Participatory Design in Large-Scale Public Projects: Challenges and Opportunities
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Introduction

In the years since methods for involving potential end-users as co-designers in systems development were first introduced in the 1970s and 1980s, Participatory Design has grown to become an established field of practice and research. Participatory methods and techniques currently are employed in a range of projects, spanning from software development to urban planning. However, Participatory Design approaches have primarily been used in projects that concern the development of individual systems, services, or products. In *A Retrospective Look at PD Projects*, Clement and van den Besselaar find that, with few exceptions, early Participatory Design projects "...were generally small-scale and isolated from other levels of the host and sponsoring organization."[1] These findings are echoed by Simonsen and Hertzum: "[...] a review of the PD literature reveals that most PD experiments have been restricted to small-scale systems (often driven by researchers) or to the initial parts of larger scale information systems development followed by a conventional contractual bid."[2] In light of this situation, Shapiro poses the challenge that "Participatory Design as a community of practitioners should seriously consider claiming an engagement in the development of large-scale systems, and more particularly an engagement with the procurement and development of systems in the public sector."[3]

In this paper, I examine a specific large-scale public project—the development of a new municipal library titled Mediaspace—from a Participatory Design perspective. My aim is to outline central challenges and opportunities for participation in large-scale public projects. In doing so, I address the role that participation can play in such projects and how insights and approaches from Participatory Design can be appropriated for them. The scale and scope of the Mediaspace project extends beyond many traditional studies of Participatory Design projects in that it deals not with the development of a single technological system, but with the transformation of a large public institution. This transformation has a dual nature: It concerns the development

1   Andrew Clement and Peter van den Besselaar, "A Retrospective Look at Participatory Design Projects," *Communications of the ACM* 36, no. 4, (1993): 32.

2   Jesper Simonsen and Morten Hertzum, "Sustained Participatory Design: Extending the Iterative Approach," *Design Issues* 28, no. 2 (Spring 2012): 11.

3   Dan Shapiro, "Participatory Design: The Will to Succeed," In Proceedings of the 4th Decennial Conference on Critical Computing: Between Sense and Sensibility (CC '05), Olav W. Bertelsen, Niels Olof Bouvin, Peter G. Krogh, and Morten Kyng, eds., (New York, NY: ACM), 32.

of a new building to house a library, but it also deals with the transformation that the library as a socio-cultural institution undergoes. These developments are intertwined in the sense that the new building that houses the library must necessarily reflect the ways in which the library as an institution is challenged and transformed by the emergence of new digital technologies that supplement or supplant the existing media the library originally was developed to house.

The challenges that this particular library faces resonates with the challenges of other libraries, as well as with those of other public knowledge institutions, such as museums and science centers in general. These institutions historically have held a privileged position as repositories for and disseminators of information; however, new digital technologies provide access to this type of information and challenge the roles and positions of these institutions in society.[4] For this reason, many public knowledge institutions are thrust into an identity crisis, as well as an arguably more tangible crisis of retaining and attracting visitors and funding. These changes have prompted institutions to consider how to integrate emerging digital technologies into their services, as well as to examine and articulate the roles that these institutions themselves play in society—in addition to being repositories of physical media and artifacts.[5] For many institutions, the case is that they play important roles in the public sphere not only due to the materials they house and curate, but because they have also become bearers of culture and places of public engagement and participation.

In my examination of the Mediaspace project, I focus on the challenges that a project of this type entail, as well as the design opportunities that it offers. Design practitioners and researchers who use and explore participatory approaches are likely to find the case relevant for the following reasons:

- It addresses the complex process of *involving citizens and stakeholders* in the co-design of a public institution and, by association , in the exploration of how new technologies affect the role and services of the institution.
- It addresses the ways in which both *methods* and *values* of Participatory Design can play a role in large-scale public projects.
- It addresses the ways in which *new technologies* can be designed and employed to inspire and scaffold participation in the design process.
- On a more overarching level, it addresses the *reciprocal transformation processes* that technologies and institutions undergo, in the sense that an institution like the library is challenged by the emergence of new digital technologies but can at the same time play a role in the shaping of such technologies.

4   Nancy Courtney, *Library 2.0 and Beyond: Innovative Technologies and Tomorrow's User*. Portal Libraries and the Academy. 8. (Libraries Unlimited). www.loc.gov/catdir/toc/ecip0713/2007009007.html (accessed March 8, 2012).

5   See Eilean Hooper-Greenhill: *Communication and Communities in the Post-museum – From Metanarratives to Constructed Knowledge* (Leicester: University of Leicester 2001). Online papers: www.le.ac.uk/ms/study/paper3.pdf (accessed March 8, 2012).
P. Vergo, *The New Museology* (London: Reaktion Books, 1997).

The Mediaspace Project

Mediaspace is a large-scale project to develop a shared building for the municipal library and Citizens' Service department in Aarhus, Denmark. The project, which has a total budget of €200 million (apx USD $254,096,834), was initiated in 2005 and is scheduled for completion in 2015. The project has moved through initial stages of articulating central values and visions to guide the project, idea development, process planning, establishment of stakeholder networks, development of a program for an architectural competition, and in 2009, the selection of the winning consortium to construct the building and its environs. The architectural proposal is being further developed, and tenders for contract work are under consideration. During the remainder of the process, the construction will take place alongside continued investigations into the services that should be housed in the Mediaspace (see Figure 1).

Our research group has orchestrated a series of Participatory Design workshops concerning the development of Mediaspace since 2009. We became involved in the project through an existing partnership with the municipality in the Center for Digital Urban Living, a research initiative exploring the ways in which digital technologies transform the life in and of the city. Because the Mediaspace project is central to the municipality's digital strategy, our collaboration in the project as interaction design researchers involved facilitating investigations into the integration of interactive technologies into the Mediaspace building. We, thus, arranged a series of events with Mediaspace stakeholders, many of which centered on participatory activities. (See the section titled "Participatory Activities in the Mediaspace Project" which expands on several of these activities.)

Our current knowledge of the Mediaspace project and the process comes from several sources: (1) We have "insider" insights from the Participatory Design activities we have orchestrated for the project; (2) we have held a number of meetings and conducted

interviews with the Mediaspace project manager and stakeholders, including citizens, architects, contractors, library staff and management, and others; (3) we have to varying degrees taken part in other citizen involvement activities in the project, both before and during our own involvement as researchers, and we have discussed many of these activities with the responsible organizers; and (4) because of the public nature of this project, we have had access to its extensive documentation that is available to the public.[6] On this basis, we have approached the project from a Participatory Design perspective to use it as a case for studying the challenges and opportunities of participation in large-scale public projects. In the following sections, I present two aspects of the project that are of special relevance from this perspective: The first explores the notion of participation as a core value and project driver; the second describes a series of Participatory Design activities executed for the project. A third section discusses three concerns regarding the challenges and opportunities for participation in a project of this type.

Participation as a Central Value and Project Driver
The decision to establish the Mediaspace project rests on the municipality's political visions to establish Aarhus as a city of knowledge, in conjunction with the awareness that emerging digital technologies are transforming the role of libraries in society. Since the project's inception in 2005, citizen involvement and participation has been articulated as a central value and driver of the project. The manager of the Mediaspace project presents the participatory agenda in the following way: "Mediaspace must be built, established, and formed by the people who are going to use it in the future. Those people are all of our users, all the citizens of Aarhus, our staff, our stakeholders, our network and partners... Mediaspace should be a remarkable icon of collaboration."[7]

One of the reasons that Participatory Design continues to play a part in new design projects is that it is arguably more than a collection of techniques; it also represents a shared set of concerns and values that connect existing techniques, and that are vital and malleable enough to embrace new challenges and inform new techniques for addressing these challenges. The Mediaspace project is set in Scandinavia, and it is therefore pertinent to consider it in light of the Scandinavian systems development tradition. In this tradition, political ideals and values permeated many early contributions. Ehn and Kyng summarize these ideals as quality of work and products, democracy at work, and education for local development.[8] More recently, Iversen et al. have revisited the values laid out by Ehn and Kyng and argued for revitalizing them to fit contemporary challenges, thus reformulating them as quality in

6   All public documents pertaining to the Mediaspace project are available online at www.urbanmediaspace.dk/en (accessed March 8, 2012).
7   Aarhus Municipality website, www.multimediehuset.dk/sw3056.asp, translated from Danish by the author (accessed December 10, 2011).
8   Pelle Ehn and Morten Kyng, "The Collective Resource Approach to Systems Design," in *Computers and Democracy: A Scandinavian Challenge*, G. Bjerknes, P. Ehn, and M. Kyng, eds., (Aldershot, England: Avebury, 1987), 17-57.

product and process, emancipatory potentials for the involved stakeholders, and democracy–which now extends beyond traditional concerns for workplace democracy and into society at large.[9]

Although I do not consider the Mediaspace project a Participatory Design project in the traditional sense of the term, it is a project in which both the values and the techniques from Participatory Design play a central role. One of the first steps in the project was to schedule a series of participatory events involving citizens, experts, cooperation partners, networks, employees, and other interested parties. These events resulted in the articulation of seven core values to be explored as part of the development process and ultimately to be incorporated into the Mediaspace institution: (1) The Citizen as Key Factor; (2) Lifelong Learning and Community; (3) Diversity, Cooperation, and Network; (4) Culture and Experiences; (5) Bridging Citizens, Technology, and Knowledge; (6) Flexible and Professional Organization; and (7) Sustainable Icon for Aarhus.[10] This set of articulated values resonates well with the values of quality, emancipation, and democracy inherent in the Participatory Design tradition. For example, both The Citizen as Key Factor and Diversity, Cooperation, and Network emphasize the democratic ideals of the library; Lifelong Learning and Community and Culture and Experiences point to the emancipatory potential for citizens through learning and cultural development. In addition, Bridging Citizens, Technology, and Knowledge; Flexible and Professional Organization; and Sustainable Icon for Aarhus each address the concern for quality in process and product. The seven values have subsequently served as guidelines for the development of the project. Potential contractors have had to explain in detail how they would involve the stakeholders and potential end-users of the project in their specific development processes, and these proposed involvement processes have played an important role in the selection of contractors. For example, the competition brief for the architectural competition explicitly states that the proposals also will be judged on the basis of how the seven values are addressed in the architectural process: "The values will be parameters in determining whether the project and Mediaspace are conducive to the realization of the vision."[11]

Participatory Activities in the Mediaspace Project
Because of the emphasis placed on participation by the Mediaspace developers, a large number of participatory initiatives have already happened, and still more are planned for the years to come. These initiatives have addressed both the building process and the changes for the library as an institution brought on by new digital technologies. The initiatives fall into several different categories: Some use conventional methods for public involvement,

9   Ole Iversen, Anne Marie Kanstrup and Marianne Graves Petersen, "A Visit to the 'New Utopia:' Revitalizing Democracy, Emancipation and Quality in Co-operative Design," in *Proceedings of NordiCHI 2004* (New York: ACM Press, 2004): 171-79.

10 Søren Holm, *Mediaspace–Core Values* (Aarhus, Denmark: Aarhus Kommune, 2007), www.aakb.dk/files/file_attachments/29._juni_2010_-_1355/coreval-uesmediaspace_web.pdf (accessed March 8, 2012).

11 City of Aarhus, *Mediaspace: Competition Brief* 1 (Aarhus, Denmark: 2007), 19. http://www.urbanmediaspace.dk/sites/default/files/pdf/konkurrencemateriale_volume_1_english.pdf (accessed March 8, 2012).

Figure 2 (left)
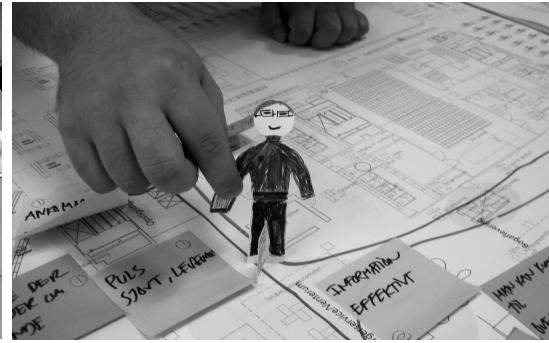Photo of the Inspiration Card Workshop.

Figure 3 (right)
The Living Blueprint Workshop.

others use existing or custom-made Participatory Design techniques, some rely on new instruments or technologies to scaffold participation, and some initiatives are long-running explorations of how the library as a public institution is being or should be transformed.

A series of conventional events for involving stakeholders, including public hearings, have been held throughout the process. These events are typically open events announced in public media, which feature the presentation of a specific aspect of the project (e.g., the location of the new building or accessibility issues), followed by open discussions. We also have used established Participatory Design techniques in more focused events, such as inspiration card workshops.[12] These workshops are collaborative design events in which professional designers and participants who have knowledge of the design domain combine sources of inspiration from the library domain and interactive technologies to create design concepts. In addition to established techniques, we also have developed several new participatory techniques specifically for the Mediaspace project. For example, the "living blueprints" technique addresses the problem that arises when users and stakeholders have difficulty envisioning what the un-built future building will be like, and thus also have difficulty voicing opinions and developing concepts for it. In a living blueprint workshop, participants take on the role of a cardboard character and move themselves through the building to bring the future environment alive; manipulating characters in this way allows workshop participants to explore and comment on the un-built building (see Figure 2 and 3).

In another series of participatory events, new technological systems have been designed to inspire and facilitate citizen participation. The installation, Voices of the City, is an example of a system developed specifically to scaffold participation in the early phases of the Mediaspace project (see Figure 4 and 5).[13] This interactive exhibition provided an interactive table that allowed users to maneuver around maps representing the city of Aarhus, Denmark, or the world. On each map, users could find and hear

12   Kim Halskov and Peter Dalsgård, "Inspiration Card Workshops," in *Proceedings of DIS 2006* (New York: ACM Press, 2006), 2-11.

13   Rune Nielsen, *New Uses of Interactive Technologies in Spatial Design* (Aarhus, Denmark: Aarhus University, 2006), 81-101.

Figure 4 and 5
Photos of Voices of the City Installations.

context-specific scenarios related to the roles and capabilities of the library and the future Mediaspace. In addition, users could add comments to specific locations on the map by talking into a microphone embedded in the table. In this way, users could share their opinions or listen to what other users had to say and comment on it. Two identical installations were developed and made available at the Main Library in Aarhus and in a local arts center to gather people's opinions, and these recordings were synchronized with a dedicated website.

Finally, a number of longitudinal initiatives comprising multiple events have been carried out. For example, the Transformation Lab project initiative ran from 2004 to 2007 and was developed to explore and experiment with how the physical library space can support both present and future user needs in the library. In particular, the lab focused on how flexible physical settings, interactive elements, and ubiquitous computing could be developed and used to support knowledge dissemination and activities in the physical library. In the foyer of the current municipal library, five experimental labs were staged: the literature lab, the news lab, the music lab, the exhibition lab, and the square (see Figures 6 and 7). In each lab, different configurations of interactive technologies and physical spaces were developed and tested. The projects were located in the library foyer so that all library visitors were exposed to the experiments and invited to take part in shaping the future library. This approach yielded insights regarding the physical space and materials, the role of users and librarians, and the potential for external cooperation.

Discussion: Challenges to and Opportunities for Participation
The field of Participatory Design continuously faces new challenges and opportunities as methods from the field are brought into new contexts and digital technologies move into new domains. Given the focus of this article, recent contributions to the field, such as Oostveen and van den Besselaar and Simonsen and Hertzum are particularly salient because they examine the challenges that arise from employing Participatory Design approaches to large-scale projects.[14] Simonsen and Hertzum point out a series

14 See Anne-Marie Oostveen and P. van den Besselaar, "From Small-Scale to Large-Scale User Participation: A Case Study of Participatory Design in e-Government Systems" in *Proceedings PDC 2004* (New York: ACM Press, 2004), 173-82; and Simonsen and Hertzum, "Sustained Participatory Design: Extending the Iterative Approach," *Design Issues* 28, no. 2 (Spring 2012), 10.

Figure 6
The Transformation Lab as News Lab.

Figure 7
Music Lab.

of specific challenges identified in a large-scale effort to use Partic-
ipatory Design strategies in a healthcare sector development. These
challenges include obtaining appropriate conditions and focus for
Participatory Design; managing a multitude of stakeholders; man-
aging stepwise implementation processes; and conducting realis-
tic, large-scale Participatory Design experiments.[15] These same
challenges are, to some extent, present in the Mediaspace project
and clearly are issues that have been and continue to be highly rel-
evant for the project management group. For example, the chal-
lenge of managing a multitude of stakeholders is particularly
pertinent. The same holds true for the challenge of orchestrating
and conducting Participatory Design experiments as part of the
project (e.g., the transformation lab experiments). However, the
Mediaspace project differs from the earlier projects in a number of
ways—most specifically by being a public project aimed at the
entire city population. For this reason, I use the Mediaspace case in
the following paragraphs to discuss a particular set of Participa-
tory Design concerns related to large-scale public development
projects, each of which presents designers with both challenges
and opportunities.

15 Simonsen and Hertzum, "Sustained
    Participatory Design: Extending the
    Iterative Approach," 10.

Addressing Heterogeneous Stakeholders and Establishing Participation as a Relevant Activity

As suggested, the challenges in managing the multitude of stakeholders involved in or related to a project such as Mediaspace are clearly visible. These stakeholders include politicians, sponsors, various steering committee and project management team members, architects, contractors, local institutions and organizations, and perhaps most importantly, library staff and citizens, who can be considered the end-users of the project. Many early Participatory Design projects have been undertaken in workplace settings, in which most stakeholders could be immediately identified, are generally already connected in working toward some common goal, and could relate easily to a development project. Although they might not have readily conceived of how a development project might change their future practice, they were most often very familiar with their current practice. However, things are not so straightforward for the citizens who will be the future users of the library's services. Because this group potentially comprises all of the citizens of Aarhus, the target audience is highly heterogeneous. The difficulties are compounded by the fact that even though identifying different types of users and involving them are possible, their needs are likely to change in the future, perhaps even before the Mediaspace project is completed, and likewise, the library services might also be transformed in ways that are not yet known. While many domains are challenged by the emergence of new technologies, the challenge posed to libraries is especially pertinent, since technological developments in the distribution and consumption of media can severely disrupt traditional library services and functions. As the library setting changes, users whose current practices for accessing information and media keep them from using the library or participating in the project might actually *become* users, but without having helped to shape the library. On the one hand, this situation presents designers with a highly complex challenge. On the other hand, it opens up new opportunity spaces for design because it prompts designers to understand the needs and practices of these potential users and explore ways of involving them actively in the project.

One of the ways in which the Mediaspace project managers have addressed this issue is by establishing participation as a central value and articulating the seven core values as ongoing guidelines for the project. An example of how this perspective affects the process can be found in the explication of the value, the citizen as key factor: "It is important to retain a changeability that reflects the citizen's varied and changing needs. Therefore, the building must contain versatile and flexible learning environments and open spaces."[16] In this case, the awareness that users' needs are

16   Aarhus Municipality, *Mediaspace–Core Values,* 2.

heterogeneous and may change over time results in specific demands for the future building and services, the required flexibility of which is made apparent throughout the process in, for example, the architectural competition brief.

Kensing identifies three key requirements for participation in design: access to relevant information, the possibility for taking an independent position on the problems, and participation in decision-making.[17] The task of distributing relevant information about the Mediaspace project can be relatively easy for some stakeholders (e.g., librarians and frequent library visitors) but very difficult for citizens who visit the library infrequently, or who do not use the library at all. Even though the Mediaspace project is on a massive scale, has had strong coverage in local media, and has included a wide variety of citizen involvement events, only a small proportion of the population is aware of the project. Continuing to raise awareness of the project's existence means providing information about how the process is organized, who the stakeholders are, and how to influence it. The latter is particularly pertinent in relation to participation: Establishing participation as a relevant activity in which citizens should engage is not straightforward. The Mediaspace project is of such a huge scale that future users—especially casual or infrequent library users—might feel overwhelmed by it and have difficulty conceiving that they can influence the process. The citizens who are the intended future users of the library might not recognize that the process is of immediate relevance to them and thus might ignore information about how they can become involved in this process. As Mediaspace project manager Ostergard asserts, "[t]he big dilemma is that you have to know the project is there before you can influence it. And many people don't discover the existence of the project until construction of the building commences."[18]

Developing Techniques and Technologies to Scaffold Participation
One of the ways in which the Mediaspace project has addressed the concern for informing and involving citizens in the project is through elements of the project such as Voices of the City and Transformation Lab. In these projects, experimental prototyping has played an important role, presenting users with installations that inspire engagement and involvement while also exposing stakeholders and users to assemblies of technologies that might come to play important roles in the future library. For example, Voices of the City was developed specifically to inspire users of the installation to voice their opinions about the future Mediaspace and its relationship to the city, the country, and the world; at the same time, the installation was an experiment into how new forms of interaction in public places can establish dialogue between authorities and citizens, as well as between citizens.

17   Finn Kensing, "The Trade Unions' Influence on Technological Change," in *Systems Design For, With and By the Users*, U. Briefs et al. eds., (North Holland: 1983).
18   Marie Ostergard, Personal Communication, (May 5, 2010).

Related to these types of experiments are techniques such as Living Blueprint, which have been developed specifically for the purpose of scaffolding participation in the development process. The technique was intended to improve the understanding of the building and consequently the basis for participating in informed dialogue about it, thus echoing the development of participatory systems such as Voices of the City. In their work, Clement and van den Besselaar expand on Kensing's (1983) list of requirements for participation, arguing for the availability of appropriate participatory development methods and for leaving room for alternative technical and organizational arrangements.[19] A large-scale project such as Mediaspace opens up new opportunity spaces for the development of Participatory Design. Its development of new participatory methods and technologies offers stakeholders ways of experiencing and engaging with the project and yields insights into how technological and organizational arrangements of the library might shift.

Iterative Development and Institutional Transformation
Although the Mediaspace project is not a Participatory Design project in the traditional sense of the word, it reflects the epistemological standpoint of Participatory Design: Designers need insight into practice, users need insight into technological potentials, and the best way of developing this reciprocal knowledge is collaboratively through joint, practice-based experiments. An aspect of the Mediaspace project of particular interest from a Participatory Design perspective is that the development process extends beyond the development of a system or building because it also concerns the development and potential transformation of the institution through the project. Serving not just as an iterative process model, Participatory Design also shows how iterative development in large-scale projects goes hand in hand with institutional transformation. Bødker and Iversen clarify that Participatory Design aims not just to design technological systems, but also to "design conditions for the whole use activity."[20] In the case of Mediaspace, this aim extends into the overarching question of how digital technologies will influence the role and services of the library in society. This question is one that designers, and in this case also the Mediaspace project managers, must embrace. According to Bødker and Iversen, designers must:

> confront use with new ideas, as design is not a step-wise derivation of the new from the existing, neither is the new coming unexpectedly. Design is not a process heading toward a predetermined goal, but a process of which the vision is shaped in continuous interaction with the use practices that it originates from, as well as with other uses, other technologies serving as guiding lights.[21]

19 Andrew Clement and Peter van den Besselaar, "A Retrospective Look at Participatory Design Projects," 29-37.

20 Susanne Bødker and Ole Iversen, "Staging a Professional Participatory Design Practice: Moving PD Beyond the Initial Fascination of User Involvement," in *Proceedings of NordiCHI '02* (New York: ACM Press, 2002): 12.

21 Ibid.

This perspective speaks to the responsibility of designers and project managers in large-scale public development projects to address how ongoing changes in the society affect the project, and to explore the influence of these changes through participatory initiatives.

One of the challenges that accompanies such a participatory approach is that of synthesizing multiple streams of knowledge that inform the development process. The long list of participatory initiatives in Mediaspace implies an extensive series of inputs from a wide variety of stakeholders. No formulaic checklists drive how this information can productively be analyzed to inform the future process, but designers and project managers nevertheless are responsible for making sure it does so. In the Mediaspace project, the information from participatory initiatives and involvement of the public has been incorporated into the ongoing process in several ways. In longitudinal events, such as Transformation Lab, insights from one of the first lab experiments were incorporated into the planning of later lab experiments. The findings from ongoing experiments have been documented in reports made publicly available (e.g., in the vision process and Transformation Lab).[22] Findings also have often been presented in easily accessed formats and distributed via social media. For example, the Transformation Lab project group has a dedicated Youtube channel, which documents experiments and prototypes (http://www.youtube.com/user/transformationlab); the library has a Flickr stream that is continuously updated with photos from events (http://www.flickr.com/photos/aakb/); and the entire Mediaspace project is documented on a dedicated website (http://www.urbanmediaspace.dk/en), which is continuously updated as the project progresses.

Insights and findings from the participatory events have been incorporated into the ongoing process in manifest ways, including in the visions that contractors have to address in their bids. However, the most important, yet least tangible, way in which this information has informed the process is through the ongoing debates it has spurred among members of the Mediaspace project groups and the steering committee. The challenge of keeping the organization open to input and inspiration from citizens will remain, even after the completion of the Mediaspace building as the institution continues to evolve along with society.

Regarding the future Mediaspace, the vision for the institution is that it will support and be open to ongoing development by both users and the institution: "Mediaspace should be a flexible and dynamic sanctuary for everyone in search of knowledge, inspiration, and personal development—an open and accessible learning environment supporting democracy and unity."[23] Exploring whether and how these ideals can be realized in practice will be a compelling area of study.

22   Søren Holm, Mediaspace—Core Values (Aarhus, Denmark: Aarhus Kommune, 2007), available online at http://www.aakb.dk/files/file_attachments/29._juni_2010_-_1355/corevaluesmediaspace_web.pdf (accessed March 8, 2012); and Aarhus Public Libraries, *Transformation Lab—A Report on Forms of Dissemination in the Physical Space* (Aarhus, Denmark: Aarhus Public Libraries, 2007).

23   Rolf Hapel and Marie Ostergard, *Mediaspace: Knowledge, Pulse, and roots* (Aarhus, Denmark: Municipality of Aarhus, 2007), 3.

Conclusion

This article has examined the role of values and strategies of Participatory Design in large-scale public projects, and in particular the challenges and opportunities related to participation that arise in such projects. The three concerns discussed here—addressing heterogeneous stakeholders and establishing participation as a relevant activity, developing techniques and technologies to scaffold participation, and iterative development and institutional transformation—do not represent an exhaustive list of the topic; rather, they are the most salient concerns that stem from approaching the Mediaspace project from a Participatory Design perspective. The underlying premise of this examination has been that Participatory Design is more than a set of techniques; it instead encompasses a set of ideals and values that extend beyond the individual techniques used. In the same line of thinking, the library can be construed as a socio-cultural institution that serves as more than a repository of physical media; more broadly, it is a bearer of culture and an arena for participation and democracy. These ideals are particularly salient in relation to the Mediaspace project because it is a project paid for by citizens and sanctioned by elected politicians that strives toward empowering citizens and strengthening democracy. In many respects, the Mediaspace case therefore represents a rare attempt to place participation at the center of a large-scale public project and to use Participatory Design techniques to inform the project.

Approaching Mediaspace from a Participatory Design perspective has provided insights into the challenges and opportunities for designers and project managers, offering to it knowledge from the field about how specific participatory techniques work, and showing how values inherent in Participatory Design can inspire efforts in this type of domain. In return, the study of Mediaspace can contribute to the further development of Participatory Design in large-scale public projects. The study presented here has resulted in a relatively well-developed understanding of central challenges and opportunities in this domain; nevertheless, the solutions to these challenges and the ways in which these opportunities might be seized are less obvious. Addressing these issues is an ongoing task, and seeing the results of this work in the future is of great interest—both in terms of the continuous development of Mediaspace and in related projects—to those who pursue Participatory Design.

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