



COLLABORATION IN OPEN ORGANISATIONS

S. Kremer, C. Muenzberg and U. Lindemann

Keywords: open organisation, collaboration, organisational strategy, information guide

1. Introduction

1.1 Motivation

Framework conditions for companies which develop products and innovations are changing: The demographic change has an impact on the recruitment of staff; lifestyles and curriculums of employees vary more and more - putting focus on individual needs and making it hard for companies to plan their human resources on a long term basis. At the same time, dynamic global markets increase the pressure to adapt organisational set ups and to speed up the creation of new innovations. Traditional company structures and product development processes do not address these challenges sufficiently. Adapting organisational structures according to societal change and reducing time to innovation led to the concept of Open Organisation: „An Open Organisation is defined as the sharing of ideas, knowledge, resources, and skills across organisational, generational, and cultural boundaries within, and in some cases outside, an organisational system for the purpose of achieving a stated outcome” [Foster 2014, p.41]. This concept builds on approaches of Open Innovation (including knowledge from resources outside a company, [Chesbrough 2006]) but goes beyond by specifically reshaping organisational structures in and in between companies.

These organisational changes impact the way of people working together in teams. Collaboration has always been a key success factor for organisations [Katzenbach and Smith 1993] and effects the outcome of product development projects crucially [Lindemann 2007]. Even in traditional organisations interdependency and complexity of collaboration aspects - such as shaping of team roles and relationships - lead to challenges [Kriz and Nöbauer 2008]. When moving from closed to open organisations amount of people involved, complexity of projects and influences of decisions increase. These three aspects raise the need to collaborate in teams [Haug 2009]. But the way of collaboration changes: Telecommunication and information technologies allow immediate sharing of knowledge worldwide - within teams that work together on innovations but sometimes do not meet at a common place. Moreover, teams consist of cross-departmental members, retirees perform as knowledge carriers and companies integrate other organisations into their processes as equal cooperation partners. Hence, also values like transparency and trust gain in importance. Therefore, it is crucial to not only shape structures on corporate level but also concerning collaboration.

1.2 Initial situation

Companies and employees placed in situations explained before face challenges when trying to plan their collaboration in Open Organisations systematically. On first examination, there seems to be a great amount of information available regarding this topic. E.g. searching for the term "open collaboration" provides 59.100.000 results in Google and 2.820.000 results in Google Scholar. But analysing the results

in detail reveals the following: Many results do not go beyond short definitions, references to newspaper articles, research reports, consulting websites, and software projects. If an opening collaboration strategy is explained in detail, in most cases the overall context and linked approaches are not satisfying. Besides the amount of effort necessary for information gathering, we analysed two main shortcomings regarding the content of existing work: Firstly, when addressing opening organisational structures, collaboration is often mentioned as a success factor but hardly investigated as an integrated part of Open Organisation. Secondly, literature offers single solution strategies but lacks an overview of relevant aspects to consider for open collaboration, strategies to address these aspects and concrete actions to realize the strategic intentions. This leads to the question: How can we support successful planning and implementation of collaboration in Open Organisations?

1.3 Goal

The overarching goal of this paper is to bring together the two topics of Open Organisation and collaboration. We want to connect influencing factors and approaches from both fields and create an overview for practitioners: people who are new to the topic, company strategists, and employees facing concrete challenges when working in Open Organisations. Section 2 will shortly introduce the state of the art - both in Open Organisation and collaboration. Starting from this background our research approach consists of three parts - each one addressing a sub goal of this paper (see Figure 1):

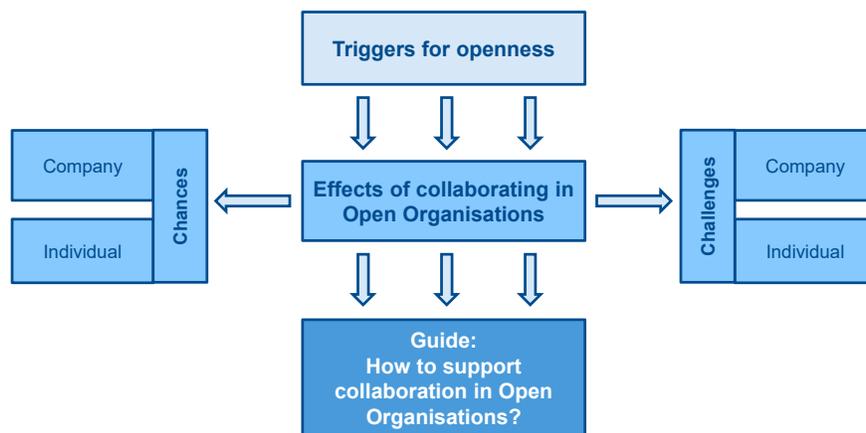


Figure 1. Research approach

- Triggers for openness (section 3): When dealing with challenges of collaboration in Open Organisations it is especially important to understand the reasons for organisational transformation towards openness. Therefore, we present triggers which influence, support and force companies to reshape traditional boundaries.
- Effects of collaborating in Open Organisations (section 4): Furthermore, we want to analyse and sum up main effects of collaborating in Open Organisations - both on company and individual level. Which chances and challenges arise when opening organisational structures and changing traditional ways of working?
- Guide to support collaboration in Open Organisations (section 5): Finally, our main goal is to develop a guide that supports understanding, planning, and implementing collaboration in Open Organisations. Based on the triggers and effects this guide starts with presenting requirements that have to be considered in companies concerning this topic. To address these requirements the guide has to successively offer (1) fundamental theoretical approaches, (2) strategies to plan open collaboration on a long term basis, and (3) concrete actions to perform collaboration. As well, we documented interdependencies between information on all levels.

Summarizing, we want to support a situation-specific information gathering and subsequent collaboration design. Further, it is not our goal to create "the one collaboration concept" for Open Organisations, as such a concept is dependent on a lot of factors. This paper gives a first overview towards designing systematic Open Organisation collaboration strategies.

2. State of the art

There is a great theoretical background behind the two topics Open Organisation and collaboration. In the following we summarize the main basics which we build our approach on.

2.1 Open Organisation

Shorter product lifecycles and rising costs for developing technologies make it increasingly necessary to integrate knowledge from stakeholders outside companies' boundaries. Open Innovation is a concept to open product development and innovation processes accordingly [von Hippel 2005], [Chesbrough 2006]. But due to these actions processes and structures of organisations become more complex. Demographic change and shifting needs of employees' towards a work-life balance intensify this organisational complexity. Therefore, we should address the opening of innovation processes more holistically by appropriately designing organisational aspects. Ashkenas et al. [2002] named four organisational boundaries, which have to be reshaped in order to make companies more flexible:

- Vertical: Hierarchies within a company are important to avoid organisational chaos. Nevertheless these hierarchical boundaries should be permeable for ideas - rating these independently to the rank of a person.
- Horizontal: Opening boundaries between functional departments of an organisation creates chances to increase capacity.
- External: Instead of separating organisations from their environment companies should collaborate with partners along the innovation process.
- Geographic: Innovative companies should use local and cultural differences as a source of innovation.

Similarly, Foster [2014] emphasizes the stakeholder interaction and sharing of knowledge, resources etc. across organisational, generational, and cultural boundaries as Open Organisation. Summarizing: Open Organisations aim at situationally adjusting internal and external organisational boundaries to create added-value for the organisation. In our on-going research project about Open Organisation we performed three series of interviews with companies from software engineering, mechanical engineering, and gaming industry. Additionally, we discussed the topic in an industrial working group and in an advisory board - consisting of representatives from academia and industry. Important insights: They judged the approach of Open Organisation as promising. But companies often do not know how to handle the process. Therefore, openness is also seen as a threat. It is not an end in itself and needs goal specific considerations: opening internal and external boundaries, the organizational structure itself, collaborative working, the way individuals act and behave, the individuals, and their phase of life [Weidmann and Lindemann 2015].

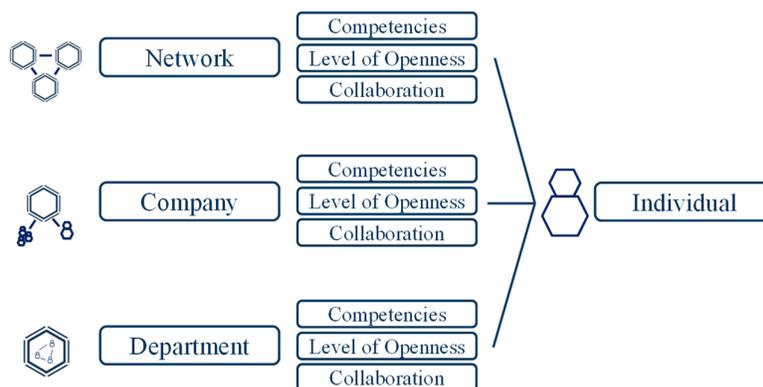


Figure 2. Open Organisation framework [Weidmann and Lindemann 2015]

Coming out of our project, Weidmann and Lindemann [2015] created a framework for Open Organisation (see Figure 2). It classifies four levels and shows supporting elements which organisations need on their way to an Open Organisation. Companies can execute the opening process on all levels:

(1) interorganisational as networks of organisations, (2/3) intraorganisational with focus on the whole company or on single departments and (4) on individual level operating on all other levels. Three elements are important to support the opening process and show the focus of our research: (I) competencies needed to face the specific requirements in Open Organisations, (II) level of openness fitting to each specific situation, and (III) collaboration. In this paper we specifically address the collaboration aspect and use the framework to cluster our support.

2.2 Collaboration

Traditionally, collaboration and team work is defined by the following characteristics [Kriz and Nöbauer 2008], [Haug 2009]:

- Goal: cooperating, communicating and working towards a common goal instead of pure exchange of information
- Synergy: higher overall performance than sum of performance of all members
- Heterogeneity of skills: conscious composition of skills to improve creativity and efficiency
- Responsibility: splitting responsibility instead of differentiating between decision makers and workers
- Self-organisation: right to organise the way towards a goal within a team
- Leadership: homogenous distribution of power; team leader might be chosen by team members

Besides these common aspects, teams can be differentiated e.g. by team size, time of collaboration, degree of interdisciplinarity, type of decisions, type of tasks, type of goals, and working processes.

But opening company structures tremendously impacts employees and the way they work together. When sharing knowledge and resources and integrating external stakeholders etc., it is not sufficient for team members to have a fixation on their own tasks. Managing external connections is decisive for innovating in a rapidly changing environment [Ancona et al. 2003]. Building on traditional principles of collaboration and addressing challenges of opening organisational structures, Ancona et al. [2003, p.283] defined X-teams: „X-teams manage across boundaries - lobbying for resources, connecting to new change initiatives, seeking up-to-date information, and linking to other groups inside and outside the company." Table 1 summarizes the main differences of traditional and X-teams.

Table 1. Traditional teams and X-teams (according to Ancona et al. [2003])

Traditional Teams		X-Teams	
internal focus	focus on trust, cohesion and effective work processes	external activity	combination of internal and external activity
ties to other members	efforts to build close ties and strong identity	extensive ties	internal ties supplemented with both strong and weak ties outside the team
one tier	one structural tier: team vs. environment	expandable tiers	core, operational, and outer-net tiers
stable membership	leaders and members	flexible membership	movement across tiers
mechanism for execution	coordination among individuals	mechanism for execution	coordination among tiers

Nevertheless, companies should not apply X-teams for any type of work. Although this kind of collaboration has advantages especially in Open Organisations, it requires detailed assessment of benefits and drawbacks in each specific situation. X-teams put demand on all team members: Group size, type of membership, and goals change during time of collaboration. These circumstances call for a greater amount of coordination than in traditional teams. A greater extent of information and diversity additionally increases these organisational efforts. Besides, traditional teams are not inherently performing less efficient. Although challenges more and more call for collaboration in networks, employees prefer small groups with clear structures and boundaries. They allow a stronger focus on the

team, increased group identity, and focused solving of tasks - isolated from environmental influences [Bernstein 2014].

Taking into account the drawbacks described, three conditions should be fulfilled in order to profitably install X-Teams [Ancona et al. 2003]: Firstly, hierarchies in the company should be low to enable autonomous organisation and entrepreneurial acting in small groups. Secondly, required information is rather complex, wide spread, interconnected and changing quickly. Thirdly, subtasks are highly intertwined and require arrangements with other groups.

3. Triggers for openness

Based on the state of the art our approach starts with highlighting triggers for opening organisations. Rather than a complete list of triggers, we present an overview to understand effects and approaches of open collaboration (section 4 and 5). Figure 3 summarizes the triggers in four clusters (globalisation, communication technologies, product and production technologies, societal change).

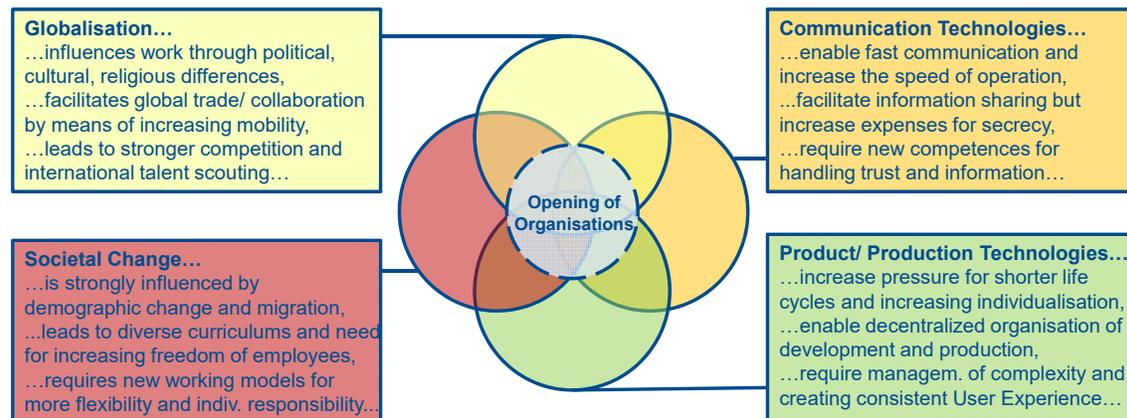


Figure 3. Triggers for openness

All clusters are interconnected and influence each other. As a result of the triggers, companies face challenges of managing the increasing complexity (leading to external openness). As well, companies have to combine their inner forces in new ways to keep ahead of competitors (internal openness). Being originally located at the communication technology segment, digitalisation is a trigger that impacts all other triggers (e.g. intensifying globalisation) and is a catalyst for opening organisation and collaboration. Therefore, in the following we sum up important aspects - each time highlighting a trend and how digitalisation supports this trend.

- From "individuals following work" to "work following individuals": paradigm shift for societal status of work; reachability, and decentralization by internet allowing flexible work design (e.g. video conferences between several time zones) [Picot and Neuburger 2013]
- From experts to networks: interconnection to knowledge carriers more important than knowing all details yourself; digital organisation allowing sharing of data and connecting competencies of employees [Buhse 2014], [Foster 2014]
- Direct communication with customers: ideas and feedback of users gaining in importance for innovations; use of digital channels overtaking traditional feedback ways [Buhse 2014]
- From withholding to sharing information: rising amount of shared information; digitalisation boosting simplicity of reaching and adjusting target groups [Li 2010]
- From long planning to fast adaption: increasing customer demands and shortened innovation cycles; digitalisation allowing management of resources and competencies to quickly adapt to changing circumstances [Buhse 2014]
- From routine work to intelligent tools: digital tools supporting the paradigm shift towards individual needs [Picot and Neuburger 2013]

4. Effects of collaborating in Open Organisations

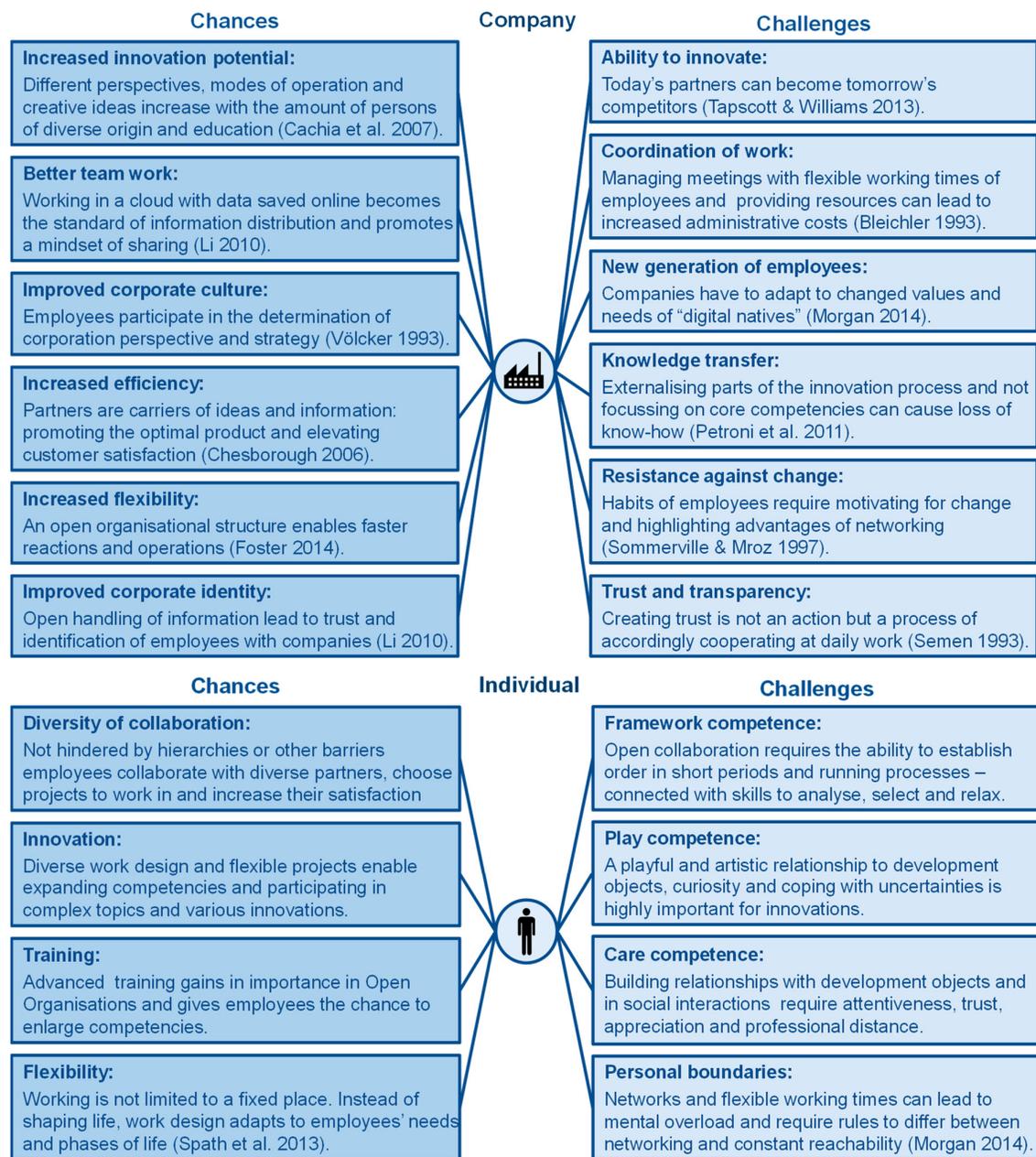


Figure 4. Chances and challenges of collaborating in Open Organisations

Figure 4 presents the identified effects on collaboration in Open Organisations - caused by the triggers of section 3. The results stem from a literature search in the fields of product development and organisational management as well as interviews with industry. In order to distinguish more clearly the effects can be seen as chances or challenges. Further, we divided the presentation of chances and challenges on company and individual level. Chances are inherently positive and emerge automatically when opening organisations. On the other side challenges require actions in order to prevent negative impacts and turn them into positive effects. Chances and challenges in one line in Figure 4 correspond to each other (e.g. "increased innovation potential" and "ability to innovate"). On company level we identified six clusters for chances and six concerning challenges. On individual level we clustered four groups of effects on each side. Challenges for employees focus on the competences individuals should

have when working in an Open Organisation: framework, play and care competence. These competences have been identified in interviews with industry during our project and extend existing competencies towards the aspect of open collaboration [Sauer et al. 2014].

We are aware that each cluster is more complex and needs detailed analysis. Further effects can also be identified. But we wanted to address the demand for a concise overview to start from. Therefore, we summarized each cluster in an exemplary statement. The information guide (section 5) presents requirements caused by the effects and potential ways how to react to these chances and challenges.

5. Guide to support collaboration in Open Organisations

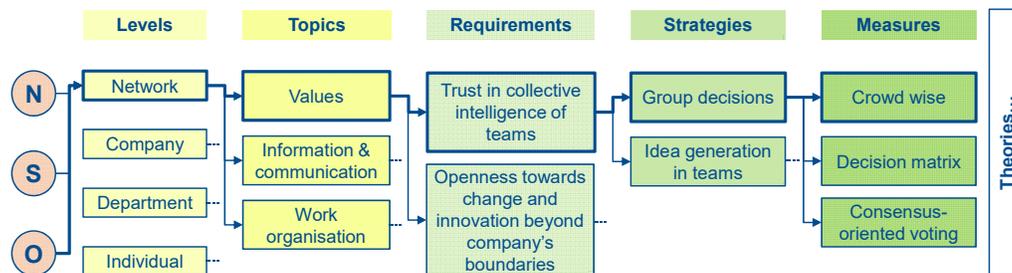


Figure 5. Extract from information guide to support collaboration in Open Organisations

As explained in the introduction, an overview for information in the intersection of Open Organisation and collaboration is missing. The previous sections highlight the amount of influences to consider for open collaboration. Our goal is to gather possible ways for the process of opening - assisting companies who strive for openness and presenting an overview how to implement this process. Companies have to design an Open Organisation individually and address various organisational levels. Figure 5 presents the structure of our guide concept to enable finding situation specific information and performing meaningful actions. "Levels" of openness and specific "Topics" organise relevant "Requirements" and connected "Strategies" and "Measures". We also documented theories behind our findings (e.g. network and company: concept for an enterprise 2.0, McAfee 2009). Users can choose from three roles as starting point: "Novice" (N) who searches for fundamental information about long term opening, "Strategist" (S) who carries out a targeted search for strategies on certain levels and "Operator" (O) who looks for immediate measures to address certain requirements on a specific level. We use the highlighted path in Figure 5 to explain the categories in the following sections. The complete guide concept is documented under: www.openorganisation.de/rakoon/open-organisation-modell.html. Our guide provides a starting point but should be expanded in all categories. Our concept aims at an implementation as online tool. This will allow use case specific presentation of the relevant information and enable a dynamic extension by users.

5.1 Levels and topics

At first the user has to decide on which operational level to conduct opening - open up towards and intensify collaboration with suppliers, customers, research institutes, strategic alliances etc. ("Network"); open collaboration between departments inside a "Company"; redefine processes inside a "Department" or change ways of thinking and collaborating in teams ("Individual").

Having chosen an operational level, different focuses for openness are possible. Therefore, we introduce topics to cluster requirements and connect them to the operational level. For network, company, and department we defined the following three topics:

- "Values": concerning requirements for change of personal values (e.g. towards leadership, cultural differences, collaboration of several generations)
- "Information & communication" (i.&c.): concerning flow of i.&c. (e.g. resources, barriers)
- "Work organisation": concerning workflow and processes (e.g. type of work, working time)

For the individual level we replaced information and communication with two more specific topics.

- "Competencies": Not communication resources themselves but competencies to use tools and perform openness are decisive for individuals (e.g. language and networking skills).

- "Team composition": The right team constitution enables a positive information and communication culture (e.g. diversity management).

5.2 Requirements

Levels and topics set the framework for our guide. But designing and implementing organisations towards openness implicate certain requirements. In engineering design requirements consist of criterion (e.g. length of object) and manifestation (e.g. 5 m). But for the relevant organisational requirements of our approach general manifestations of criteria are hard to define. E.g. the requirement "flattening hierarchies" can have a different meaning for a company of 40 or 80.000 employees. This section explains our way to derive, cluster, filter and present the most important requirements for collaboration in Open Organisations. Out of literature review about the state of the art, the triggers for openness and especially the chances and challenges described in the previous sections we derived 86 requirements for open collaboration. E.g. the challenges of "coordination of work" and "trust and transparency" led to the requirement "trust in collective intelligence of teams". We categorised all requirements for network (8 requirements), company (28), department (18), and individual (32). As well, we clustered them according to the topics inside each level (e.g. network - values; network - information & communication; network - work organisation; company - values;...). Due to the great amount of requirements we prioritised them with help of a pair-by-pair comparison [Lindemann 2007] for each path - choosing the two most important requirements of each level-topic-path (30 requirem.) to address with further strategies and measures. We documented all clustered requirements on the project website (link p.7). Figure 5 exemplarily shows requirements for the path "network - values":

- "Trust in collective intelligence of teams": Open collaboration in networks means teams working together and making decisions beyond corporate borders. Especially management has to develop confidence that these decisions are for the good of the company. This can be supported by supplying tools for objective and fast decision making.
- "Openness towards change and innovation beyond company's boundaries": Working in networks requires an attitude to discuss improvements of strategies with partners, accepting ideas and learning from people outside your own company.

5.3 Strategies

Companies need strategies in order to fulfil requirements of open collaboration for the long term. Based on literature review and project experiences with the topic we identified 56 strategies in total (2-4 strategies per requirement in the guide). We use a strategy template to present an overview of each strategy - short descriptions of all strategies documented online. Figure 6 presents the strategy "group decision" (path "network - values - trust in collective intelligence"):

Strategy	Group decisions	Requirement	Trust in intell. of groups	Level	Network
Goal	Simplify team collaboration in networks. Support decision making with people involved from several companies at spread locations.				
Description	Implemented support should be accessible for all participants and facilitate transparent and efficient decision routines. This should create comprehensible decisions and enhance trust in collective intelligence.				
Insights	<ul style="list-style-type: none"> • knowledge often inside employees' heads • decision makers often locally and time-wise spread • easy accessibility necessary • ease of use of measures important 				
Connected Strategies	Network	Company	Department	Individual	
	e.g. idea generation in teams.	e.g. flatarchy...	e.g. transparent processes...	e.g. open mindset...	

Figure 6. Exemplary strategy template for the strategy "group decisions"

Nevertheless, it is not appropriate to implement a single strategy. By use of a matrix we linked requirements and strategies on all levels. E.g. the strategy "group decisions" on network level can address the requirement "attractive working environment" on departmental level and can be connected to the strategy "open mind-set" on individual level. Therefore, we aim at addressing challenges holistically. Furthermore, when linking our strategies to further information we paid attention to refer to resources which are available online and accessible to enable usage in an industrial environment.

5.4 Measures

After selecting a certain strategy the company can choose between various measures to implement it. Our concept offers specific measures for each strategy. Ranging from methods to pragmatic guidelines and tools, the 126 gathered measures do not represent a complete list of possible actions but a reasonable starting point. Every measure is also connected to strategies and measures on other organisational levels. Figure 7 presents the template for the method "crowd wise" (path "network - values - trust in collective intelligence - group decisions"). All other measures are documented online.

Measure	Crowd wise	Strategy	Group decisions	Requirem.	Trust in intell...	Level	Network
Goal	This method aims at decisions which have a strong consensus and hence lead to a broad acceptance.						
Prerequisites	Online accessibility	Duration		2 - 3 hours			
Description	1. Participants create potential solutions for a given problem. 2. Participants rate decision with given amount of total points and create commonly preferred order. 3. Discussion based on results. 4. Repeat rating for final result.						
Insights	• Suitable for groups up to 1500 people			• Not suitable for choosing between two options			
Assessment	+ Working together without polarisation			- Not all participants satisfied with decision			
Assessment	+ Productive outcome by communication						
Connected	Network	Company	Department	Individual			

Figure 7. Exemplary measure template for the method "crowd wise"

6. Discussion

The concept of Open Organisation builds on influencing factors and approaches from various disciplines. Coming from the field of product development and aiming at improvement of innovation processes we face the challenge that many aspects beyond engineering design influence opening these processes. Therefore, in our research project about Open Organisation we collaborate with sociologists and pedagogues. In this cross-cutting issue ideas and concepts for Open Organisation mainly exist on an organisational management level. We aim at introducing approaches to product development and interlinking engineering and organisation management.

In this paper we address the aspect of collaboration in Open Organisations. The topic is complex - consisting of many existing approaches. We created an overview over important influences on and possible support for open collaboration. It is practitioner-oriented and should be seen as a starting point to systematically understand and analyse open collaboration. We described and documented all elements of our guide on our project website. We do not claim having included all factors but our overview should help understanding main influences. Nevertheless, validation is an important aspect of future work - discussing and possibly adapting and expanding all elements of our concept.

It is important to keep in mind that opening organisational structures as much as possible is not useful for companies. Furthermore, openness is possible on different operational level. Therefore, our clustering of information allows situation specific support. It will be necessary to intensify analysis of the interconnection of openness level and collaboration strategies.

Our information guide enables both a holistic view on open collaboration and focussing on certain aspects of it. But it is also decisive to sensitise and motivate for this topic. In order to introduce it in practice our guide will be supplemented with a serious game from our research project.

7. Conclusion and outlook

Influences like demographic change and diversification of employees' lifestyles impact the concept of Open Innovation. Instead of just including external knowledge, companies which develop innovations and products have to adapt their organisational set up - including knowledge carriers, offering flexible concepts for employees and creating an organisational open mind set. In this field, collaboration is a decisive aspect for succeeding the opening process. Joining the topics of Open Organisation and collaboration, we summarised important triggers for openness and according possible positive and negative effects for collaboration - differentiated for companies and individuals. This helps understanding the need for organisational transformation. Based on this analysis we developed an information guide to support understanding, planning and implementing open collaboration. The guide consists of a great amount of requirements for collaborating in Open Organisations as well as of specific

strategies and measures to address the requirements. The operational levels (from company network to individual employee) cluster this information and facilitate situation specific support. In this paper we present our concept for the information guide and highlight it with an example. The complete guide and short descriptions about all requirements, strategies and measures are available online. It is a starting point for continuously enhancing our concept of collaboration in Open Organisations. Future work will focus on interconnection of single requirements, strategies etc. and on analysis beyond literature review - specification and evaluation of our guide in industry.

References

- Ancona, D., Bresman, H., Kaeufe, K., "The Comparative Advantage of X-Teams", In: Scott Morton, M. S., Laubacher, R., Malone, T. W., et al. (Ed.), *Inventing the Organizations of the 21st Century*, MIT Press, 2003.
- Ashkenas, R. N., "The boundaryless organization. Breaking the chains of organizational structure", 1 sound disc, *Recording for the Blind & Dyslexic*, Princeton, N.J., 2002.
- Bernstein, E., "The Transparency Trap", *Harvard Business Review*, 2014.
- Bleicher, K., "Die neue Offenheit - Strategien, Strukturen und Kulturen im Wandel", In: Dorn, B. (Ed.): *Unternehmensprinzip Offenheit*, Addison-Wesley Bonn, 1993.
- Buhse, W., "Management by Internet", *Plassen Kulmbach*, 2014.
- Cachia, R., Compañó, R., Da Costa, O., "Grasping the potential of online social networks for foresight", *Technological Forecasting and Social Change*, Vol.74, Elsevier, 2007.
- Chesbrough, H. W., "Open Business Models: How To Thrive In The New Innovation Landscape", *Harvard Business School Press Boston*, 2006.
- Foster, P. A., "The open organization: a new era of leadership and organizational development", *Farnham Gower*, 2014.
- Haug, C. V., "Erfolgreich im Team", *Deutscher Taschenbuch Verlag München*, 2009.
- Katzenbach, J. R., Smith, D. K., "Teams Der Schlüssel zur Hochleistungsorganisation", *Ueberreuter Wien* 1993.
- Kriz, C. W., Nöbauer, B., "Teamkompetenz Konzepte, Trainingsmethoden, Praxis", V. & R. Göttingen, 2008.
- Li, C., "Open leadership: how social technology can transform the way you lead", *Jossey-Bass San Francisco*, 2010.
- Lindemann, U., "Methodische Entwicklung technischer Produkte", *Springer Berlin*, 2007.
- McAfee, A., "Enterprise 2.0: new collaborative tools for your organization's toughest challenges", *Harvard Business Press Boston*, 2009.
- Morgan, J., "The future of work: Attract New Talent, Build Better Leaders, and Create a Competitive Organization", *John Wiley & Sons Hoboken*, 2014.
- Petroni, G., Venturini, K., Verano, C., "Open innovation and new issues in R&D organization and personnel management", *The International Journal of Human Resource Management*, Vol.23, No.1, 2011, pp. 147-173.
- Picot, A., Neuburger, R., "Arbeit in der digitalen Welt", <<http://www.bmwi.de/BMWi/Redaktion/PDF/A/arbeit-in-der-digitalen-welt.property=pdf,bereich=bmwi2012,sprache=de,rwb=true.pdf>>, *BMWI Berlin*, retrieved 2015.
- Sauer, S., Burgenmeister, M., Porschen-Hueck, S., Huchler, N., "Open Organization: Öffnungstendenzen und Öffnungsstrategien. Ein Arbeitsbericht aus dem Projekt Rakoon", *ISF München & Universität Hohenheim*, 2014.
- Semen, B., "Offenheit als Basis für partnerschaftliche Führung und Motivation", In: Dorn, B. (Ed.): *Unternehmensprinzip Offenheit*, Addison-Wesley Bonn, 1993.
- Somerville, I, Mroz, J. E., "New Competencies for a New World", In: Hesselbein, F., et al (Ed.): *The Organization of the Future*, *Jossey-Bass San Francisco*, 1997.
- Tapscott, D., Williams, A. D., "Introduction: The four meanings of openness. Radical Openness - Four Unexpected Principles for Success", *TED Conference*, 2013.
- Völcker, U., "Offenheit durch Informationstechnologie", In: Dorn, B. (Ed.): *Unternehmensprinzip Offenheit*, Addison-Wesley Bonn, 1993.
- von Hippel, E., "Democratizing innovation", *MIT Press Cambridge*, 2005.
- Weidmann, D., Lindemann, U., "Towards a Framework of an Open Organisation", *Proceedings of the ISPIM Conference 2015*, Bitran, I. (Ed.), *Budapest*, 2015.

Simon Kremer, Dipl.-Ing. / Research Assistant
Technical University of Munich, Institute of Product Development
Boltzmannstr. 15, 85748 Garching, Germany
Email: simon.kremer@pe.mw.tum.de