraße  
70173 Stuttgart



**Collisions,**  
Room for Creativity and Innovation in the  
Office

with the kind support of:



Carpet Concept Objekt-Teppichboden GmbH  
Bunzlauer Straße 7  
33719 Bielefeld, Germany



**FLOORING**

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74321 Bietigheim-Bissingen, Germany

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Interface Deutschland GmbH  
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**Wilkhahn**

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## Bibliography

Where does creativity start?

- [1] D. Kahneman, *Thinking, Fast and Slow* London: Penguin, 2011.
- [2] "Video: Can Babies Tell Right From Wrong?", *NYTimes.com – Video*. [online]. Available at: <http://www.nytimes.com/video/magazine/1247467772000/can-babies-tell-right-from-wrong.html>. [accessed on: 26-Nov-2015].
- [3] "Professor Gerald Hüther at the 2nd Conference of Denkwerk Zukunft", *YouTube*. [online]. Available at: <https://www.youtube.com/watch?v=GiJ76uzKYWs>. [accessed on: 26-Apr-2016] (in German).
- [4] D. Kelley und T. Kelley, *Creative Confidence: Unleashing the Creative Potential Within Us All*. New York, Crown Business, 2013.
- [5] „Der zündende Funke im Kopf Geheimnis Kreativität“, *SWR2 Aula*, SWR 2015, 15-Nov-2015.
- [6] J. Erbedinger und T. Ramge, *Durch die Decke denken: Design Thinking in der Praxis*, 3. Aufl. München: Redline-Verl, 2015.
- [7] H-J. Bullinger, *Erfolgsfaktor Mitarbeiter*. Stuttgart, B.G. Teubner, 1996.
- [8] P. D. F. Rheinberg, *Intrinsische Motivation und Flow-Erleben*. Springer Berlin Heidelberg, 2010.
- [9] M. Csikszentmihalyi, *Creativity: The Psychology of Discovery and Invention*. New York: HarperCollins, 1996.
- [10] wiki, „Aperçu“, *Wikipedia*. 16-March-2015 (in German).
- [11] "Eureka (word)", *Wikipedia*. 16-Nov-2015.
- [12] F. Berzbach, *Die Kunst ein kreatives Leben zu führen: [Anregung zu Achtsamkeit]*. Mainz: Schmidt, 2013 (in German).
- [13] C. Gänshirt, *Tools for Ideas: An Introduction to Architectural Design*. Basel: Birkhäuser, 2007.
- [14] Petersberger Gespraech, *Petersberger Gespräche 2012 Prof. Dr. phil. Gerd Gigerenzer*. 2012.
- [15] M. Currey und A.-C. Kramer, *Musenküsse Die täglichen Rituale berühmter Künstler*. Zürich: Kein & Aber, 2014.
- [16] D. Spath, W. Bauer, S. Rief, J. Kelter, U.-E. Haner, und Fraunhofer-Institut für Arbeitswirtschaft und Organisation, *Arbeitswelten 4.0 wie wir morgen arbeiten und leben = Working environments 4.0*. Stuttgart: Fraunhofer-Verl., 2012.
- [17] D. Boch und J. Konkol, *Flexible Arbeitswelten: Changemanagement in der Büroplanung*. Zürich: vdf, 2013.





- [18] B. Gebhardt, „New Work Order – Wie viel Führung benötigt der Wissensarbeiter?“, held at the Orgatec Symposium 2015, Köln, 18-Nov-2015.
- [19] C. Knight, „The psychology of the workspace: Driving workplace performance?“, held at the Orgatec Symposium 2015, Köln, 18-Nov-2015.
- [20] J. Myerson und I. Privett, *Life of work: what office design can learn from the world around us*. 2014.
- [21] B. Gebhardt, „New Work Order – Organisationen im Wandel“, Vertiefungsstudie, 2014.
- [22] P. Antonelli und Museum of Modern Art (New York, N.Y.), Hrsg., *Workspheres: design and contemporary work styles*. New York, N.Y.: Museum of Modern Art : distributed by Harry N. Abrams, 2001.
- [23] T. Wagner, „Workplace or Playground?“, *Stylepark MAGAZIN*, 14-Oct-2014. [online]. Available at: <https://www.stylepark.com/en/news/workplace-or-playground>. [Accessed on: 14-Nov-2015].
- [24] U. Poschardt, „Selten so gelacht“, *Welt Online*, 27-Sep-2012.
- [25] E. Frank und T. Hübschen, *Out of Office: warum wir die Arbeit neu erfinden müssen*. München: REDLINE, 2015.
- [26] K. Ellen, „Out of Office: Ist vernetztes Arbeiten die Arbeitsformel der Zukunft für Deutschland“, held at the Orgatec Symposium 2015, Köln, 18-Nov-2015.
- [27] R. Bauer und U. Brinkmann, „Zusammen arbeiten“, *Bauwelt*, Nr. 35 2015, S. 16-31, Sep. 2015.
- [28] „Ein neues Produkt“, *realeyz | Arthouse on Demand | realeyzPLUS – das Arthouse Abo*. [online]. Available at: <https://www.realeyz.tv/de/ein-neues-produkt.html>. [Accessed on: 27-Nov-2015].
- [29] R. Reinhard, *Odysseus oder die Kunst des Irrsins: philosophische Anstiftung zur Neugier*. München: Ludwig, 2010.
- [30] E. Langer, *The Power of Mindful Learning*. Cambridge, Mass., Addison-Wesley, 1998.
- [31] M. Csikszentmihalyi: *Flow the secret to happiness*, [online]. Available at: [https://www.ted.com/talks/mihaly\\_csikszentmihalyi\\_on\\_flow](https://www.ted.com/talks/mihaly_csikszentmihalyi_on_flow), 2004. (Accessed on: 14-Nov-2015).
- [32] K.-H. Brodbeck, „Kreativität als individueller und sozialer Prozess“, *Psycho-Log.*, Bd. 2013, Nr. 8.
- [33] K.-H. Brodbeck, *Entscheidung zur Kreativität*, 2., Um ein Vorw. Aufl. Darmstadt: Primus-Verl, 1999.
- [34] M. Phillips, „Interdisziplinarität als Vehikel für Kreativität und Innovation“, in *Interdisziplinarität und Transdisziplinarität als Herausforderung akademischer Bildung: innovative Konzepte für die Lehre an Hochschulen und Universitäten*, C. Schier und E. Schwinger, Hrsg. Bielefeld: Transcript, 2014, S. 95-103.
- [35] G. Gigerenzer, *Risk Savvy: How to Make Good Decisions*. New York: Penguin, 2014.
- [36] E. Pöppel, „Ein neues Bildungs-Konzept: Spezialist sein UND interdisziplinär denken können“, Coburg, 10-Oct-2013.



- [37] E. Anthes, "How Room Designs Affect Your Work and Mood", *Sci. Am.*, Nr. Room Designs, Apr. 2009.
- [38] K. Groves, W. Knight, und E. Denison, *I wish I worked there!: a look inside the most creative spaces in business*. Hoboken, N.J.: Wiley, 2010.
- [39] "Rolex Learning Center EPFL", <http://rolexlearningcenter.epfl.ch/page-34751-en.html>. .
- [40] S. Johnson, "*Where good Ideas come from*", London, Penguin, 2010.
- [41] S. Johnson, "*Where good Ideas come from*", TED-Talk: [https://www.ted.com/talks/steven\\_johnson\\_where\\_good\\_ideas\\_come\\_from?language=de](https://www.ted.com/talks/steven_johnson_where_good_ideas_come_from?language=de), 2010.
- [42] C. O. Scharmer, *Theorie U: Leading from the Future as It Emerges*. San-Francisco, Berrett-Koehler, 2008.
- [43] F. Pfeffer, *To Do: Die neue Rolle der Gestaltung in einer veränderten Welt Strategien, Werkzeuge, Geschäftsmodelle*. Mainz: Schmidt, 2014.
- [44] T. Harford, *Adapt: Why Success Always Starts with Failure*. New York, Farrer, Straus and Giroux, 2011.
- [45] J. Kuo, *A-typical plan: projects and essays on identity, flexibility and atmosphere in the office building*. Zurich: Park Books, 2013.
- [46] C. Foertsch und R. Cagnol, *The History Of Coworking In A Timeline*. | Deskmag | Coworking, 02-Sep-2013. [online]. Available at: <http://www.deskmag.com/en/the-history-of-coworking-spaces-in-a-timeline>. [Accessed on: 30-Dec-2015].
- [47] S. Doorley und S. Witthoft, *Make space: how to set the stage for creative collaboration*. 2012.
- [48] "coworking & places to be", *places hamburg*. [online]. Available at: <http://www.places-hamburg.de/>. [Accessed on: 14-Nov-2015].
- [49] S. Rief, W. Bauer, K.-P. Stiefel, und A. Weiss, *Faszination Coworking: Potentiale für Unternehmen und ihre Mitarbeiter = The fascination of coworking*. Stuttgart: Fraunhofer Verl., 2014.
- [50] Design Offices, „Pressemitteilung – Design Offices feiert Standort-Eröffnung in Stuttgart“. 23-Sep-2015.
- [51] „DO. Moderne Arbeitswelten. Das Magazin von Design Offices“. [online]. Available at: <https://www.designoffices.de/news/newsanzeige/do-moderne-arbeitswelten>. [Accessed on: 30-March-2016].
- [52] H. Friebe und S. Lobo, „Wir nennen es Arbeit – Vorwort zur Hardcover-Ausgabe“, 2006. [online]. Available at: <http://wirnennenesarbeit.de/index.html?nr=20080709223500>. [Accessed on: 13-Apr-2016].
- [53] Microsoft Deutschland GmbH, „Microsoft Social Enterprise Knigge“, *Manifest für ein neues Arbeiten*, 2014. [online]. Available at: <https://www.microsoft.com/de-de/office/manifest-arbeiten-leben/default.aspx>. [Accessed on: 13-Apr-2016].



- [54] M. Stewart, *The other office: creative workplace design*. Amsterdam; Frame Publishers; Basel; Boston: Birkhauser, 2004.
- [55] K. Groves, "Four Types of Creative Space", *findingheadspace*, 11-Jan-2012. .
- [56] M. Gasser, M. Tvrtkovic, C. Zur Brügge, und Wüstenrot-Stiftung, *Raumpilot*. Stuttgart, Kraemer, 2010.
- [57] Carpet Concept, „CAS Rooms – Stille Räume.pdf“.
- [58] "Flexibility Drives Productivity – Regus". Regus, 2012.
- [59] B. Waber, J. Magnolfi, und G. Lindsay, "Workspaces That Move People", *Harv. Bus. Rev.*, S. 139-151, Oct. 2014.
- [60] G. Englich und B. Remmers, *Planning Guide for Conference and Communication Environments. Conference. Excellence*. Basel: Birkhäuser, 2008.
- [61] Häfele Deutschland, *Teeküche wird zum Meeting Raum // Tea kitchen becomes a meeting room*. 2015.
- [62] bene: "The Office as Living Space". [online]. Available at: <http://bene.com/kataloge/bene-lebensraum-buero/index.html>. [Accessed on: 24-March-2016]
- [63] G. Winfrey, "7 Creative Office Designs to Get You Inspired for 2016", *Inc.com*, 16-Dec-2015. [online]. Available at: <http://www.inc.com/graham-winfrey/ss/7-office-design-trends-for-2016.html>. [Accessed on: 12-Apr-2016].
- [64] J. Eisenbrand, A. von Vegesack, (Eds.): *George Nelson: Architect, Writer, Designer, Teacher*. Weil am Rhein: Vitra Design Museum, 2008.
- [65] adidas group, "adidas Group employees create the future workplace". [online]. Available at: [www.adidas-group.com/en/media/news-archive/press-releases/2015/adidas-group-employees-create-future-workplace/](http://www.adidas-group.com/en/media/news-archive/press-releases/2015/adidas-group-employees-create-future-workplace/). [Accessed on: 10-Aug-2015].
- [66] adidas group, "To Pitch – Small Guidebook".
- [67] C. Scholz, „Wieso moderne Bürokonzepte keine Zukunft haben“, *Welt Online*, 24-Aug-2015.
- [68] airbnb. "Create a world that inspires human connection". [Online]. Available at: <https://www.airbnb.com/careers>. [Accessed on: 30-March-2016].
- [69] "A Tour of Airbnb's Gorgeous New San Francisco Headquarters", *Officelovin*, 31-July-2015. .
- [70] "Our Culture". [Online]. Available at: [https://www.google.com/intl/en\\_en/about/company/facts/culture/](https://www.google.com/intl/en_en/about/company/facts/culture/). [Accessed on: 30-March-2016].
- [71] „Sag's im Gehen – Tipp des Tages – Harvard Business manager“, *Harvard Business Manager*, 30-Nov-2015. [online]. Available at: <http://www.harvardbusinessmanager.de/tipp-des-tages/a-1064075.html>. [Accessed on: 30-March-2016].



- [72] "Moving Meetings.pdf", *University of California*. [online]. Available at: <http://wellness.ucr.edu/Moving%20Meetings.pdf>. [Accessed on: 30-March-2016].
- [73] "Sit. Stand. Move. Repeat. – Research – Herman Miller", *Herman Miller Solution essays*, 2013. [online]. Available at: [http://www.hermanmiller.com/research/solution-essays/sit\\_stand\\_move\\_repeat.html](http://www.hermanmiller.com/research/solution-essays/sit_stand_move_repeat.html). [Accessed on: 14-Nov-2015].
- [74] M. Opezzo und D. L. Schwartz, "Give your ideas some legs: The positive effect of walking on creative thinking", *J. Exp. Psychol. Learn. Mem. Cogn.*, 40 (4), pp. 1142-1152, July 2014.
- [75] R. Bauer, „Die Party ist der Star“, *Bauwelt*, Bd. 35.2015, S. 16–19.
- [76] "Coworking Lounge | Design Offices". [online]. Available at: <https://www.designoffices.de/standorte/stuttgart-mitte/co-working-spaces/co-working-lounge>. [Accessed on: 30-March-2016].
- [77] M. Korb, „Presse-Information: Eine ‚Black Box‘ mit farbenfrohem Innenleben – Der STABILO CUBE auf dem Firmensitz in Heroldsberg wird am 11. Jul offiziell eingeweiht – innovation und nachhaltig.“ *Stabilo*.
- [78] „buero-forum.de: Kombi-Büro“. [online]. Available at: <http://www.buero-forum.de/de/planen/bueroraumformen/kombi-buero/>. [Accessed on: 30-March-2016].
- [79] „Rolex Learning Center – Sanaa: Eine Bibliothek zum Flanieren“, *art*. [online]. Available at: <http://www.art-magazin.de/architektur/9221-rtkl-rolex-learning-center-sanaa-eine-bibliothek-zum-flanieren>. [Accessed on: 01-Apr-2016].
- [80] H. Willenbrock, „Büroarchitektur: Die stille Botschaft der Räume – brand eins online“, *Brand 1*, Bd. Schwerpunkt Konzentration, Nr. 4, 2014.





