

Design for civil society. The model project “Citizens connect neighborhoods – community development harnesses digital transformation”

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This paper reports on the practice-led design research project “Citizens Connect Neighborhoods: community development harnesses digital transformation” (2016-2018)¹, located at the intersection of participatory design, technology development and their political and social implications. The paper aims at situating the project’s processes and outcomes in the context of a currently renewed discourse on the potential of practice-based and transdisciplinary research for shaping new social practices and civic technologies that affect democratic developments in our everyday lives (Manzini 2014). The focus was on questions about who gets to shape and to take part in the digitalization of societal, political and cultural processes, and who determines the way we communicate or have access to information. The living labs/citizens’ workshops became the focal point, by which a series of intensive co-design workshops with initiatives of the civil society were conducted, as well as group discussions, informal and half structured interviews, meetings with different stakeholders and public presentations. These transdisciplinary processes engaged us critically in the urgent question of design’s agency within practices of collaboration and co-creation and provided us with a productive framework for the queries into the interdependence of digitalization, political participation and social cohesion, on which this paper reports.

Keywords: *participatory design, digital transformation, civic tools, networked society, networking locally*

1 Introduction: Digital divide, digital literacy and civic engagement

As new local practices and initiatives such as urban gardening, file sharing, repair cafés, and the like are on the rise, as well as alternative forms of living together such as co-housing, neighborhood initiatives and citizen networks are seeing greater acceptance and

¹ The project is a cooperation between the Berlin University of the Arts, the Neighborhood Academy NRW, IFOK and NRW.Urban, and was carried out together with 14 civil society initiatives with a wide variety of contexts – from refugee welcome services to co-housing; funded by the State of North Rhine-Westphalia/ Ministry of Regional Identity, Communities and Local Government, Building and Gender Equality of the Land of North Rhine-Westphalia (MBWSV): www.modellprojekt-nrw.de

appreciation. As pointed out by Manzini, the groundwork for macro-transformations and for great systemic changes, is laid by micro-transformations and by local systemic discontinuities, i.e. through the kind of “changes in which design can play an important role” (Manzini 2014). Acting locally pushes the envelope of broad action effectiveness – reinforced and fueled by digital transformation: New networking opportunities, collaborations and movements are marching onward in areas such as open data, open source, open technology and digital commons. Digital platforms are becoming more and more important for civil initiatives, regional networks and face-to-face encounters. More and more self-organized associations and initiatives are focusing on how to use digital tools to connect neighborhoods in a more sustainable way.

Understanding the drivers for opportunities and risks of the digital transformation with regards to neighborhood development and civic engagement for creating a successful policy framework requests actively engaging with local community partners in the co-creation of knowledge, building alliances and recognizing their expertise around local challenges. Both policy and civil society actors must face the challenges of missing out on digital developments, digital disenfranchisement and digital literacy to adequately address key issues of participation and to address the growing digital divide within initiatives, especially the so called third-level digital divide (van Deursen, A.J.A.M., & Helsper, E. J. 2015) that frames the digital inclusion not only around access, skills and usage, but in relation to the tangible outcomes.

Against the backdrop of the rapid development of technological possibilities, not only digital infrastructures need to be adapted for the success of digital development (OECD 2015); the education and training landscape must also take account of this development. “The population is meeting the digital future with little digital literacy” is the result of the D21 Digital Index (Initiative D21 e.V. 2016). One demand that has been made for some years now is that citizens should help shape the developments of and through digitization themselves, instead of only participating as users (Brandt 2017). Competencies must also be “promoted at all levels in the population” to ensure that no one is left behind by digitization. “If digitization is not developed by citizens, but solely from the technological side, there is a danger that people will be excluded from digital transformation” (Joost 2017). Academia and policymakers have also increasingly been trying to address this demand.

Against this backdrop, the model project “Citizens connect neighborhoods – community development harnesses digital transformation” (2016–2018) was launched the Berlin University of the Arts, Design Research Lab, and the State Government of North Rhine-Westphalia (NRW), the most populous state of Germany. The aim was to engage civil society, academia and policy makers into a participatory process in order to address the opportunities for social cohesion, the strengthening of civil society and for inclusive, participatory engagement in an increasingly networked society. In collaboration with the actors involved, the idea was to work out how the digitally accompanied world can be brought in to respond to social problems, specifically in terms of neighborhoods, villages and city districts. A major concern in the model project was to ask how to engage citizens in these developments so as to sustainably promote digital and social participation. In the research framework, these new formats of cooperation, collaboration and co-creation underwent evaluation, which in turn aimed at providing new knowledge for trans-disciplinary urban development processes. The project thus focused on bridging the gap that frequently

opens up between the objectives of process and/or technology development and the needs and expectations of users' participatory methods. The results of the model project can finally be used as a contribution for civil society actors and for policymakers on the municipal and state levels, as well as a scientific contribution to academic-oriented research approaches.

2 What is the model project?

Initiatives from North Rhine-Westphalia (NRW) were given the opportunity to respond to a call for proposals in early August 2016 to participate in the project. Fourteen candidates were selected out of 45 applicants and became part of the model project in support community development through digitization. Since October 2016, they have been participating in so-called "citizens' workshops." The project's aim was to help each individual initiative work towards their community development goals by providing them with the relevant tools and communication instruments. It developed (or continued development on pre-existing) platforms and participatory methods. It further accompanied the initiatives with scientific expertise and worked with them in an iterative process to implement and evaluate what they accomplished. For the citizens' workshops, the concept "communities of practice" Lave and Wenger (1991) served as a basis. CoPs represent an "arena of problem solving" – they provide quick answers to questions and produce higher quality decisions (Oakley et al. 2010).

Within the framework of self-organized networks, there is a high degree of informality, fragmentation and readiness for transformation. The future challenges and potential both lie in balancing free cooperation with targeted steering through policy. Steering such a coexistence of different competencies and tempos requires a governance practice both the municipal and state level that knows how to counter short-termism and heterogeneity as well as unstable financial conditions. This is because mechanisms of self-regulation and self-steering alone cannot provide complex community services; they therefore require the strengthening of structures that make self-regulation possible.

Therefore, we apply the perspective of "project ecologies" developed by Gernot Grabher (2001; 2004), which are mostly temporary alliances for dealing with problems and questions that lead to the provision of solutions through explicitly heterogeneous competences in specific contexts: for example, when IT experts work together with legal experts and politicians as well as local experts to provide solutions that fit a specific situation.

The model of trans-disciplinarity (Nowotny/Scott et al. 2001) can be a guiding principle for social innovations. Practice-based design research and trans-disciplinarity describe a practice of knowledge production by which the boundaries between academic/scientific work and the layperson's practice/application-oriented approaches increasingly dissolve. At the same time, the blurred lines take new shape – delimitations between expert, non-expert and domain-specific expertise are reorganized. The focus on application and practice points towards social networks and the social responsibility that underlies such processes. Temporary and application-oriented teamwork in which researchers, experts and practitioners with varying expertise and interests come together is what underlies this conception of research, as it is currently being practiced in design research. In practice-based design research, the scientific reference cannot be separated from the context of the practice.

Therefore, design research is important for future-oriented research into social, ecological and gender-specific contexts as well as everyday cultural contexts. A context-dependent

understanding of innovation is characterized by trans-disciplinary cooperation with heterogeneous interest groups, flat decision-making structures, application-oriented research and social relevance. At the same time, it requires specific infrastructures that allow the various interest groups, e.g. university or public institutions as well as actors from civil society, to participate in the research process. Such infrastructures for innovation development in research are not unique to universities; there are also rich intermediate areas between university and industry, the public sector, informal networks and the private sphere. Models that enable such cooperation and make the infrastructures and resources available have great potential to be motors of social innovation development.

3 Design and participatory research

The early involvement of citizens in a process of joint identification and handling of problems is an important concern in participatory design. The research approach in the model project works with an extended understanding of design as process and system design. Since the 1960s, design has not only been understood as the design of individual things or signs and symbols. Rather, contexts and conditions for complex production and uses became more important and now justify the current approach to design as an “interdisciplinary and cooperative task” (Erlhoff 2007). “Participatory Design” and “Social design” as working areas within the design discipline have seen an ongoing shift for some time now, whereby the disjointed design of artifacts is less important than the question of user involvement in the design of processes (cf. Joost 2014, Margolin/Margolin 2002, Björgvinsson et al. 2012).

In practice as well as in research, it is the inter- and trans-disciplinary qualities of design that are required. This role brings the interaction relations within the disciplines of design into focus, also in terms of political strategy development, as well as for the interfaces to other socially relevant fields of activity. This is why we consider the trans-disciplinary research approach of the model project to be essential. It is above all a matter of gaining scientific knowledge through practice-based research, in order to counter the risk of unilateral measures going nowhere at all. For implementation, this means bring the actors involved up to speed in terms of knowledge base, integrating them into the development process and aligning it with institutional requirements. The approaches developed in processes of co-design and co-production should lead to the shaping/steering of transformation and generate results that are relevant for both social practice and scientific discourse.

4 Methodology for the model project

The topic of the model project requires discourse among administration-specific, planning-design and socio-cultural perspectives. The challenge of such a collaborative research environment is to build a common understanding of the problem context and foster a productive environment. This in turn enables knowledge generation as well as knowledge integration.

The participatory practice and research approach pursued here is characterized largely by contextuality and flexibility. Integration of perspectives, skills and experience of living and working practices served to build the knowledge base as well as to create new self-efficacy and extend the action horizon of stakeholders (von Unger 2014).

A procedure was developed that allowed for ongoing adjustment of the intermediate results and at the same time carried out an intense dialogue with all the stakeholders. Various formats allowed for all the partners to communicate in a multi-tiered, qualitative practice and research process: co-design workshops, project meetings, advisory board meetings, various dialogue and exchange formats as well as a digital platform for internal communication and

exchange among the participants. Results were delivered through several data sources and based on a mix of methods. The intensive cooperation with the citizens' workshops within the framework of practice-based research included:

- All-day workshops in which existing knowledge, potential and needs, structural weaknesses and thematic problem areas as well as approaches to solutions were identified and jointly worked out in detail
- Onboarding surveys and one- to two-hour telephone conversations with the heads of the citizens' workshops in the various phases of the model project with a focus on the current use of digital services and the effects of digitization, infrastructure, organizational structure and commitment
- On-site visits addressing local policy support and regional networking
- Structured and semi-structured interviews in the networks of citizens' workshops to trace the correlations between media use and communication behavior with age, education and occupational factors
- Analysis of the state of research in the field of digitization and civic engagement in order to compare and validate the findings of the model project on the basis of qualitative and quantitative studies

From October 2016, the project team developed a joint agenda together with the selected citizens' workshops. The agenda specified the digitization topics and areas. This presented quite a challenge due to the diversity of topics and concerns for concrete support. Meeting it required a process of mutual information exchange between the citizens' workshops and the project team, in the course of which the needs of the individual citizens' workshops crystallized.

Building on this, networking and cooperation at very different levels followed: from joint workshops, to planning meetings and training. The advisory board brought the project social and political recognition as a multifaceted expert body and was important in the process beyond its role as a multiplier: The board also acted as an internal evaluation committee and as a companion to the citizens' workshops. The aim of evaluations was to ensure continuity and a long-term approach by providing support, for example in the form of training courses and consultations. After an initial phase, the focus of the model project shifted to the practical establishment of a network and then to ensuring that outcomes were properly recorded in the final phase.

On this basis, the results emerged as a building block in the process of digital transformation and as a practical contribution to the use of digital means in civil society contexts of community development and shaping its constitution. Already in the first months, our research and cooperation framework began to focus on three action fields: digital infrastructure, digital literacy, strengthening of civil society initiatives through municipal policy.

5 Survey

In the fall of 2017, a survey was carried out on the use of digital media among the citizens' workshops. The 66 responses gave a clearer picture of the use of digital media in everyday private life and in work for the initiative. The information on community concerns, digitization and volunteerism as well as communication behaviors improved the last phase of the project in terms of needs orientation. Survey results also informed suggestions for action recommendations and strategies. The results showed that, despite digital communication, establishing face-to-face contact among neighbors is a priority. With regard to the question

of which technical aids are still needed for communities, existing tools and their use must improve first and foremost, instead of developing further aids.

There is also a direct correlation between the level of education and community involvement. The 66 respondents represented generally active participants in the model project. Almost half of the participants were female (44%), and ages ranged between 22 to 75 years. The educational levels were above average among survey participants (more than half of them had an Abitur – German A-levels or high school degree –, a university degree or a doctorate). People with higher education have the necessary resources to advance their initiatives and also maintain a critical attitude towards privacy, data handling and security, especially with regard to mass surveillance. Changing the behavior of users is key in the face of data disenfranchisement – e.g. through obligations to hand over data to third parties in conjunction with more permissive/careless attitudes towards data privacy. At the same time, appropriate data protection standards must be established. In-depth discussions following the survey have led to the three core fields that need to be addressed strategically: social and digital networking, digital literacy and trust.

6 Handbook: Tips and ideas on how to help shape the community & digital tools for communities

In 2018, we published a handbook, intended as an introductory instructional guide that lists and describes a range of digital tools and alternatives. It is designed as a working aid for newcomers as well as experienced people in the digital world of civic engagement. The focus of interest is on possible development processes for communities initiated by citizens. These processes range from integrating different generations, cultures and nationalities to the jointly implementing concrete projects. This handbook comes from the impetus provided by the citizens' workshops involved in the model project "Citizens connect neighborhoods." Digital transformation and its potential in the hands of civic initiatives is the topic of this handbook. It deals with the way the citizens' workshops handled their undertakings and propositions and how these could be enriched through concrete digital and real-world tools. Here the focus is on project management, public relations and proximity to the citizens and activities within the communities/neighborhoods. This is followed by a brief presentation of one or more of the digital tools that can be useful for citizens' workshops in this context. These "profiles" are intended on the one hand to provide an overview of the digital application presented and on the other to facilitate its adoption with introductory instructions. The handbook is a central result of the model project, both in print and digital form (in German language)².

7 Takeaways

7.1 Analogue-digital networking

The importance of close spatial, social networking for civic engagement in the age of digitization is now widely recognized, and with it is the need for further development of social neighborhoods using digital resources at regional and national levels. It is considered a motor for sustainable development in urban as well as in rural areas – given the variety of challenges in the 21st century, like demographic change, pluralization and diversification of communities and realities and global shifts. It is even more important to link community development and digital transformation in ways that are social and sustainable, i.e. thinking

² DOI: <https://doi.org/10.25624/kuenste-gg31>; Link: <https://opus4.kobv.de/opus4-udk/frontdoor/deliver/index/docId/1182/file/QuartiersentwicklungUndDigitalerWandel.pdf>

about social and digital practices in conjunction – not least because the social divide is reflected in the digital divide.

The savvy use of online services and network platforms can promote information sharing, collaboration and commitment. Digital media and online services help to increase the visibility of initiatives, to increase the range and to promote the scale of activities and projects that are in the public interest. Initiatives can disseminate their ideas through platforms and digital networks and attract new stakeholders to their cause. Digital tools enable participation independent of time and place and are important for organizational and project development, networking and bundling of resources and supporting exchange of knowledge and experience. At the same time, the use of digital means also entails risks: Platforms and social networks can amplify targeted disinformation (keyword “fake news”) and endanger data protection. This makes an informed use of digital means all the more important. It is therefore crucial to counteract the digital divide with targeted, municipally supported programs against social division. This can be done through the creation of public & advisory products and services, communication tools, interaction formats and services, user-friendly information portals.

Also, volunteer work must continue to be celebrated adequately and to an even greater extent, through political and social recognition as well as appropriate incentives, so that citizens get involved on a voluntary basis and in the public interest. Digitization can play an important role in repositioning volunteerism in the 21st century. This also means that volunteer work becomes the task of the local administration.

7.2 Digital literacy

The core area of effective, broad-based participation and co-design of digital and real-world networking is digital literacy: competent handling of digital means as well as the necessary abilities and skills for handling information, sources and data. Plenty of action is needed in the area of digital literacy in terms of public welfare options: The use of digital information and communication technologies, the use of digital tools and the associated ability to manage data also requires a willingness to lifelong, independent learning (cf. Gutachten Digitale Souveränität des Sachverständigenrates für Verbraucherfragen [German Consumer Council] 2017). As tested in the model project, this core competence can be addressed with training courses: Measures for further and continuing education and training in questions of dealing with the content of digitization can ensure that committed people and population groups, even those unfamiliar with technology, become convinced of the diverse opportunities offered by digitization. Digital literacy is a decisive means of countering the digital divide.

For the co-design of living spaces in the sense of an open society, the various civil society actors, such as local politicians, have the opportunity and the potential to engage in creating offers for collaborative learning processes to promote digital competency in the future. Just like reading, writing or arithmetic, digital literacy should be a cultural technique that makes it possible to experience a self-determined life, undertake professional activity and engage in social participation. Concrete suggestions: Create and expand assorted learning opportunities that promote digital literacy in the context of civil society engagement with appropriate incentives (e.g. certification), such as a statewide initiative for future-oriented competency promotion; develop targeted training initiatives and demand-oriented offers for all educational institutions for collaborative learning and facilitate access to high-quality learning materials (bundling of webinars and information in the digital and media literacy, resource pools); generate confidence in digital tools and online services.

7.3 Trust

In addition, a third field of activity was identified in the model project: trust in digital tools and online services. This topic field covers two levels: 1) confidence based on data security, in particular with regard to one's own "digital footprint" and the handling of personal data (data protection and privacy protection); 2) confidence with regard to content and information disseminated through online platforms and social networks.

In view of the growing number of online services whose business model is based on the collection and analysis of large amounts of data (cf. Christl & Spiekermann 2016; Destatis 2016), questions about data security are coming to the fore. Details on individual consumer behavior, social environment and preferences are revealed on the basis of the data and traces left behind in the digital world. Correspondingly, tailored forms of targeted address (political opinion-forming, commercial advertising etc.) or personalized pricing can be exploited (cf. Gutachten Digitale Souveränität des Sachverständigenrates für Verbraucherfragen [German Consumer Council] 2017). Predictions using Big Data are also possible, but above all the concentration of market power with providers such as Google, Facebook or Amazon is problematic. Attention should therefore be paid to alternatives. Using a variety of platforms is crucial. Questions must be considered, such as what an infrastructure or platform might look like that does not depend on the sale of user data. There are already proprietary as well as open source alternatives for most commercial products. However, these are often not attractive enough (e.g., not user-friendly enough), or there is a lack of translation competency between open source and use (e.g., installation and adaptation for one's own purposes of community work).

Against this background, the question arises as to what influence civic initiatives and social movements can have on digitization processes and what is needed to contribute more strongly to democratization processes in technology development. Because digitization can be co-designed, steered and regulated. An important goal is to regain and strengthen confidence in the digital world. Digitization can promote transparency, for example in political processes, through access to data and information and through participation processes. Therefore, it is important to foster trust based on target group-oriented information and communications on the sides of supra-local, state authorities as well as municipalities, educational institutions and foundations; to promote open-source technologies and knowledge transfer between the specialized expertise of the open-source community and civil society activists. One suggestion would be to certify online services according to user friendliness, transparency in the handling of data and privacy policy, and hence the credibility of sources, and to train in the use of disinformation, fake news and ideologically motivated websites.

7.4 Collaborative work and expectation management

The close cooperation between various actors (academia, local authorities, state politics and civil society practice) made it possible to address problems in everyday life from different perspectives. At the same time, a basic issue was identified: The close cooperation among different disciplines and actors from practice can be a source of conflict and difficulties, because different goals and interests are pursued, which need to be communicated as transparently as possible and coordinated with each other. In addition, considerable communication and translation difficulties can arise due to the different language uses and internal logics in the respective disciplines and participants' fields of action. In addition, there are structural differences and internal conditions/requirements, from flexible and dynamic working methods to formalized processes, audit and approval procedures and institutionally anchored behaviors. In order to facilitate these labor- and communication-intensive

processes, institutional change in the administration is also necessary, with regard to opening up forms of communication and participation as well as to the political-administrative conditions. One of the challenges of such a work process is the development of a common, meaningful agenda that also accommodates appropriate expectation management. It is important to have competent project management and to create a pleasant climate of cooperation that is motivating and beneficial to the project as a whole; this also includes early regulation/definition of internal and external forms of communication. In order to smoothly coordinate the different tempos and workflows, it can make sense to have the process moderated externally. Here, the additional effort must also be taken into account, for example in the planning and preparation of transdisciplinary cooperation. Despite the open-ended process, awareness of the increased effort and thus the costs for trans-disciplinary and participatory design projects is important, since these are often underfunded, since many results are difficult to grasp (cf. Rogga et al. 2018); for this purpose, it is important to establish problem-oriented research and collaboration and to institutionalize transdisciplinary research and provide it with the corresponding resources.

8 Summary and outlook

In times of complex structural crises, technology-induced transformation processes and uncertain forecasting conditions, it is particularly difficult to give generally valid strategy recommendations. The present paper shows that it is precisely under these conditions that a specific process of governance of digital transformation in community development is required, characterized by iterative surveys and dialogue-based rectification.

The results of the project show that civil society initiatives can be significantly strengthened in their actions by means of digital tools. The project reveals how civic engagement and digitization can complement and stimulate each other when different factors are taken into account. These factors range from equal social and digital networking, the need to see (critical) digital literacy as an obligation for society as a whole, to the creation of trust through holistic advisory practices.

State-wide and local support services can promote the use of digital opportunities to strengthen social cohesion in communities if the framework conditions are in place – for example through training courses or platforms that ensure trust and guarantee security in the use of digital structures, i.e. support the use of digital means in a targeted and demand-oriented manner, and develop bottom-up strategies that counteract the digital and social divide. This also includes the further development and promotion of existing free software (tools) useful for civil society initiatives.

In order to be able to exploit the above-mentioned potential, concrete measures for action and a pooling of knowledge are required. With regards to the connection between community development, participation and digital opportunities, the Design Research Lab recommended within the here presented project that dedicated competency centers be founded. These centers would accumulate knowledge and serve to mediate between locally engaged citizens, local and state policy, as well as providing a base for scientific research and technological innovations. The connection from the model project can in principle be established for all fields of action.

Further cooperation as well as between the centers located in the municipalities would be in a position to inform about local specific knowledge and to establish peer-to-peer networks by providing best practice examples from other municipalities or communities; they could accompany developments and prepare knowledge that facilitates the practical manageability

of digital means and tools, explaining how to deal with open source and open interfaces. This would then result in competency offerings that are not only for technology-savvy citizens but also for those who are unfamiliar with technology. In addition, discursive competency can be strengthened with regard to the critical handling of information as well as to the possibilities of spreading knowledge and helping to shape digitization.

As for further investigations, it will be necessary to deal more intensively with the critical or negative aspects of digitization, especially with regard to the theses that structural inequalities are amplified and augmented by the digital.

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10 References

- Binder, T., De Michelis, G., Ehn, P., Jacucci, G., Linde, P., & Wagner, I. (2011). *Design Things*. Cambridge, Massachusetts, London, England: The MIT Press.
- Björgvinsson, E., Ehn, P., & Hillgren, P.-A. (2012). Agonistic Participatory Design: working with marginalised social movements, *CoDesign International Journal of CoCreation in Design and the Arts*, 8:2-3, 127-144.
- Brandt, M. (2017). Deutsches Web zu langsam für die Weltspitze, *statista.com*, <https://de.statista.com/infografik/1064/top-10-laender-mit-dem-schnellsten-internetzugang> [zuletzt gesichtet: 9.1.2018].
- van Deursen, A. J. A. M., & Helsper, E. J. (2015). The Third-Level Digital Divide: Who Benefits Most from Being Online?. *Communication and Information Technologies Annual (Studies in Media and Communications, Volume 10)*. Emerald Group Publishing Limited, pp. 29-52.
- Deutsches Institut für Vertrauen und Sicherheit im Internet (DIVSI) (2016). *DIVSI Internet-Milieus 2016: Die digitalisierte Gesellschaft in Bewegung*.
- DsiN-Sicherheitsindex (2018). Studie von Deutschland sicher im Netz e.V. zur digitalen Sicherheitslage der Verbraucher in Deutschland, <https://www.sicher-im-netz.de/sicherheitsindex-2018>.
- Enquete-Kommission (2002). *Zukunft des Bürgerschaftlichen Engagements*. Deutscher Bundestag, 14. Wahlperiode.
- Erlhoff, M. (2007). *Wörterbuch Design: Begriffliche Perspektiven des Design*, Board of International Research in Design (BIRD), Basel: Birkhäuser.
- Franz, Y. (2015). Designing social living labs in urban research. In: *Living Labs: Concepts, Tools and Cases*. Ballon, P. & Schuurman, D. (eds.)
- Gabbe, C. J. (2006). *Bridging the Digital Divide in Public Participation: The Roles of Infrastructure, Hardware, Software and Social Networks in Helsinki's Arabianranta and Maunula*, Department of Urban Design and Planning, University of Washington.
- Grabher, G. (2001). Ecologies of Creativity. The Village, the Group, and the Heterarchic Organisation of the British Advertising Industry, *Sage Journal*, Vol 33, Issue 2.
- Grabher, G. (2004). Temporary Architectures of Learning: Knowledge Governance in Project Ecologies, *Sage Journal*, Vol 25, Issue 9.
- Herlo, B. et al. (2018). Quartiersentwicklung nutzt digitalen Wandel. Arbeitshilfe für Bürgerwerkstätten in NRW, DOI: doi.org/10.25624/kuenste-1183.
- Joost, G. (2017). Die Weichen sind auf Zukunft gestellt, in: *Leitbild Stadt Brandis 2030*, p. 20.

- Joost, G., Bieling, T., & Sametinger, F. (2014). Die soziale Dimension der Gestaltung. In: Fuhs, K-S./Brocchi D./Maxein M./Draser, B. (eds.): *Die Geschichte des nachhaltigen Designs: Welche Haltung braucht Gestaltung?* Bad Homburg: VAS, pp. 218–229.
- Lave, J., & Wenger, E. (1991). *Situated Learning: Legitimate Peripheral Participation*. Learning in Doing: Social, Cognitive and Computational Perspectives. Cambridge University Press.
- Manzini, E. (2014). Making things happen: Social innovation and design. *Design Issues*, 30(1), pp 57-66.
- Margolin, V., & Margolin, S. (2002). A Social Model of Design: Issues of Practice and Research, MIT *Design Issues*: Volume 18, Number 4 Autumn 2002, pp. 24–30.
- Müller, L.-S., Stecher, B., Dietrich, S., Wolf, M., & Boberach, M. (2016). 2016 – D21-DIGITAL-INDEX. Jährliches Lagebild zur Digitalen Gesellschaft, Initiative D21 e.V., *Kantar TNS*, Bundesministerium für Wirtschaft und Energie.
- OpenNRW (2018). Bürger vernetzen Nachbarschaften. Quartiersentwicklung nutzt digitalen Wandel. Gemeinsam. Digital. Vernetzt, https://open.nrw/sites/default/files/atoms/files/broschure_mhkgb_0.pdf.
- Sipior, J., Ward, B. T., Volonino, L., & Marzec, J. Z. (2004). A Community Initiative that Diminished the Digital Divide, *Communications of the Association for Information Systems* (Volume 13, 2004) pp. 29-56.
- von Unger, H. (2014). *Partizipative Forschung: Einführung in die Forschungspraxis*. VS Verlag für Sozialwissenschaften; Wiesbaden: Springer Fachmedien.
- UN Department of Economic and Social Affairs (2018). *United Nations E-Government Survey 2018. Gearing E-Government to support transformation towards sustainable and resilient societies*. New York, 2018.
- Wenger, E. et al. (2002). *Cultivating Communities of Practice*, Harvard Business School Press Boston, Massachusetts.

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