

Chapter 1: Staging collaborative design and innovation – an introduction

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Staging collaborative design and innovation: An action oriented participatory approach, proposes the concept of *staging* as a relevant tool and sensitizing device for the study of design and innovation activities and offers a repertoire of actionable collaborative strategies to intervene in and shape design and innovation processes. The book is a response to the increasingly complex challenges new types of professionals such as design engineers as well as urban planners or technology managers are facing designing products, services, systems or governing innovations and sustainable transitions. For instance, engineers and designers working to design or facilitate change in systems, face a unique set of challenges in how to navigate competing interests and staging efforts, which have been ill-treated in existing research on co-design, staging, and other design approaches.

The staging concept takes some of its roots in the theatrical experience. In this first chapter, we will present and characterise the concept and shortly discuss its use throughout the different chapters in the book. We will see that it helps in avoiding a socio-cognitive reduction of design activity but open new perspectives focusing the attention on the casting of the participants, the framing of the stage, and the resources it offers to them.

In chapter 2, we will return to the origins of the staging perspective. The theoretical approach is based broadly within the STS tradition (Science and Technology Studies) that has studied the translation of sociotechnical networks to show how technology and innovation emerge and develop. However, besides literature on innovation and project management, little research has studied how these processes may be subject to intervention and active shaping. Innovation processes were studied by historians like Thomas Hughes (1983), social constructivists (Bijker et al. 1987), anthropologists (Downey 1998), and the actor-network theory (Latour 1987), but with no focus on design practices. A few STS or ethnographic studies investigated design activities describing them as situated process, looking at the professionals and their negotiations to determine the form and function of new products (1996), pointing to the visual culture of engineering design (Henderson 1998) and the importance of drawing practices (Vinck 2003) and intermediary objects (Vinck 2012; Vinck and Jeantet 1995) and their equipping (Vinck 2011), but not the shaping of these situated activities. Thus, Signe Pedersen, Jens Dorland and Christian Clausen explore more specifically the origins of the three structuring approaches that the staging approach builds upon: participatory design, shaping of technology and transition research. The staging approach is a descendant of the Scandinavian tradition for action research from the 1960's and onward, the movement towards a proactive and action-oriented technology assessment in the 1980's (Hansen and Clausen 2002) and in particular the participatory design movement. One outcome is reflected in the following more actor-oriented spatial concepts intending to enable an emerging engineering design profession to stage strategic and political considerations and to include wider concerns in concept development. Here, the theatrical metaphor of staging became an inspiration helping to think about design as we will see in this book.

The theatrical metaphor <a>

In theatre, the *stage* is the space where a performance generally takes place in front of an audience. The performance is expected to create emotion, reflection, awareness, learning, concernment, reaction, and maybe individual or societal change. The notion of stage focuses the attention to a few characteristics of the performance: Its situated character; the arrangement of the scenery; the involvement of props¹, costumes, decor and masking, flattage and traps, wing curtains and backdrop, set pieces; the dependence of the performance from the presence and the play of actors; the inclusion of the audience as passive or active participants to the performance, positioned into a specific placement, generally separated from the stage.

As far as designing a solution or developing an organisation is considered as a kind of collective performance, it would be worth to consider the design stage. This could help avoid reducing design activities to either a cognitive process (problem resolution, imagination and creativity, knowledge mobilisation) or a socio-cognitive one involving various actors (mouthpiece of stakeholders, experts from various scientific or technical fields, potential users) acting according a specific method (a kind of script and the definition of some characters to which the involved people would identify themselves). The stage would also be important as a resource for the participants to define what is happening on an ongoing basis, locating the activity and framing its situated characteristics. Thus, grounding on the theatrical metaphor could open new perspectives on design and innovation, enriching our understanding of this activity with more items to consider than social and cognitive aspects.

As for theatre, the stage can be prepared. *Staging* means ‘setting the scene’ in a theatrical context, according to Christian Clausen, Jens Dorland, and Signe Pedersen (chapter 2) some aspects worth to be pointed out regarding what generally staging is:

- **An overt and dynamic process** which cannot be reduced to a script, a plan or guiding ideas (the text in theatrical context) framing the action to take place in a space spanning the performance;
- **Strategic action by one or various actors** resulting in an intended process, among which a *stage director*, either a creative expert who has a structuring role, or a *humble* facilitator of collective explorations, enabling the empowerment of actors and technicians, inviting and giving voice to not only the original text and to its own intuitions or ideas but also to his/her collaborators, stage manager, technicians, and actors;
- **Translation and interpretation** of a play (from a text), or some guiding ideas, into action, enabling and constraining the performance in time and space;
- **Composition, casting and enrolment** (Callon 1986) of actors, definition of their role and associated characters (identities, actions, interactions);
- **Design of a scenic space and its production**; this process encompasses scenic elements, props, wings and set pieces, lights and sounds, which also have an active role in the staging, and their assembling (bounding them together in order to enable the performance of the actors on a scene);
- **Planning for rehearsals and performances**;
- **Responses and navigation to unforeseen events**, change of players and set pieces, adjustments based on reviews and receptions between rehearsal and performance.

Clausen, Dorland and Pedersen ask who and what is staging, and propose not to limit a priori the answer to the original text and the stage director, but to include also the different human actors and

¹ Furnishings and other large or small items which are not part of the scenery, among which hand props or personal props which are kept in an player costume.

scenic elements. The theatrical metaphor of staging invites to consider the composition, casting and enrolment of actors and scenic elements, but also the design of sociotechnical spaces (Clausen and Koch 2002; Clausen and Yoshinaka 2007) and their boundaries (i.e. who and what is invited to the stage and who and what are left outside). All these components, their composition, and assembling would influence the potential performance. In this sense, staging is concerned with how diverse actors, material objects, and ideas are drawn together in a common space to enable a performance.

Staging involves multiple actors. Traditionally, focus is put on the *stage director* (Pluta 2017) who designs the stage, with the help of a scenographer, and guides the translation of the script into a performance. It also involves a *stage manager* who finds props for the production of the spectacle, organizes their realization, test and reception, organizes their disponibility in space (on the stage or in the backdrop) and time (for use in the right moment) and their manipulation. This means planning the mobilisation of technicians and operators, and inspecting every detail prior to rehearsal and performance to ensure every part is ready to be used. During the performance, the stage manager must watch what is going on, anticipating potential incidents and reacting to unexpected events. Finally, after the performance, to ensure that everything is at its exact placement, in good condition and ready to be re-used, and maybe managing their repair and maintenance. Following these processes helps to understand that a performance is not so much the “simple” execution of a written piece or the following of guidelines, but their local and situated application (Suchman 2007) and the resulting shaping and staging of encounters between multiple actors and scenic and non-human components. Thus, staging relates to how the performance is prepared and arranged; it refers to the actors who are invited onto the stage to frame creative ideas.

All these practices observed in theatrical experience are potentially useful to think about design as a collective, cognitive and material activity. The different chapters in this book are dedicated to specific aspects of design and innovation exploring heuristical potentials of the theatrical metaphor. Various aspects we just mentioned here of the theatrical experience demonstrate their relevance for design and innovation.

In chapter 15, Dominique Vinck and Mylène Tanferri will return to the metaphor of staging in order to point to its risks and limitation and then to enrich the notion thanks to both a field study on staging a performance and a literature survey on the theatrical experience. Learning from both field observation and the history of theatre, the chapter extends the perspectives on staging and draw up some lessons from the book. It reports on theatre's practices and evolutions highlighting its diversity and thus avoiding speaking about staging as a homogeneous reality and being trapped by a simplistic metaphorical reference.

And in the same way as chapter 15 take stock of the fruitfulness of the metaphor, Clausen and Yoshinaka in chapter 16 offers a reading of the contributions across the book chapters from a shaping of design and innovation perspective, asking what staging actions can be identified across the book.

Use and conceptualization of staging across the book contributions <a> (Main section, 4500 words)

The book presents a coherent collection of research papers where staging has been practiced, studied, and reflected upon in a variety of settings such as technology and product development, system transitions, organizational development, and the development of infrastructures and city life. The ideas published in this book is to a large extent based on a research environment engaged in the development of a new engineering curriculum informed by STS and engineering design principles at the Technical University of Denmark from 2000 and continued at Aalborg University from 2012

(Brønnum and Clausen 2013; Clausen and Gunn 2015; Clausen and Yoshinaka 2007; Dorland et al. 2019; Hansen and Clausen 2017; Jørgensen and Sorensen 2002; Pedersen 2020; Petersen and Buch 2016).

The collection offers theoretical and conceptual developments and empirical cases concerned with the staging of collaborative and cross-disciplinary design and innovation processes and together illustrates this *new actionable perspective on the staging of design and innovation*. The various chapters are thus relevant for engineers, urban planners, designers, product developers, and the increasing number of hybrids that combine the different professions. As it also pushes forward the study of design and innovation activities regarding their own shaping, it is also a contribution to academic research on design and innovation.

Thus, the book contributions address two aspects of staging. One is concrete guidelines and heuristics based on rich empirical cases that can potentially directly inform practitioners of ways to do things. The other aspect is conceptual developments resulting in concepts and ideas that can act as sensitizing devices for understanding different aspects of staging. Staging as an analytical notion invites to push further the investigation on various unseen processes like the invitation to stakeholders or their equipping (see Chapter 14), and as a consequence nurtures further guidelines.

All the contributions are sustained by case studies. Some have the nature of action research where the authors actively exercise the staging approaches; some authors are practitioners from the field itself, while others study the staging efforts of others. Some case are longitudinal spanning months or years, while others take outset in one or a couple of delimited events. This diversity helps to explore different aspects of the staging when design and innovation are under study. It leads to point the identification of a variety of processes which need to be considered, explored, documented and critically evaluated.

The book starts out in Chapter 2 that as mentioned explores the three structuring approaches that staging here builds upon, mapping a first collecting understanding and conceptual frame, leading to a repertoire that the contributions of the book can draw upon. Broadly the chapter sketches out a repertoire for action and insight composed of four aspects. First, the possible space or scene for staging that involves a process where a stage director designs or identifies a scene and invites actors, as well as the actual play that entails facilitation, navigation, reframing and other activities in the performance of staging (Pedersen 2020). Secondly, the role of objects and materiality for interactions, also involving configuring the space to construct agency for different types of activities (Dorland et al. 2019). Thirdly, the travel of knowledge, narratives, discourses, and other aspects related to understanding and awareness that is essential for design and innovation. And lastly, the theatrical metaphor that can be seen as a sensitising device that acts as a unifying imagery that allows for navigational considerations. The conceptual frame and outlined repertoire are flexible, and the book chapters use it in many different ways, and in the rest of this chapter we will present the different approaches to staging related to the core sections of the book:

- Section B: Staging participatory co-design with multiple actors
- Section C: Staging changes in networks and organizations through design of spaces and events
- Section D: Staging interactions between research and innovation
- Section E: Staging experimentation and learning

The case studies supporting the study of staging refer to different sectors. In the book, they mainly concern **healthcare** (Pedersen & Brodersen in Chapter 3 on insulin conditioning and distribution, Sanders in Chapter 4 on service design and delivery, Pedersen & Brodersen in Chapter 5 on

technology at a nursing home), **sustainable development** (Clausen and Gunn in Chapter 7 on indoor climate practices, Huulgaard et al. in Chapter 8 on transition toward circulation economy, Dorland in Chapter 6 on renewable energy, Jensen in Chapter 12 energy practices in households), **industry** (Brønnum and Clausen in Chapter 9 on product development, Bates and Juhl in Chapter 10 on public-private development project and knowledge infrastructure, Bates in Chapter 11 on the transition from invention to commercialization), and **urban development** (Johansen and Lindegaard in Chapter 13 on urban nature, Hoffmann and Munthe-Kaas in Chapter 14 on urban planning), but, of course, the approach would be relevant for many other sectors in industry, services and social innovation (Dorland in Chapter 6).

***Section B: Staging participatory co-design with multiple actors ***

This section contains three chapters applying participatory design within healthcare in relation to network building and product design in different ways. The healthcare context is characterized by being comprised of a complex array of multiple and diverse technologies and actors like hospitals, general practitioners, pharmacies, patients and national health institutions. Furthermore, institutions play a central role and regulatory structures frames what is possible to change (Kensing et al. 2004).

The first chapter in this section Pedersen & Brodersen (chapter 3) illustrates staging through a case on the development of an insulin system in India by two design engineers, involving diverse actors from a company as well as representatives from the local healthcare sector and diabetes patients in the Indian slum areas of New Delhi. This is done through a series of workshops, with a focus on developing the network and relations and not the physical products and contributing with a conceptual framework and staging guidelines for using it. Sanders (Chapter 4) illustrate how a facilitator can use a co-design approach to stage different levels of engagement in the front-end of the design process ranging from an intensive one-time co-design event to a co-design culture with participatory relationships that grow over time. In contrast to Pedersen & Brodersen (Chapter 3) this chapter focus on design of material artefacts and is based on decades of experience and not a specific case, illustrating a more hands-on and down-to-earth chapter contributing with specific guidelines. Lastly, Pedersen & Brodersen (Chapter 5) contributes with a case on a design process of healthcare technology by a group of design engineering students at a nursing home that questions the complexity related to the involvement of multiple actors in collaborative design processes. The chapter employs an interesting methodology that show how students design and circulate objects for negotiation with elderly citizens with dementia and their caregivers that helps further the conceptualization of front- and backstage in design processes.

In the design setting that these chapters illustrate staging relates to how a co-design activity is prepared, framed and arranged (Brodersen et al. 2008), and refers to how actors are invited onto the stage to frame problems, negotiate concerns, and enact circumstances using props such as design games, mock-ups and prototypes to form narratives (Brandt et al. 2005; Iversen et al. 2012; Pedersen 2020). Thus, casting the actors, inviting them, designing the props and having an idea of the object of negotiation is part of the staging, and the role of objects is essential for sharing knowledge and mutual learning.

This is especially well illustrated in Chapter 5 that contributes with the conceptualization of a framework focusing on the back- and frontstage that focuses on the development, inscription and circulation of intermediary objects that brings insight on the iterative negotiations of both the matters of concerns (including emerging ones) and solutions. The chapter also conceptualizes a new type of *fluid* intermediary objects that continuously evolves but remains back-stage. Examples include

objects such as affinity diagrams and design specifications that have the potential to represent actors' concerns and thus at the same time also frame the solution space. They also inspire and frame front-stage activities while bridging the gap to the conceptualization of solutions. This framework acts as a sensitizing device and enhances our understanding of the design process. This could be translated into specific guidelines like Sanders (Chapter 4) which are object-focused through a term called embodiments. The basic components of the guidelines are the actors, the place, the plan, and these embodiments that emerge in the execution of the staging plan by the actors in the place. Sanders use these embodiments of participatory prototyping to engage the participants and facilitate the events, which are a special type of co-created objects that range from dreams, ideas, and concepts to full scale physical embodiments. Chapter 4 and 5 together thus provide a package of concepts to enhance understanding of the process and practical guidelines for planning and execution.

Pedersen & Brodersen (Chapter 3) provides both conceptualization of a framework termed 'staging negotiation spaces' that entails an iterative process of negotiations and reframing in the creation of new networks and guidelines for staging them. In contrast to the two other chapters the focus is thus more on the relational aspects. The chapter shows how the circulation of objects in as well as between spaces plays a central role in network building. The focus is thus not the physical products that flow in the insulin system, but the creation and development of the relations between the involved actors.

The chapters thus contribute to staging in different ways. Chapter 3 see the staging metaphor as encouraging to explore design and innovation as an iterative series of temporary negotiations with multiple of actors, breaking with the perception of design as a linear process that can be planned, and with the users as passive audiences. Sanders in Chapter 4 see staging as planning and facilitation of events, not drawing explicitly on the metaphor, but contributes with insight on different levels of engagement ranging from what can be achieved in a one-time workshop compared to a process spanning several events. Lastly, Chapter 5 takes the metaphor literally focusing on the front- and back-stage and what it implies, a clarification that is very relevant because many biases and unintended consequences in design processes like gender bias originate from the design of the prototypes and the inherent scripts presented to users. The framework bring attention to the fact that prototypes designed back-stage can be intended to support the front-stage design process, and the focus this conceptual framework brings can help to challenge such biases.

Section C: Staging changes in networks and organizations through design of spaces and events

Staging has increasingly been a topic in relation to transition design as well as organizational- and systemic change which often operates of a different scale than participatory design. This next section focuses on the development and change of organizations and networks in relation to transition processes in society, and thus focus on development over long periods of time. The difference to the previous section focusing on instances of development and design, is an increase in the temporal scale and number of actors to focus on the process of organizing, of creating or changing organizations and society.

Dorland (Chapter 4) takes a marriage of organizational theory, STS (Science, technology, and society studies), and participatory design and applies it to a study of how the founders of two local initiatives of international social innovation networks go from an idea to creating a network, and over time formalize into organizations, as well as adapting and surviving over time despite set-backs. The chapter is a study of how staging structured organizational dynamics for maximum societal impact

can be done, resulting both in practical guidelines in the form of strategies for organizational development as well as conceptual developments on the back and front-stage focusing on the activities taking place between performances. Clausen and Gunn (Chapter 7) is based on the similar social shaping perspective, where a major concern has been with the identification of situations and spaces where the shaping of technology could be analyzed and political options and choices investigated (Clausen and Koch 2002; Russell and Williams 2002). The chapter takes outset in a case on engineering indoor climate in the building sector, studied through a series of workshops staged by researchers with engineers from different companies, with the intention of designing a transition, i.e. having an impact on the practices of engineering indoor climate in the industry. The chapter gives insights on the outcome of such workshops and contributes to the development of 'temporary spaces' as a concept for staging. Huulgaard (Chapter 8) takes a similar approach building on this concept of temporary spaces, in a case where a research is trying to facilitate a transition to circular economy in an engineering company through the deliberate design of the contextual setting for experimentation. The contribution is mostly conceptual, pointing to the cumulative learnings and circulation between spaces that allows adapting the staging approach, and illustrate the importance of taking advantage of emergent openings to create temporary spaces where it is possible for actors to experiment.

The focal point of the section is the 'spaces', referred to as temporary spaces, sociotechnical spaces, or events, and the activities taking place between them. These spaces or events are by Dorland (Chapter 6) seen as scenes, where the performance that has been staged and rehearsed between the events plays out, and the analysis focus on events that over time form a structure through the objects the interactions in these spaces produce like contracts, statues, videos, reports, action-plans etc. A crucial feature of this analytical perspective is the focus on actions and activities, in contrast to actors. And in contrast to Huulgaard (Chapter 8) and Clausen and Gunn (Chapter 7) many of the staging efforts identified in the chapter relate to the activities between spaces, to prepping allies, negotiating concerns, creating ideal conditions for the type of output aimed for etc. Clausen and Gunn stage temporary spaces to enact knowledge by bringing in objects like narratives and field studies to challenge and reframe taken-for-granted understandings in the industrial field of indoor climate, to make the production of specialized engineering knowledge more participatory. The staging efforts here focus on bringing attention to political processes in the creation of boundaries delimitating but also enabling certain innovation processes, and the temporary spaces concept is further developing as a focusing instrument and sensitising device for studies of the staging of innovation to have a transition impact. And Huulgaard lastly illustrate temporary spaces as an approach for enabling interaction and experimentation between stakeholders in a company setting. The case show the importance of leveraging the opportunities that arise in an uncertain and ever-changing field of opportunities, helping to conceptualise a form of flexible and emergent staging that can inspire practitioners working with sustainability in companies.

The contributions in this section is insight on political processes and how objects can be staged to help knowledge move across boundaries (Chapter 7), practical insight on navigation in a company setting by taking windows of opportunity in staging and enabling cumulative learning between spaces (Chapter 8), and a macro-level perspective with cases spanning several decades and a process view on organizations through adoption of the 'action-net' concept, that together bring insight on strategies and practical approaches when creating or developing organizations especially in relation to social innovation and social movements (Chapter 6).

Staging itself is understood very widely in the section. Dorland conceptualizing on the front- and back-stage as well as scenes, in relation to understand the ongoing interactions in developing

organizations. He further juxtaposes staging with that of sensemaking, where staging is the overt and strategic effort and sensemaking is an analytical concept employed to understand the interactions between actors. The staging efforts, the rehearsal, taking place behind the scene to a large extent are efforts to have an impact on the sensemaking process happening during a performance. Clausen and Gunn as well as Huulgaard also understand staging as an overt activity, but use the metaphor itself more lightly, seeing it as mostly a sensitizing device for use in planning and preparing ‘temporary spaces’.

Section D: Staging interactions between research and innovation

The concept of staging has also gained attention in engineering design. For instance Andreasen, Hansen & Cash (2015) dedicates an entire chapter of their book *Conceptual Design* to staging where they not only assign staging to be an important skill of the individual designer but also to the design team. This section has chapters focusing on product and technology developments in various engineering companies with object and practice focused perspectives. The three chapters work with objects and materiality in staging as well as the political processes in mature engineering organizations, contributing with strong empirical illustrations of how staging unfolds. The chapters also conceptualize various terms like development constitution and referential alignment that helps to understand the sociomaterial configuration inherent to this type of organizations.

The first chapter by Brønnum and Clausen (Chapter 9) studies how the Front End of Innovation (FEI) and development activities aimed at developing new ideas and product concepts ‘in front of’ the product development activities are enabled by project managers, based on an in-depth study of a development project in a mature engineering company. The chapter conceptualizes FEI as a development space and focuses on staging as a political process aimed at enabling explorative and more radical innovation. Bates & Juhl (chapter 10) in the next chapter focus on the ‘what, how and why’ of staging in a case of a public-private technology development project involving technology tests and the associated industrial-academic hybrid production of knowledge. The focal point is on the project manager that is also one of the authors of the chapter, providing practitioner insight, and the object of staging is a test setup with an intention to create a knowledge infrastructure that can align the interest of the involved partners. Bates (Chapter 11) continues the focus on objects in engineering design and development, contributing with a strong auto-ethnographic empirical case study on the active use of ‘intermediary objects’ in the practices of managers tasked with staging transitions from invention to commercialization. The chapter focuses on the creation and staging of these objects, which might be a whitepaper or business case, contributing with practical insight for engineers and managers involved in commercialization of innovation.

The two main aspects in this section are the materiality and objects in engineering practice, and the political processes of development organizations. Clausen and Brønnum focus mostly on the political processes through the further development of a concept called ‘constitution of development’, and the chapter contributes with four different strategies for how aspects of such a constitution can be enacted in various ways to create different types of development spaces, which is the object of staging in their case study. Bates & Juhl focus on the material aspect with a case on a test setup for a new non-petroleum lubricant, which was a key object critical in the early connection of partners around ‘common performance criteria’. Through the process of establishing the involved interests and configuring a new process of knowledge production, the test setup represents a type of knowledge infrastructure that the chapter conceptualizes as ‘referential infrastructure’. This concept focuses on how to enable knowledge artefacts and processes to refer between different material, organizational,

local and temporal settings. It is a complex conceptual development that also operates with several distinct object types that gives insight to how project managers can stage with material artefacts. Bates (Chapter 11) in the last chapter focus on both the political processes and materiality in engineering, in a case study on a technology development project following the messy translation processes taking place when going from invention to commercialization. The chapter focus on how objects can be used for staging within engineering management practice, focusing on the practical experience in project management and the insight that can be drawn from it. This analysis leads to several practical insights for engineers that can enhance their means of actions and navigate the complex process of negotiations with other actors.

Staging as understood in these three chapters is seen as both the strategic planning and preparation, the performance, and the outcome, with a strong focus on both material objects and political processes. None of the chapters draw strongly on the metaphor itself, but especially the two first chapters contribute with new conceptual developments enhancing the action-oriented approach to staging, while the last chapter finish with a case illustrating several of these insight in practice.

***Section E: Staging experimentation and learnings ***

The last section of the book focus on staging urban living and planning through interventions and experimentation like living labs, workshops, and other types of spaces, and is thus relevant for both governance and transition research. The chapters work with very different temporal perspectives, from Johansen & Lindegaard (Chapter 13) who conduct two workshop within months of each other, to Jensen (Chapter 12) that work intensely with energy practices in households over several months, to Hoffmann & Munthe-Kaas (Chapter 14) that draws on 50+ year perspective of urban planning.

Jensen (Chapter 12) show how researcher can stage interventions in resource-intensive practices through Living Labs, discussing the different steps involved in staging Living Labs in Denmark, and what a practice theoretical understanding contribute with to the concept of staging. Staging is seen as the strategic planning of these Living Labs with a focus on social and material practices. Johansen & Lindegaard (Chapter 13) look at interventions in relation to the bureaucratic practice in the realization of a strategy for urban nature in the City of Copenhagen. The operational definition of urban nature changed significantly between different locations in the organization, which was seen as a challenge. This resulted in an interest in exploring the concept of urban nature, leading to a series of workshops planned and facilitated by the researchers exploring existing ideas and practices while simultaneously challenging existing problematizations. Hoffmann & Munthe-Kaas (chapter 14) continue the focus on urban planning based on three cases on facilitating experimental spaces staged by the authors, arguing that the field is dominated by hegemonic modernist ideas that frame how lives can be lived, and opening the planning processes up through staging processes that attempt to make the ordinary controversial can point towards alternative ways of living in cities in the future. Using the concepts of ‘ontological choreography’ and ‘agonistic pluralism’, they especially emphasize the need to carefully craft the ‘invitation’ to the stage, which they explore through different devises, and to inspire and challenge dominant perceptions of urban life and futures.

The focus of this section is strongly on staging experimentations and facilitating learning through spaces that aim to have a specific impact that changes current practices and conceptions of specific actors. This contrasts with the spaces in section C that focus on developing objects that over time create new networks or change old ones to have an impact on the development of organizations and society. The three chapters in this section however approach this challenge very differently. The intervention staged by Jensen was initiated and guided significantly by the researchers, which is a

contrast to participatory design approaches in section B, and the practice theoretical perspective was heavily engaged in framing the spaces as well as configuring connections between those who were invited on to the stage. The practice-theoretical perspective offers *different* explanations and thus different related *spaces for change* in contrast to behavior change theories that rely mainly on rational consumer choice models. In contrast to the other staging approaches represented so far, the practice-theoretical perspective focus on the continuous activities of daily life, here the practice of washing clothes among others, and not on a one-time performance like a specific product development project. The focus is thus moved away from the planning and rehearsals of a play, to the ongoing performance of everyday life. The Living Labs is staged to bring the researcher closer to this everyday life, where many other design approaches focus on short-term interaction in the design phase. Johansen & Lindegaard illustrate a more delimited approach with two workshops that try to bring insights to the participants on their own practices by challenging and exploring conceptions of urban nature inside the organization. The two workshops led to a reevaluation of organizational actor positions in urban nature planning and revealed how researchers, the subject matter, and other actors could be shifted to new positions, enabling new agencies. The chapter illustrates a very practical approach where physical objects are brought into the workshops to represent nature in different ways. The chapter also challenge the metaphorical notion of staging by introducing the notion of environmental theatre as a guide for the preparation, execution and interpretation of these workshops. Lastly, Hoffmann & Munthe-Kaas represent a conceptual approach focusing on the aspect of the invitation, based on the development of the ‘Thinging’ concept emphasizing how urban places and processes can be understood as spaces of controversy and democratic exchange rather than problems that have correct (engineered) solutions. By seeing urban design as a Thinging practice Hoffmann & Munthe-Kaas find that new spaces can be opened for the political to be (re)introduced in urban planning, and they explore how staging can be developed as an approach to create Things which can engage a multiplicity of actors in the development of the cities of the future. The chapter thus contributes with an analytical frame developed to focus on how the crafting of invitation matters for the stakeholderhood; Who is invited on the stage and what futures can be explored? The chapter provides insight on how different invitational devices configure participation differently.

**Reflections - How staging is understood and used **

Across the different chapters, the focus on staging led to different observations and identifications of dimensions and processes, according to specific dynamics of the cases under study and to the objectives and ambitions in the cases. Furthermore, the ways to think about staging ranges from a metaphor used as a sensitizing device but otherwise only loosely coupled, to both action-oriented and analytic frameworks building heavily on the theatrical vocabulary. The lingering question is what is staging, what may it perform, and what motivates its application by practitioners?

The converging contribution of all the chapters is that they show staging as something overt and strategic, often relating to casting and involvement of actors, planning and preparing events and workshops and other types of spaces, but also to the creation of objects as a form of props that form the conditions, actors equipping, and infrastructure for an envisioned development.

Staging broadly refers to ‘setting the stage’, but as pointed out by Vinck and Tanferri (Chapter 15) the rehearsal is important not only as facilitation during the play and the final performance, i.e. when a product enters daily practice for instance, but also for the preparation of design activities themselves. Not only spaces, events and props but also the involved actors in design activities need to be equipped and prepared through specific rehearsal of design activities. If one chapter focus on one aspect or

another, often relates to the temporal and spatial scale of the cases. As Dorland (Chapter 6) focus on creation and development of organizations over decades, the rehearsals and back-stage planning take the high-seat, while the facilitation during the specific events where the play unfolds are largely black-boxed. Jensen (Chapter 12) likewise illustrate the focus on rehearsal and stage-setting by preparing props and actors to steer the ongoing play of everyday energy practices.

What staging performs, broadly, is sensitivity to how agency is constructed helping practitioners in shaping of design and innovation towards desired outcomes taking into account multiple and diverging concerns. Staging is thus an action-oriented approach to utilizing the sensitivity to agency ANT brings (see Chapter 2), and the motivation for practitioners is this awareness and sensitivity that make agency an object for staging. From reading across the chapters of this book Clausen and Yoshinaka (Chapter 16) point out that it staging is applied to a variety of problems and issues as well as the prospects for solving them.

And this final chapter (Chapter 16) reflects on the contributions and draw up up and elaborate on concrete strategies for staging in relation to the different types activities covered in the chapters. These activities range from creating workshops, facilitating co-design processes, impacting urban planning, changing practices, project management, developing organizations, navigating inside institutions etc. The findings range from very practical guidelines as exemplified by Sanders (chapter 4), to more middle-ground strategic recommendations like Dorland (Chapter 6) or development of frameworks in Pedersen (Chapter 3), to more conceptual developments and considerations like the idea of thinging (Chapter 14) and referential alignment (Chapter 10) that can act as sensitizing devices, enriching the staging vocabulary in relation to specific fields and activities. Lastly, several chapters also illustrate that theater is not just theater, it can be worthwhile to consider what type of theater is being rehearsed and played, like Johansen & Lindegaard (Chapter 13) that build on the idea of environmental theater, Pedersen & Brodersen (Chapter 3) that created a framework over improvisational theater, while Vinck and Tanferri (Chapter 15) point to the diversity of staging practices and challenges we can learn from the theatrical practices.

The metaphor is thus rich and flexible but should not be followed slavishly but rather enable reflection, and the parts of the conceptual framing and repertoire outlined in Chapter 2 of relevance depends on the context and situation, and the fruitfulness and dangers of the metaphor is outlined in Chapter 15. Chapter 16 reflects on the strategies across the book from a shaping perspective, from which the strategies can be seen as concerned with four different aspects: 1) staging applied to strategically bridge established networks to seek transitioning systems of knowledge or new innovative possibilities; 2) concerned with the political navigation and enactment of commitment of agency to emerging spaces for front end innovation and transitions; 3) deliberate development and circulation of objects through transformative spaces that can prompt articulation and representation of concerns while dealing with shifting alignments of objects as well as actors; and 4) strategies of staging as experimentation demonstrating how pre-conceived ideas can be challenged.

Above all, Clausen and Yoshinaka (Chapter 16) emphasize the role of political navigation in the wider scenery or arena where staging takes place among the repertoires of staging offered across the book, and see developing the navigational skills of the professionals in the ever-changing condition of development as crucial.

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