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A Database for Participation Methods in Urban Development

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Abstract

In order to enable appropriate citizen engagement and user participation in urban development projects, knowledge is needed about the availability of tools and methods and their applicability to the different stages of a design or planning process. However, a systematic overview of the various digital and non-digital approaches for public participation is still missing. Addressing this shortcoming, we have summarized state-of-the-art instruments for participatory urban design in Germany, and summarized them by the means of a comprehensive and comparative database. To establish the database, we have analyzed participation guidelines published by 30 German municipalities and catalogued the tools and methodologies in use there. Information could be gathered on 70 different methods and tools of different levels of complexity. The approaches were classified inter alia by the level of engagement, plus 13 other categories. All findings were compiled into a data structure, giving basic information on the methods, links to reference documents, and sample projects. Our investigation has given evidence that certain methods are well known and widely applied by municipalities and stakeholder groups, while other more ambitious approaches are used only by larger and more resourceful cities. To the latter class, many digital tools belong. – The database is intended as search tool and information base for stakeholders who want to search and compare different participatory approaches. It is a key component for a process design tool enabling planners, authorities and managers for the design of participatory processes that can correspond closely to specific contexts. Being associated to the EU H2020 project "U_CODE Urban Collective Design Environment", the database will be launched 2017 on the project website www.u-code.eu.

Keywords: Participation, Urban Development, Method Database

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1. Introduction: Tools, Methods and Processes for Participation in Urban Design

Over the past years, many cities in Germany have initiated participation processes in order to enhance and secure urban development projects. Triggered by severe public responses to controversial large-scale construction projects, the demand for well-functioning participation processes had become urgent. Besides mandatory participation processes (known as "Formal Participation") alternative approaches allowing informal, context- and project-specific participation formats turned out necessary. For this, a broad range of digital and non-digital tools and methods is available which supports citizen engagement and user participation on different levels of complexity. Yet, only a basic set of well-known methods is commonly applied while the whole bandwidth of alternative and more advanced approaches remains widely unrecognized. This handful of well-known methods are generic in nature, and limited in their adaptability to specific situations or project constrains. In addition, the majority of commonly used methods is non-digital, and only larger and resourceful cities exploit the advantages of the more ambitious, digital methods at the moment.

Citizen participation in urban planning projects, however, is a challenge that goes well beyond the mere selection of the most appropriate tools and methods. A key issue for successful citizen participation is the design of a well-integrated work process. The individual means need to be sequenced into a meaningful overall workflow, in which the output of one activity smoothly feeds into the next. A good participation process is achieved when effective tools and methods are arranged in a dynamic yet conclusive process. The need for feasible process design has been recognized in theory and practice, still there are no mean systematic means available to support this specific demand.

The project "U_CODE Urban Collective Design Environment", a multi-national partnership funded by the EU´s Horizon2020 ICT program "New Tools and Media for the Creative Industries" addresses this deficit by developing a new co-design platform for massive participation in urban planning and design. Conceptual components of the platform will be a process design tool as well as a database ("Method Bank") which summarizes available tools and methods for public participation in urban design. The database presented in this paper was conceptualized in a thesis project at Technische Universität Dresden [1] and further developed within the U_CODE project.

2. Research Goal: Scalable Participation

As the preparatory research of the U_CODE team indicated, there is no systematic and comprehensive survey neither on existing participatory tools and methods nor on the overall process design. What is more, evidence about the efficacy of tools and processes are rarely given. Existing tool guides such as participedia.net do not present sufficient classification or structuring, thus obstructing the systematic search and application of the presented instruments [2,3]. Although some general studies are available, most of them either focus on very specific items [4] or just cover the overall process in schematic manner; few investigations address the very methods used.

Taking this into account, the overall aim of the database presented here is to analyze and summarize the state of art of digital and non-digital methods in participatory urban design. Due to limited timeframe in the development so far, the investigation was restricted to Germany, although a future expansion of scope is intended. The specific aim of the project therefore was to create a new digital meta-tool that would allow user groups like urban designers, planning authorities, project managers as well as facilitators of participatory processes to quickly overview the available methods and means, to select appropriate solutions, and to apply them effectively for their specific cases.

In the long term, the result of this database – as well as of the U_CODE project in general – aims at the purposeful design of participatory design processes whose structure and workflow is able to respond closely to the given conditions. It has been clearly noticed by researchers as well as by practitioners that adequate participation processes demand a basic flexibility and adjustability in regards to key parameters like level of openness, goal-orientation, or resource intensity. We have termed this key quality "Scalable Participation". On instrumental level, the method bank presented in this paper allows first appropriation of participation tools and methods. On a more holistic level, the U_CODE methodology will allow an adjustment of the entire work process and work flow by way of a comprehensive platform solution.

3. Methodology: An Ontology for Participation Tools

The work towards the database tool divided into three major steps: 1) comprehensive survey and material collection, 3) analysis and structuring of the data, 3) technical development of a prototypical tool. The information survey and subsequent analysis were carried out within a thesis project, while the integration of the findings into a comparative digital database was conducted within the U_CODE project. Overall timespan for these activities was roughly 1 year. The further integration of the database as a component into a larger process design tool is now in its conceptual phase.

For the survey part, we have researched participation guidelines published by 30 municipalities in Germany [e.g. 5, 6, 7] and collected all information on tools and methodologies used for participatory processes in urban development presented in them. All in all, information on 70 different methods and approaches could be gathered. The given guidelines not only prescribe processes and procedures for future participation project, but also summarize the municipalities´ past experiences with the various instruments. Mostly based on individual cases and projects, this literature usually presents city-specific participation concepts.
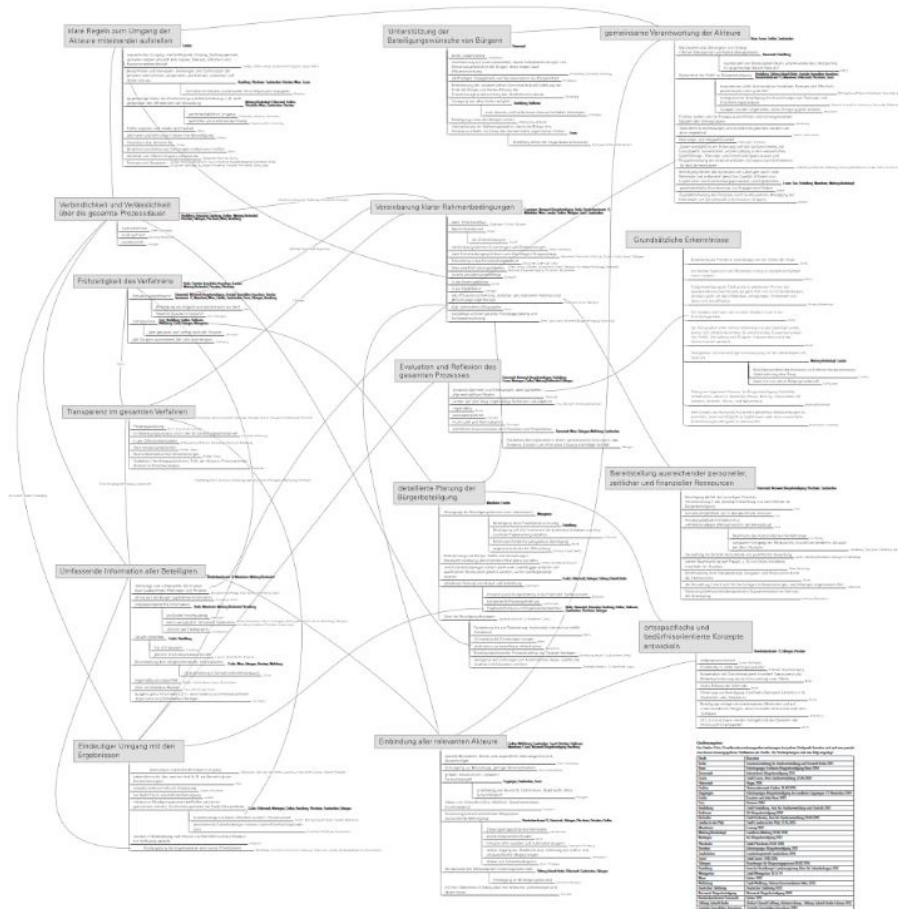

Figure 1 mapping the qualities of public participation [1]

In a next step after the initial phase of information collection, we have established a basic structure by classifying the findings by the level of engagement they support. Different ways of representation and structuring were attempted, e.g. clustering by application topics or by key qualities of participation process (*Figure 1*). Such qualities included, among others:

- Clear rules of interaction
- Transparency across the overall process
- Definition how results will be utilized
- Detailed planning of the participation process
- Involvement of all relevant stakeholders, a. o.

Eventually, as suggested by previous research on participation, a classification was chosen that differentiates between four impact levels of participation: information, consultation, collaboration and empowerment (*Figure 2*).

Increasing level of public impact

	Information	Consultation	Collaboration	Empowerment
Public Participation Goal	To provide the public with balanced and objective information to assist the understanding of the problem, alternatives and solutions.	To obtain public feedback on analysis, alternatives and/or decisions	To partner with the public throughout the process including the development of alternatives and the identification of the preferred alternative.	To place the final decision-making in the hands of the public.
Promise to the public	We will keep you informed.	We will keep you informed, listen to and acknowledge concerns and aspirations and provide feedback on how the public input influenced the decision.	We will work with you to formulate solutions together and lincooperate your advice and recommodations into the decisions.	We implement what you decide.

Figure 2 Level of participation [acc. to 8]

As there are multiple means for the participation level "Information", and as the level "Public empowerment" involves a broad discussion of regulatory and political conditions, we have sharpened the focus of our research to the levels "Consultation" and "Collaboration methods". Most methods for "Information" have, technically speaking, a low-level approach such as bulletins or press releases; these practices are well understood and described. On the other side there are almost no methods for "Empowerment" that are suitable for informal participation. At least in Germany, empowerment methods are strictly restricted by law. *Figure 3* shows a detailed overview of the available instruments, sorted by their level of participation. Workshop and conference techniques are highlighted blue while digital or online approaches are colored red.

Due to the IT-focus of the U_CODE project, our special research interest was on digital consultation. This type of instruments is commonly input-based, i.e. citizen participation reduces itself to delivering input to web platforms or interaction devices while dialogical formats are widely missing, in contrast to many established practices in the field of digital collaboration. Input-based media used in digital participation are e.g. social networks and online fora. More elaborated tools are interactive crowdsourcing platforms on which citizens and planners may discuss on the basis of a digital 3D-model.
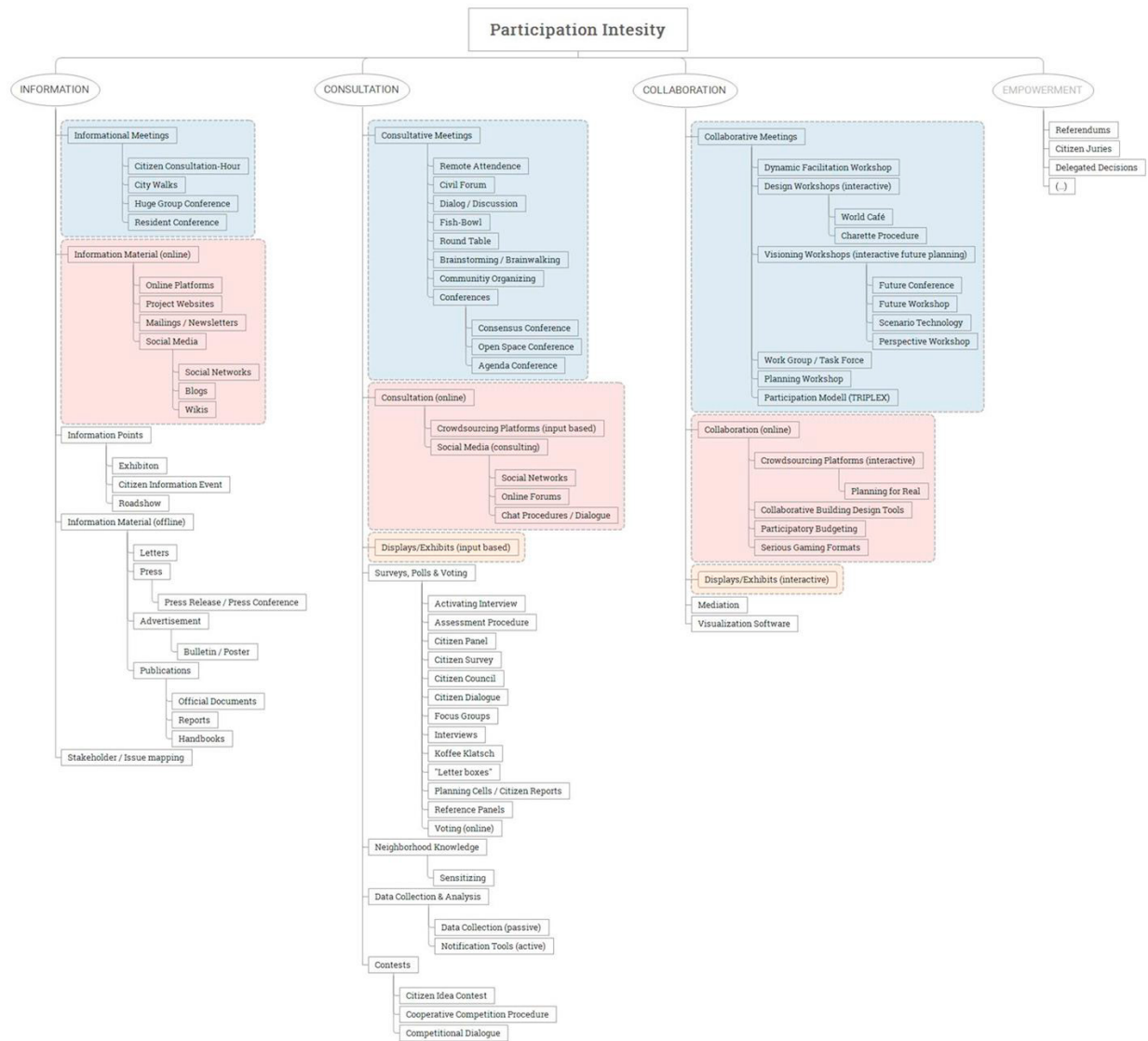
Figure 3 Categorization according to participation intensity [own graphic]

In order to allow systematic application in the later phase of development as well as analytical comparison for research purposes, we have created a descriptive framework that presents all entries to the database in a uniform template. The following descriptions resp. indicators were chosen (items in bracketings indicate the range or value of each parameter):

- Subcategories (as corresponding to the second level in Figure 3)
- Name of the process
- Description (short summary of typical fields of application, purposes, and processes)
- Strength and Weaknesses (in terms of practical application and output)
- Technical Description (e.g. data resources, hardware equipment)
- Length of the process (one day, two to four days, series of events over weeks, longer/ongoing)
- Number of participants (not defined, up to 25, up to 100, up to 500, unlimited/more)
- Types of outcome (visions, information, feedback, resolve conflicts, project optimization)
- Stage of the process (Identification, exploration, design, implementation, use),
- Gamification (yes/no)
- Inclusive (yes/no)
- Online (yes/no)
- Representative (yes/no)
- Mobile (yes/no)
- References
- Examples

Upon request, the database presents basic information on an overview level, sufficient to compare the available instruments. For a more precise design of participation processes, further information needs to be retrieved. It can accessed via reference links provided in the data sheets too. In addition, sample projects are listed to indicate the efficacy of previous projects. In the further development of the tool, we will develop an interactive module in which participants´ experiences are pooled and a feedback function enables discussion and quality assessment of the methods by the users of the tool. This link will be included in the menue "Examples".

Figure 4 Search mask in the database

At the moment, the Graphic User interface (GUI) is a simple template (*Figure 4*). It is composed by a set of forms which allow easy search queries with SQL requests. It`s possible to search for all but the plain text fields (process name, description, strength and weaknesses, technical description, examples and references).
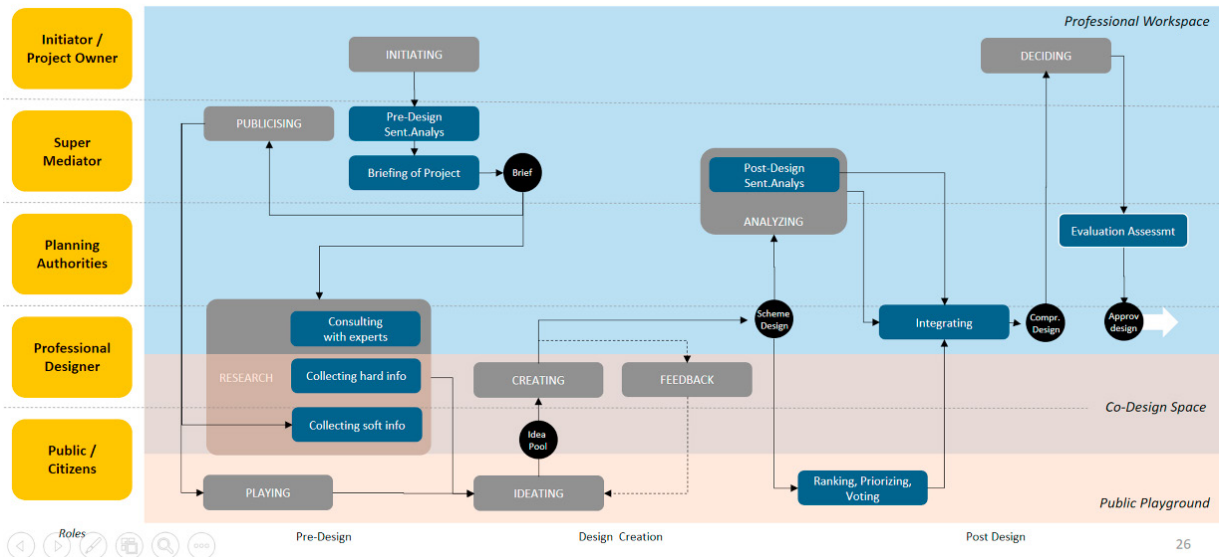

Figure 5 Generic Workflow for Urban Design Generation (own graphic)

In a next step, the database will be connected to a platform component "Process Design Tool" which is currently under development within the U_CODE project. The process design tool is based on a formal workflow description for the generation of urban projects (*Figure 5*). The key idea is to enhance the conventional workflow towards urban design generation (briefing, design competition, jury etc.) with alternative participatory processes (co-briefing, co-design, public voting). These alternative processes in turn need to be supplied by the appropriate tools and methods as suggested by the "Method Bank". The clear information about the tools´ different levels of involvement and citizen engagement enables the design of overall processes with participation levels adapted to the specific project contexts. Going beyond generic processes and fragmentary application of single tools and methods, such integrated and scalable participation allows for a broad range of custom-made approaches.

4. Results / Output

The "Method Bank" provides a practical support tool for planners, authorities, and managers who want to quickly investigate participation means and learn about their efficacy. By filling-in key project-information via a search interface (*Figure 4*) users will get automatically presented methods and tools. Users can select the most suitable method from the shortlist and search for more detailed information in the linked references. In addition, combinations and sequences of different participation tools can be established, thus building multi-step participation processes.

Our first investigation with the database has shown that certain methods are well known and used, and thus widely applied by municipalities and other stakeholder groups. These include well-known formats such as Mediation, Citizen Reports or Round Table Talks. Other more ambitious approaches such as Urban Gaming or Augmented Reality, appear to be only used by larger and resourceful cities. Many of the digital tools belong to this category. The implementation of the database into a webpage is in progess. At the moment, the database is an offline relational database in LibreOffice.

Figure 6 Example of the Method Bank ^(own graphic)

As regards the higher-level process design tool, we have schemed a selection of workflows of differing engagement level and complexity. We have investigated the appropriateness and workflow potential of the various instruments, and assessed their impact on the overall process. It became clear that the selection of tools and methods as well as the way how they are sequenced heavily determines the level of participation of the overall process. Our first tentative tableau of process designs (**Fehler! Verweisquelle konnte nicht gefunden werden.**) includes formats close to no participation ("Placebo Participation" with little decision making influence on the side of the public) as well as highly ambitious formats ("SuperPublic" where practically all decision making power is in the hands of the citizens). In order to proceed the U_CODE research project towards an applicable tool, a medium level of participation was chosen to base the platform´s basic workflow on ("Minimal Viable Process").
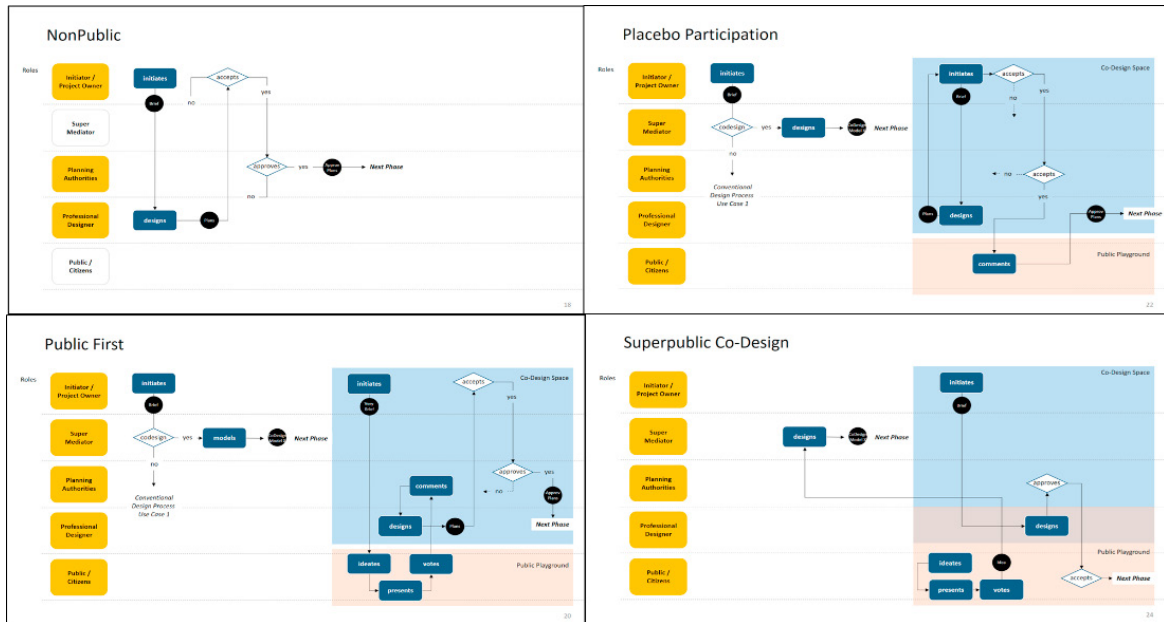
Figure 7 Process Design Tool: Various process design sketches

5. Outlook

While the "Method Bank" tool already provides a basic functionality based on the digest of 30 German participation guidelines, further extension in terms of functionality and data resources is due. We intend to broaden the investigation by including findings from other European countries and cities, and by collecting a significantly higher number of methods and tools. Current investigations within the U_CODE project will issue the necessary material for this step. Further we want to develop new features that allow more detailed search and analysis of the entries. It`s also conceptualized to establish a connected database comprising project related experiences, to establish evidence about the efficiency of the methods and tools. Other digital components of the U_CODE platform will be directly linked to the "Method Bank" via program interfaces. The platform´s upcoming process design tool is a first example for the meaningful connections of component functionality. In the middle run, we envision the platform not only to suggest appropriate tools and methods, but entire process designs for a given project profile.

As a stand-alone solution the "Method Bank" will be launched online on the U_CODE project website www.u-code.eu in 2017. It´s exploitation concept is a freemium model: they key purpose is utilize the tool for building up a community of potential future users of the U_CODE platform. In addition, we hope to collect valuable user feedback regarding the efficacy of the single tools and methods already in use.

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