

Prototyping for *opening production*: from *designing for* to *designing in* the making together

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Abstract

Open and *collaborative* processes are assuming a growing role in the generation of goods and services. There is an increasing number of examples where production processes are opened, relationships between producers and final users become blurred and where *making together* represents a central strategy in generating value.

Design is increasingly involved in supporting *opening production* both in terms of developing technical infrastructures and in facilitating and nourishing processes of *making together* trying to understand how design can boost *collaboration* and *openness* in diverse fields.

In trying to contribute to the discussion about how to design for *making together*, this paper reflects on the experiences made in the establishment and running of the maker-space Fabriken in the city of Malmö, a research project where the author is involved. The focus is on *prototyping* and how it has been used to foster *collaboration* and *openness* in the *making* of Fabriken.

From these experiences it emerges how *prototyping* (the design approach), has been a fruitful way for experimenting, learning by doing and conducting small-scale interventions. Moreover, in order to account for *togetherness*, prototyping has also been used as a way of *infrastructuring* and *thinging*.

In conclusion it emerges how prototyping in Fabriken has become a compositionist tactic that can be appropriated by participants to drive their own *making* activities and shaping the space according to their needs. From this understanding a new role for the designer involved in processes of *making together* starts to appear and also issues about how to support them. From the experiences of Fabriken it emerges how design for *opening*

production should be concerned with how to *design in the making together* rather than how to *design for making together*.

KEYWORDS: prototyping, making together, infrastructuring, thinging

The rising of *openness* and *collaboration* in production processes

By reflecting on the experiences of a research project, this article aims at contributing to the understanding of how design can support *opening production*. *Opening production* accounts for the progressive emergence of *openness* and *collaboration* in processes generating goods and services.

Collaboration between stakeholders belonging to diverse sectors is increasingly being recognized as an important source of innovation. Open and democratizing innovation paradigms (Cheesbrough 2003, Von Hippel 2005) are calling for the development of new relationships between final users and producers and between citizens and public institutions. These paradigms look at open production processes as a key source of innovation.

Within the networked society (Castell 1996), *opening production* has flourished thanks to the fact that knowledge and information have gained a central role in production processes and on the other side technologies are providing social networks with the possibility to treat and manage information in a way that has never been possible before (Benkler 2006).

The combination of the growing role of information-based processes and the wide distribution of means of production has fostered the *opening of production*, which entails that processes of value creation and innovation are not anymore confined inside the companies but are involving final users and sometimes are driven directly by them (Von Hippel 2005).

The first examples of opened production can be found in the software field, where, in 1984, Richard Stallman started to work on the first open-source operating system, GNU (GNU is not Unix). After Stallman's work came Linux that introduced a highly decentralized production model based on small incremental improvements by widely dispersed people (Benkler 2006). According to the usual assumptions about volunteer projects and non-hierarchical structures, this model could not succeed. But it did. Open-software development has proved that an alternative mode of production based on shared effort and non-proprietary basis can be successful (Benkler 2006).

Later, the *opening of production* has interested also the information and knowledge sectors. Started in 2001 Wikipedia, an open encyclopaedia, counts today 10 million articles in 273 languages written by 650,000 contributors (Wikimedia 2011) and it represents a new model about how knowledge is produced and distributed. In the information and cultural sectors, *openness* has had great impact in modifying the access to the content. Alternative copyright licenses (e.g. Creative Commons) and providing unrestricted access to scholarly journal articles (i.e. Open Access) have changed the way in which information and culture is distributed.

In the last years some attempts of *opening production* have been developed also in the tangible realm, such as hardware and product development. This has been boosted by the diffusion of personal fabrication machines. These are the small-scale, low-cost descendants of industrial machines such as 3D printers, laser cutters, and programmable sewing machines (Lipson et al., 2010). Being based on CAD-CAM system (computer aided design-computer aided manufacturing) these machines offer the advantages of mass-production processes on a small-scale, empowering individuals to make (almost) anything (Gershenfeld 2005).

In the *opening of production*, *openness* refers to the availability of information and knowledge about production processes, but also the way in which such resources are generated, often through collaboration between stakeholders. As pointed out by Benkler (2006), the *opening* of processes of value generation has led to the emergence of a new model of organizing production that is:

“radically decentralised, collaborative and non proprietary; based on sharing resources (...) among widely, distributed, loosely connected individuals who cooperate with each other without relying on either market signals or managerial commands” (Benkler, 2006 p.60).

The sustainability of what Benkler calls social production (2006) relies on the generation of social bonds and recognition for the participants, making social and human capital a main feature in *open* production processes.

The idea of *opening* is affecting also “traditional” forms of production. Collaborative consumption (Botsman 2010) accounts for emerging business models in the consumers’ goods sector, where the focus shifts from the delivery of finished products to fostering sharing and collaborative practices between peers or between producers and consumers.

Moreover Lusch and Vargo (2004) have introduced a model to understand the way in which value is produced which basically describes all processes of production as collaborations. According to this model, value is not generated inside the firm but in the interactions with suppliers (Lusch, Vargo, Tanniru 2010) and customers (Michel, Brown, Gallan 2008). Collaboration is implicit in the whole process of value creation that is described not as a chain but as a constellation (Normann Ramirez 1993) where the

diverse stakeholders are bound together in producing value through exchanges of specialized knowledge and skills (Lusch, Vargo 2004).

Production of goods and services is increasingly becoming a matter of *openness* and *collaboration*, or as phrased by the track theme, of *making together*. *Openness*, as the increasing possibility for final users to participate in processes of value creation; and *collaboration*, as the emergence of new relationships between stakeholders and consequently social capital that open processes entail.

Design for making together

The increasing role of *openness* and *collaboration* in both intangible and tangible production is also influencing design, where the discussion about approaches and methods for supporting *making together* is rapidly developing.

Open design (Van Abel et al 2011) is still an emerging definition that tries to account for all the forms of design working in and for *opening production*. From the open-source design of finished goods and machines, such as the open-source ecology project (Open Source Ecology 2012), to the creation of new construction and design standards, such as Open Structures (Open Structures 2012). Beside the development of the technical infrastructures for *making together*, open design is also paying attention to how to facilitate processes of *collaboration* where diverse stakeholders are brought together.

The interest in how to support and facilitate processes of *making together* can be found in diverse design fields. In trying to manage the complexity of services, service design is looking at *making together* not only as the way in which the service is generated but also as the preferred way in which it should be designed (Holmid 2009, Agger Eriksen 2012). There is a shift from *designing for* to *co-designing with* (Agger Eriksen 2012) where *togetherness* becomes a core aspect of the design process as a way to foster *collaboration* after the design phase when the service is delivered.

This shift is present also in transformation design (Burns et al. 2006) and generally in design for social innovation (Jegou et al. 2008) which is recognizing that the only way of tackling complex societal challenges is by designing for *making together*, fostering alliances through sectors and between the bees and trees, grass-root initiatives and more established organizations that through collaboration can develop new ideas and initiatives to respond to contemporary challenges (Murray et al 2010).

A long tradition of practicing and reflecting on *togetherness* in design can be found in participatory design (PD) which “*entails collaborative partnerships and co-construction of knowledge in analysis and co-construction of changes in social practices.*” (Gregory 2003 p 62).

PD has for over than 30 years dealt with processes of co-envisioning possible futures (Gregory 2003) where users and other stakeholders have been involved in designing objects, processes and services.

However, it is important to underline how *designing together* differs from *making together* since *collaboration* at project-time does not necessarily imply or facilitate *collaboration* during use-time. In trying to understand how design could play a stronger role during use-time, in the last years some researchers in PD have begun to focus on design-after-design, which:

“shifts towards seeing every use situation as a potential design situation. So design take place during a project (“at project time”) but also while the object of design is in use (“at use time”). In other words, there is design (in use) after design (during the project)” (Binder et al. 2011 p.171).

From this perspective, supporting *making together* can be looked upon as a matter of supporting users’ activities and design during use-time. Designing for design-after-design (Binder et al. 2011) entails two main challenges: the first is about how to foster *collaboration* between diverse stakeholders (*togetherness*) and, second, how to support their design and initiatives during the use-time (*making*).

In trying to understand how design can support *making together*, this paper reflects on a case and articulates the idea of prototyping for *making together* as a compositionist tactic for *thinging* (Björgvissón et al 2012) and *infrastructuring* (Binder et al. 2011). Before deepening these ideas the case is presented.



Image 1 Fixing bikes at Cykelköket

Fabriken, a space for *opening production*

The case has been developed at MEDEA a research centre working at the intersection between design, new media and co-creation at Malmö University. Specifically, Fabriken is one of the three Malmö Living Labs which represent an “open innovation milieu where new constellations, issues and ideas evolve from bottom-up long-term collaborations among diverse stakeholders” (Björgvisson et al. 2012). The three labs are working on diverse themes (cultural production, social innovation and tangible production) becoming arenas where local actors of the city of Malmö can meet and experiment possibilities of *making together*.

Fabriken is a public workshop where people can freely access tools and machines for experimenting with technology and *opening production*. The lab has been established as a collaboration between MEDEA, the NGO STPLN, working with youth empowerment, and the interaction design company iscale1. The space was opened in 2011 and have become an arena where individuals and small organisations have the possibility to prototype in a broad sense: from building robots to learning to sew, from starting a company to exhibit art work.

Fabriken is run as a collaboration not only between the three main actors but also with the participants which are actively participating in the *making* of the space. Fabriken is continually being shaped and reshaped by the activities and emerging opportunities becoming a platform for *opening production* which is also *made together* (Seravalli 2012 b)

The building where Fabriken is hosted is owned by the city of Malmö and is managed by the NGO STPLN. On the ground floor there is a co-working facility, a room for concerts and exhibitions and a fairly big kitchen. In the cellar there is Fabriken, Tantverket (the textile atelier), Cykelköket (a bicycle repair workshop) and since a few months Återskapa (an atelier where cast-over materials of industrial production are used



Image 2 building robots at Fabriken

for creative activities with children and adults).

The space was opened in April 2011, however the collaboration between MEDEA, the NGO STPLN and the company iscale1 started one year before when a collaborative process was set up to design the space (for more info see Seravalli 2012a). After the opening, the role of the company has become progressively marginal while external actors such as Cykelköket (bicycle repair shop) and the local hacker community have become quite central in the management and running of the space. Several initiatives have been hosted in Fabriken for longer or shorter time: two fashion design ateliers, a catering company, a café for families with small children and lately a company working with urban gardening. Since several months a long-term initiative has been established in the space, Återskapa, an atelier driven by a former teacher aimed at improving people's creativity and environmental awareness by working with scrap material. Beside professional activities several participants are using the space during their free-time to build and make things and tinkering around with electronics, textiles, screen printing and laser cutting. The author has taken part in the design and the running of the space, assuming diverse roles and investigating how design, and specifically prototyping, could be used to support the collaborative making of Fabriken and the emerging of activities in the space.

Designing for *making together*: prototyping for *infrastructuring, thinging* and as compositionist tactic

As have already been pointed out, design for making together can be understood as a matter of designing for design-after-design: designing for activities carried out together during use-time. Which approaches can be used to reach this goal? The experiences from Fabriken have showed the importance of prototyping as a way to explore how to support making together.

Prototyping as testing, learning by doing and small-changing

Prototyping is traditionally one of the most established design approaches which has been defined as a way of *thinking with hands* in opposition to abstract thinking (Kelley in Brown 2009). When facing complexity, the best way to decide among competing directions is to perform early experiments to explore them: “the faster we make our ideas tangible, the sooner we will be able to evaluate them, refine them, and zero in on the best solution” (Brown 2009, p.89). The basic logic behind prototyping can be summarized as

fail early to succeed sooner; trying out ideas and activities at early stages becomes a way to explore and experiment with alternative futures (Mogensen 1994).

Prototyping can also be looked upon as way to inquire into reality and to learn by doing, it becomes a way to explore the context more than propose a possible solution.

In participatory design prototyping has been used as a way of making tacit-knowledge more explicit and foster dialogue between diverse stakeholders. Through mock-ups and prototypes diverse practices can be explored becoming a way to establish a design game through which a process of mutual learning between the involved stakeholders can be established (Ehn 1988). In learning by doing prototyping can also be aimed at provoking, as stimulate an action, through a concrete experience (Mogensen 1994). Prototyping as *provotyping* becomes a tool for investigating the context by stimulating reactions and sometimes challenging what is taken for granted.

In complex situations, however, actions change the context and prototyping becomes not only a way to test ideas and provoke but also a way to actually implement a solution through small-scale interventions and iterations. This perspective has been developed by Hamdi (2004) who has worked for long time in city planning. He stresses the importance of small-actions inside a broader strategy as a way to take into consideration the progressive evolution of the context with the opportunities but also issues that can emerge. In this understanding prototyping becomes a way to cautiously progress in the *making*, by taking small steps and each time try to understand changes in the context and how to keep on.

These three understandings of prototyping allow to introduce the reasons why it can be considered a central approach in designing for *making together*.

First, prototyping can be used in its more traditional understanding as a way to test the *making together* by creating occasions and events where diverse forms of *opening production* can be tried out. In setting up Fabriken, for example, a key role has been played by events, which were aimed at attracting diverse groups of participants to the space. These events have allowed to test diverse roles and forms of collaboration between the three initial stakeholders and also to try out how participants could have a role in the *making* of the space (for more info see Seravalli 2012a).

Second, prototyping has been used as a way to provoke by carrying out small interventions to challenge the current understanding of the space. For example, a small collective vegetables' garden has been established by the author with other participants in the spring 2011 to challenge the common understanding of what kind of production can be carried out in a maker-space.

Last, the *making* of Fabriken can be looked upon as a series of small-scale interventions where the space has been growing organically through prototyping. Through iterations of initiatives and experimentations with new activities, the space has been shaped with an

approach where project-time and use-time are merged. In this perspective Fabriken is designed through the *making*.

However, prototyping presents two issues when confronted with *making together*. The first one is related to the fact that prototyping is usually a temporally limited phase of a project which comes to a closure when a final solution is identified. The second issue is related to how in supporting *togetherness* prototyping can be carried on as a collective action.

Prototyping for *infrastructuring*

As mentioned, prototyping usually represents a temporally limited phase of the design process that aims at identifying and implementing a final solution. In designing for design-after-design, however, it is obvious how this approach can limit the possibility to support design activities during use-time. Even if Fabriken has been built through the *making*, which means that activities have shaped the space, the problem resides in keeping this process on going so that new initiatives coming into the space have also the possibility to reshape the space according to their needs and requirements. This dilemma highlights the difference between building an infrastructure from *infrastructuring* (Binder et al. 2011). While the former is the activity of designing (and making) a defined structure addressing specific uses and communities of practice (Lave et al. 1998), the latter entails the creation of under-defined structures that can be continuously restructured at use-time for supporting emerging activities (Binder et al. 2011). *Infrastructuring* is aimed at generating:

“a socio material thing (which) is relational and becomes infrastructure in relation to design (...) in use. Hence this infrastructure is shaped over extended time-frames (...) by users as mediators and designers “infrastructuring” in ways never envisioned at project time” (Binder et al. 2011, p172).

In *making* Fabriken, this has meant to shift to an approach where the space is considered as a permanent prototype that can be transformed and shaped by the activities entering and developing in the space. In this way, not only the three initial stakeholders but also the participants are involved *together* in continuously designing and re-designing Fabriken, trying out new possibilities and activities. This approach allows for *infrastructuring* to emerge and continue, making the space living in a continuous evolution.

Prototyping for *thinging*

The second limit of prototyping relies in accounting for *togetherness*. Usually the designer develops the prototype and participation is limited to the use and experience of the prototype. For example in the initial phases of designing Fabriken some workshops

around diverse forms of production were organized by the three stakeholders in order to test possibilities and opportunities. However, we soon realized that these kinds of events were keeping the participants in a role of passive users while we were looking for their active participation in exploring how production could be *opened*.

For this reason, we shifted to other approaches, which were aimed at supporting possible participants activities more than our ideas about what the space should be. Fabriken has been set up as an open platform for people looking for a space and support to test new activities, and when initiatives are in the space we explore how to nourish and support them. Moreover, right before and after the official opening, a number of events were organized which worked as empty structures where participants were encouraged to suggest and drive their own initiatives. Another important element has been to establish a co-working facility in the space, which works as a permanent attractor for new initiatives, and generally, involving participants by handing out responsibilities and control of the space.

What we have tried to do with Fabriken is to *make a thing* (Latour 2004, Binder et al. 2011, Björgvisson et al 2012). In the ancient Nordic societies, *things* were community gatherings where issues and matters of concern were publicly discussed. *Thinging* entails the creation of “socio-material ‘collectives of humans and non-humans’ through whom matters of concern or controversies are handled” (Björgvisson et al 2012).

In the case of Fabriken this has meant a radical shift in the role of initial stakeholders: instead of trying to define what Fabriken was in advance, even through a participatory process, we have tried to come to the public with an underdefined space and encourage other actors to appropriate and design it according to contingencies and aspirations. Instead of aiming at having a fully functioning maker-space, which could be easily done by taking formats, which have been already developed around the globe, we tried to ask questions about what a maker-space could be, and specifically how it could *open* production in the city of Malmö. Following Latour’s perspective on *thinging* we tried to move from a matter of fact, “*FFF is a maker-space*” to a matter of concern, “*what is a maker-space? How it could work in the city of MMM? Who can be involved in it?*”; involving participants in exploring the *thing* by prototyping diverse versions and functions of the space.

Treating Fabriken as a thing, that is a matter of fact (a physical space for opening production) but also a matter of concern (what does opening production imply?), means that there are multiple, and sometimes conflicting, understandings and agendas populating the space. From being a space for leisure time to experiment with electronics, to a facility for small companies, from having somebody actually owning Fabriken, the NGO, to the need, as a participant, to shape the space for your initiatives. This situation can be quite confusing, especially when entering the space the first times; it can, and actually it has generated conflicts and tensions between diverse views. However, at the

same time, it has been extremely rewarding in terms of making together: the regular participants do feel ownership over the space and the right of changing it to better suit their needs, and at the same time they feel comfortable enough to make space for new activities coming into Fabriken, sometimes looking for possible collaborations.



Image 3 Activities at Tantverket

Prototyping as a compositionist tactic

The above section argued, through the case of Fabriken, how prototyping can be used to support *making together* and how prototyping needs to work towards *infrastructuring* and *thinging*.

As a consequence prototyping can be looked upon as compositionist tactic. Compositionist (Latour 2010) in the sense that it represents a way of working with a local perspective and *making* prospects *together* with others. In the case of Fabriken, this means rather than strictly try to apply or experiment with existing scenarios and theories about *opening production*, to slowly build *together* with the participants new practices and ideas about how production could be *opened* in the context of the city of Malmö.

Fabriken can be understood as a space where participants are prototyping alternative and diverse ways of organizing production, composing practices that represent diverse prospects on production. The space is a *thing* where production becomes a matter of concern, which is explored by composing initiatives, represents a pragmatic approach to discuss how goods and services are produced and how to improve the way in which they are created and consumed.

This ongoing effort towards composing is not driven only by the designer but increasingly participants initiate prototypes in the space. In this way prototyping can be understood as a tactic (Di Salvo 2009) since it allows to broaden the participation to Fabriken composition. Design tactics distinguish themselves from design activities since the users can appropriate them and manipulate them beyond the common purpose of design (Di Salvo 2009), becoming, like in Fabriken, an approach that diverse participants can adopt to drive their own activities.

A new role for the designer?

In the previous section it has been discussed how prototyping can be used to support *making together*, both in its traditional form and as way for *infrastructuring* and *thinging*. This can imply that designers involved in processes of *making together* have the possibility to explore new roles. In the case of Fabriken, being a designer has meant to work with mainly three tasks. The first one has been about introducing the practice of prototyping to the participants. For example, a long-term collaboration has been established with Återskapa, the scrap material atelier, in order to explore through events and meetings with diverse stakeholders how to structure her project. Events in particular have represented iterations through which diverse approaches and formats have been tried out. Each event has become an occasion to explore business models, new offers and services and possible partnerships. Also when setting up Tantverket, the textile atelier, a similar approach has been used even if the results have not been that positive (Seravalli 2012 a). Transferring a prototyping approach to non-designers can be quite difficult since it means to accept that failures are positive occasions from which one can learn: if failure is related to a project where a lot of resources are invested and expectations come into play, it is difficult to consider it as something that should be welcomed.

Another role for the designer is related to keeping the *infrastructuring* ongoing. Time passing, a risk at Fabriken is related to the progressive reduction of possibilities in the space since similar activities tend to reinforce one another, moving from *infrastructuring* to having an infrastructure. The role of the designer is therefore to keep the process ongoing by trying out new activities, attracting new participants to the space and, particularly, fostering alliances between existing activities in the space.

The most challenging role is related to *thinging*, since it puts demand on the designer to lose control over the project. The designer in particular has to be able to leave space to others and to transfer ownership to the participants even if this implies that her role in the project becomes marginal. The most difficult aspect in being a designer in Fabriken has been to resist the temptation of “correcting” some participants, by explaining them “what Fabriken is really about” and how they should behave. In working towards *thinging*

and *infrastructuring* it is particularly important to let multiple visions and agendas coexist in the space even when they differ from the initial purpose. This is extremely difficult from a designer perspective since it means to voluntarily renounce from driving the design, leaving to participants that opportunity. In *thinging*, the designer has to learn to do nothing, to become a passive observer of what is going in the design process and eventually support it when the right moment occurs. However at the same time it is important that the designer is part of the space to keep the *infrastructuring* ongoing but also to find mediations between conflicting agendas, if needed.

The designer has to become able to continuously mediate and respond to the evolving situation and to restructure its activities according to the emerging opportunities.



Image 4 Prototyping with Återskapa

Challenges of prototyping for *making together*

In the previous section some challenges of prototyping for *making together* have been highlighted in relation to the role of the designer. However, this approach also presents other issues.

In relation to the participants, *infrastructuring* and *thinging* appear quite challenging and demanding. One of the most recurrent critiques that Fabriken gets is related to how the space works: nobody is really responsible for it, it is unclear how to access the equipment and what is allowed to do. Moreover, a great demand is put on the participants in terms of having an active role in designing and shaping the space. This can discourage participation by people with few resources or not so skilled who can feel that initiating an activity in the space is too difficult.



Image 5 Making together at Fabriken

Another risk is related to managing expectations towards the space and the people working there. For example, in the collaboration with Återskapa (the scrap-material atelier), it has sometimes been difficult to understand exactly what my role in the project was. Some months after we started collaborate she got a start-up financing which was covering her salary and providing the resources for employing another person and she offered me to join on a permanent basis her project. A similar situation has emerged in Tantverket where, since I have been the one who invited the founder to join Fabriken and to establish the atelier supporting her activities, it has always been problematic to understand which responsibility I had over the initiative.

The risk with prototyping in *making together* is that activities are not happening in a protected environment (as, for example, it happens traditionally in design) and if on one side this is more giving in terms of learning and opportunities on the other it is much more risky since more resources and effort are demanded. Fabriken is playing a quite important role because it partially represents a safe net for the initiatives developing in the space, lowering the threshold and risks related to prototyping activities. For example, for the small companies who do not have to buy equipment to experiment around products and services, but also for the temporal projects that use the space as a test bed for their ideas.

From *designing for* to *designing in* the making together?

This article reflects on an experience of *making together* to understand how design can support the emergences of production processes based on *openness* and *collaboration*. In developing and running Fabriken, a specific understanding of prototyping emerges as a tactic that can support *collaboration* and *openness* when *making* things, or, as in this case, maker-spaces.

From the Fabriken experience, it is also emerging a more general understanding of design for *making together*. The way in which prototyping is discussed in this article is tightly connected with the specific happenings and the evolution that went on in Fabriken. Specifically it appears that prototyping for and in *making together* is a situated practice (Suchman 1987), which entails that is inevitably connected with the specificity of the context and with whom and what is involved in the process.

From this perspective, *design for making together* becomes a matter of situated and embodied practices, which entails that it makes no sense to separate the discussion about design approaches from the specific context in which *making together* is happening. This also entails that the designer involved in the process should consider herself not as neutral and un-located professional and her methods as disembodied from the actual *making* (Light et al. 2012), but she should account for her agendas in the process as well as being able to shape approaches and methods according to the specific situation.

In supporting *making together*, the design action is not positioned somewhere outside, or sometime before, the *making together* but it becomes necessary part of the process. Moreover design becomes a collaborative practice since it is not just driven by the designer and it is continuously reshaped according to *things* emerging in the process.

Connecting back to the general discourse on *opening production*, this entails that *open* processes of value production, where diverse stakeholders are actively involved should consider the possibility for the actors to (re)design while the process is ongoing in order to adapt to the emerging issues and opportunities. The possibility for stakeholders to shape the process facilitates their ownership over it and it fosters the opportunity for stronger collaborations to emerge. However, it also creates the space for disruptive conflicts and issues to emerge.

In this understanding, designers looking for ways to support and being part of *opening production* should not be so concerned with strategies and approaches of *design for making together*, but rather with understanding how to *design in the making together*.

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