Citizen Participation in Design: Roles Evolving in the Face of Contemporary Challenges

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Recent renewed interest in participatory approaches implies a certain redefinition of the roles and responsibilities of both designers and users. The boundaries between "designers" and "non-designers" are becoming increasingly blurred, sometimes resulting in a shift towards "users as new designers". This chapter looks at how participatory design fits into the broader panorama of participation and maps out the new roles and responsibilities of these "user-designers". It examines these new roles and responsibilities through the prism of participatory modalities, particularly those deployed in the context of smart cities. Whether labeled "smart cities", "connected cities" or "creative cities", the concept of the smart city is used here only in its contextual, largely technocentric scope, where there is clearly a gradual shift towards a more anthropocentric posture. The participatory methods being tested and implemented in this context (online participation platforms, "participatory budget"- type projects and face-to-face participatory mechanisms) in turn provide an insight into the gradual but slow evolution observed in other design professions, particularly architecture.

The integration of "citizens" and then "smart citizens" into the urban fabric since the 1970s – with its successes and failures – provides a playground for experimentation and inspiration for architects. Given the history of their contemporaries in urban planning and regional development and their early involvement in advocacy planning and participatory design, architects are lagging far behind in the day-to-day integration of democratic, participatory design practices. While citizen participation has over time become partly institutionalized in the field of urban and regional planning, and has also become widespread in design's cousin disciplines, we observe that it remains very little rooted in everyday architectural practice. We see this methodological and epistemological backwardness as an opportunity to build adapted models for architecture based on the last 50 years' experience in the fields of urban and product/service design. The first essential step towards this (re)construction is a better understanding of the roles and missions of each of the parties involved.

This chapter is divided into two main sections. To begin with, section 1 provides a theoretical framework for participatory design by presenting and critiquing various models of citizen participation in design. Section 2 then draws on major findings from the scientific literature and on concrete research work rooted in the smart city field, in which citizen participation is becoming commonplace, to study the evolving roles of citizens and designers in design projects, as well as the contemporary challenges of participatory design. The chapter ends with a general conclusion.

1. Theory and critique of participatory design

1.1. Towards participatory design

1.1.1. Towards an anthropocentric landscape design

Most observers and authors today agree that the human or citizen component, or user expertise, regardless of the terminology used, is becoming one of the factors in the success and future of our living environments and territories. “Users” and “citizens” now play a much more assumed and crucial role within design processes. This contrasts with the message carried by previous models of design and development of such environments, which were more technocentric, machinist and procedural (Zetlaoui-Léger 2013; Blomkamp 2018). It should be noted that these technocentric models succeeded a vernacular vision of design, in which the designer was often themselves the craftsman, then the user of the artifact designed – a vernacular vision which, although documented, failed to leave a lasting and transversal trace during the gradual standardization and industrialization of our trades (Jones 1970). Today, we are in a sense taking a step backwards, opting for a contextual, humanistic and anthropocentric paradigm in which the active participation of users is recognized as indispensable, since they hold knowledge that is essential to the implementation of any type of project (Sintomer 2008; Blomkamp 2018). Indeed, they are the experts on their needs, uses, pasts, experiences, cultures and lifestyles, as well as on their tacit knowledge (Bjögvinsson et al. 2000; Sanders and Stappers 2008). Furthermore, they have the power to accept or reject the solutions deployed. In a nutshell, “non-designers” are today

considered to be one of the keys to the success or failure of the implementation and sustainability of any form of proposed solution, whether in response to complex systemic problems or to thorny situations embedded in a web of local specificities (Dubois and Bobillier- Chaumon 2009; Schuurman et al. 2010).

Beyond this desire to access usage expertise and "usage-centric data", championed by media movements such as Design Thinking or Open Innovation, designers today feel the need to solicit "collective intelligence". They integrate non-designers even more proximally, not only in the bottom-up process of programming by need, by usage and by problem, but also in the decision-making and/or co-design and co-production process of their future living environments (Schuurman et al. 2010; Blomkamp 2018).

Collective intelligence is defined as "intelligence that is distributed everywhere, constantly valued, coordinated and mobilized in real time" (Lévy 1994, p. 13) and as "the general ability of a particular group to perform well across a wide range of different tasks" (Williams Woolley et al. 2015, p. 420). It is therefore not a purely cognitive concept, but a social process that brings a group of people together and thus enables them to share, combine and enrich their individual knowledge (Hight and Perry 2006; Schuurman et al. 2012). Collective intelligence therefore emanates from the social interactions specific to collaborative practices such as design, including when it is open to the customers and users concerned (Dortheimer 2022).

Some research has shown that the needs translated and reformulated on behalf of users by observers, researchers and designers do not coincide with the needs formulated by the users and citizens themselves (Luck 2003), hence the need to directly access and include this collective intelligence and user expertise. One way of achieving this is to implement a participatory approach, which we will see differs from other "user-centric" approaches in that users play a much less passive role. In this anthropocentric, participatory model, users are no longer mere subjects of study, but genuine key players in the design process, right from the early stages (Sanders 2005; Blomkamp 2018).

However, integrating non-designers is not an easy task. Citizens themselves are not always aware of what they need and the problems they encounter on a daily basis (Norman 2013), or at least have

difficulty translating them into knowledge that can be appropriated by others. Sometimes, users are in the future tense, or absent (Verhulst et al. 2016). Only rarely does recruitment enable the gathering of a sample of participants that is truly representative of the variability of the target "parent" population. These are all issues whose origins can be traced back through the history of participation.

1.1.2. The need to distinguish between "user-centered design" and "participatory design"

For a long time, the world of design focused on finished products, and more specifically on the aesthetics of designed artifacts (Findeli and Bousbaci 2005). Starting in the 1920s with the Bauhaus, and particularly in architecture with Functionalism and Premodernism, the focus gradually shifted to the functionalities of these artifacts, and to the design process as a logical path to a particular solution (Findeli and Bousbaci 2005). Since the 1970s, but especially from the 1990s onwards, theories and practices have increasingly focused on the users of these objects, on their experiences and lifestyles (Sanders and Stappers 2008).

Figure 1, taken from Findeli and Bousbaci, shows this shift from an "object-centric" to a "user-centric" approach to design. In theory, the latter is often defined as "an approach that advocates the consideration of all user characteristics and needs during product development, as well as the active participation of the end-user in the design process" (Barcenilla and Bastien 2010, p. 314). Nevertheless, user-centered approaches are generally limited in practice to integrating the users' point of view without giving them an active role in the design process (Blomkamp 2018). In practice, user-centered design thus relies more on considering users as subjects of study, whose participation is rather passive and indirect (Sanders and

Stappers 2008). Experts will then access the real-life experiences and needs of citizens, users and residents by observing or questioning them, turning design into a scientific process (Sanders and Stappers 2008), sometimes even a commercial one (see the misuses and abuses associated with design thinking, for example). In this case, the user is often seen as more instrumental than a committed, participative player (Brereton and Buur 2008).

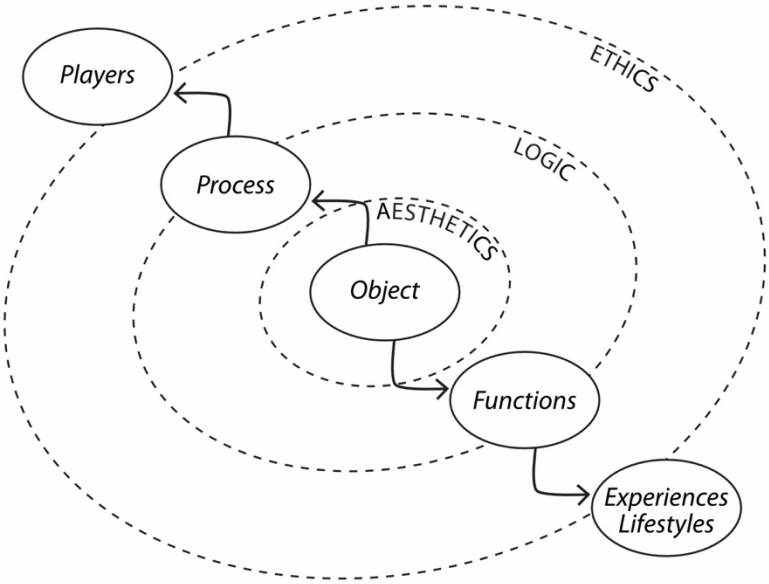

Figure 1. The eclipse of the object in design according to Findeli and Bousbaci (2005, p. 44)

Contrary to what its generalist name might suggest, user-centered design is just one way of including end-users in the design process. The landscape of approaches aimed at integrating them is much broader, as illustrated by the cartographic representation proposed by Sanders (2008). Figure 2, inspired by the author's work, organizes the different design approaches along two axes: on the one hand, the perspective of the method with its aim of either research or design, and, on the other, the mindset of the designer who can either study their subject as an expert, or team up with users (Sanders 2008). The method's "research" and "design" aims may come as a surprise, but in reality, they expand the range of possibilities – meaning that in design, users are not necessarily expected to express themselves materially in order to be participants.

In this chapter, we explore the issues of participation, namely the right half of the mapping, since we see users as active partners rather than passive informants. Adopting a participatory posture pushes us away from user-centered, emotional and critical conceptions, which are based on an exclusively expert mindset and see users as sources of information or inspiration rather than partners. It is more difficult, however, to position ourselves between the so-called "generative" and "participative" conceptions. In Sanders' initial model, these two major families are represented using the same visual coding, as they

have many points in common. In addition to the active involvement of users in the design process, these approaches both use physical artifacts as tools for reflection and communication (Sanders 2008). Nevertheless, generative design is a much more precise field of design that relies on the manipulation of different tools to generate future alternatives to current situations and visually observe the potential effects of different ideas (Sanders and Stappers 2008). Conversely, the term "participatory design" is much more all-encompassing, and in our view encompasses a multitude of methods for integrating users into design and fueling our analysis of the new roles of these "non-designers".

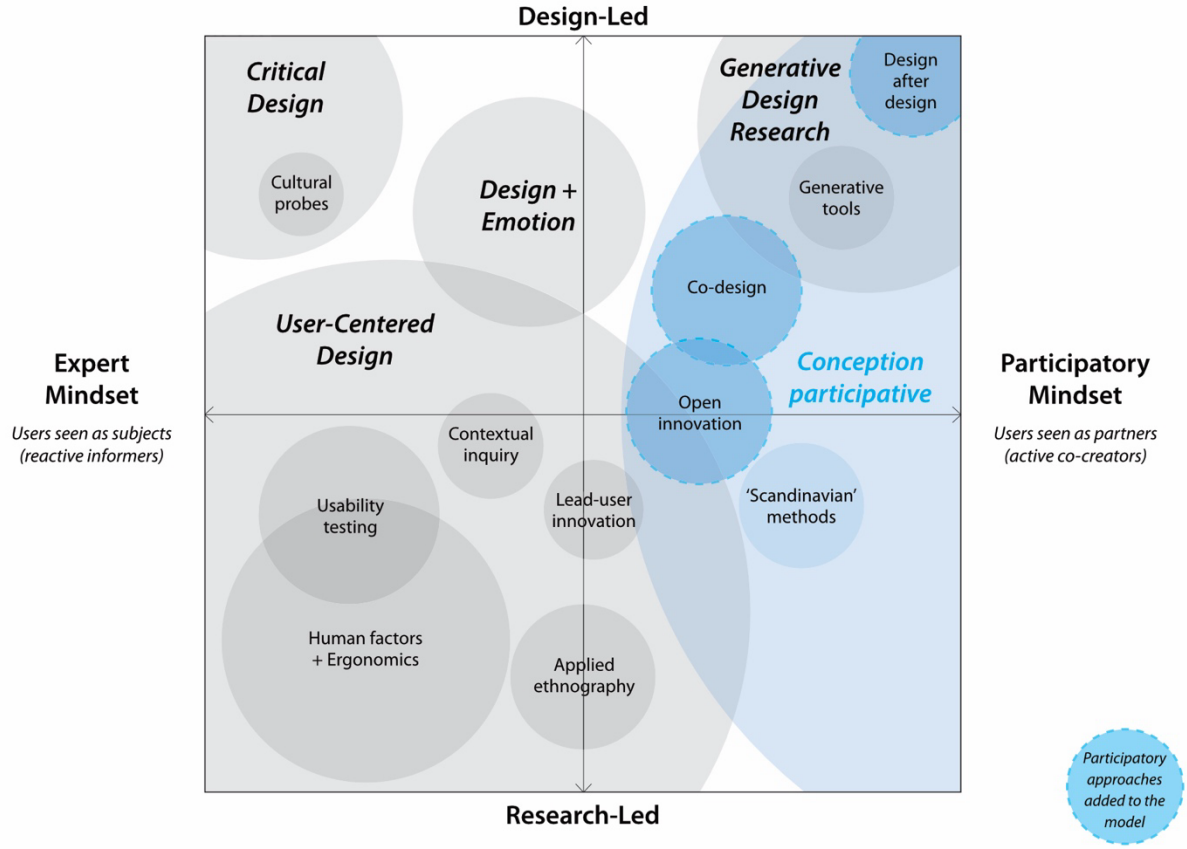

Figure 2. A map of approaches to soliciting and involving users in design based on Sanders (2008, p. 3), with the addition of three participatory approaches to the participatory design landscape in blue.

1.1.3. A brief history of participation

Over the decades, the participation of end-users and all parties involved has become quite commonplace and unavoidable in many fields (Lundmark 2018). Originally, citizen participation in public decision-

making was established in the political sphere as early as the 1960s, largely as a result of certain protest movements. The golden age of participation thus dates back to the 1960s–1970s, but the interest in citizen involvement then waned in the 1980s with the onset of a less propitious political climate (Luck 2018a). The concepts of participatory and deliberative democracy have subsequently extended their scope beyond the political arena (Maier 2001; Bächtiger et al. 2010). The public is increasingly solicited and taken into account through participatory processes in sectors such as health, the environment, urban planning, new technologies and risk management (Rowe and Frewer 2000; le Maire 2005; Lundmark 2018).

Participatory design, for its part, has been largely influenced by citizen participation in the broadest sense, and is therefore part of a participatory history spanning more than 50 years (Blomkamp 2018). Taking users into account became popular from the 1990s onwards (Barcenilla and Bastien 2010), particularly in the field of urban design, only to lose momentum again before returning to the forefront in the mid-2000s (Luck 2018a). This renewed interest suggests that participation, whatever its field, is a cyclical and complex phenomenon (le Maire 2009), whose models evolve from one era to the next as they multiply.

From the 1970s onwards, the involvement of citizens gradually became mandated by the public authorities themselves (Zetlaoui-Léger 2007). This institutionalization of participation is defined as "the dedication of funds and the enactment of regulations that make participation processes mandatory in certain cases" (Bherer et al. 2017, p. 9). This participatory imperative aims to contain the crisis of representative democracy, guard against new popular protests and recreate a climate of trust with citizens (Zetlaoui-Léger 2013). Although it aims to limit citizen action to a formal, controlled framework, the participatory injunction has the advantage of officially considering citizen participation and giving it real significance (Rowe and Frewer 2000; Castell 2016). In practice, this participatory obligation is illustrated through all kinds of arrangements (advisory commissions, citizens' panels, opinion polls or referendums) aimed at involving citizens beyond electoral periods and more in the disciplinary fields of design (Glass 1979; Blondiaux and Sintomer 2009; Damay and Mercenier 2018).

Participation is thus gradually becoming a plural and polysemous concept (Kravagna et al. 2013; Luck 2018a), which translates into more diversified approaches (Maier 2001). In the idea of a participatory grammar, different approaches combine and decline to create new, unique ones to match a specific context (le Maire 2009). The craze for citizen participation therefore tends to maintain the vagueness around its definition and implementation rather than converge towards a consensual vision (Blondiaux and Sintomer 2009; Bherer et al. 2018). This dilution of citizen participation is thus sustained by the growing interest in it, reflected in a widening repertoire of possible approaches (Kravagna et al. 2013; Luck 2018b).

As a result, there are now a huge number of methods, techniques and tools designed to encourage and support citizen participation (Bherer et al. 2018). Navigating through all these participatory mechanisms is becoming increasingly difficult as they diversify. To help us do this, the gray and scientific literatures offer numerous aids: the King Baudouin Foundation's user guide (2006) listing over 60 participatory methods, the Smart City Institute's practical guide developing eight participatory practices in the digital age (Nguyen et al. 2018) and the Montreal Urban Ecology Centre's toolbox built on concrete experiences and offering practical templates (2018). We will not go into a description or classification of all these participatory approaches here, but in section 1.1.4, we propose several avenues for understanding how they may differ from one another.

1.1.4. A gratuated approach to civic involvement

As early as the late 1960s, Arnstein proposed distinguishing participatory approaches according to the level of redistribution of decision-making power (1969). Her work gave rise to the ladder of citizen participation. This is divided into eight levels, each corresponding to an increasing level of citizen involvement, as shown in Figure 3.

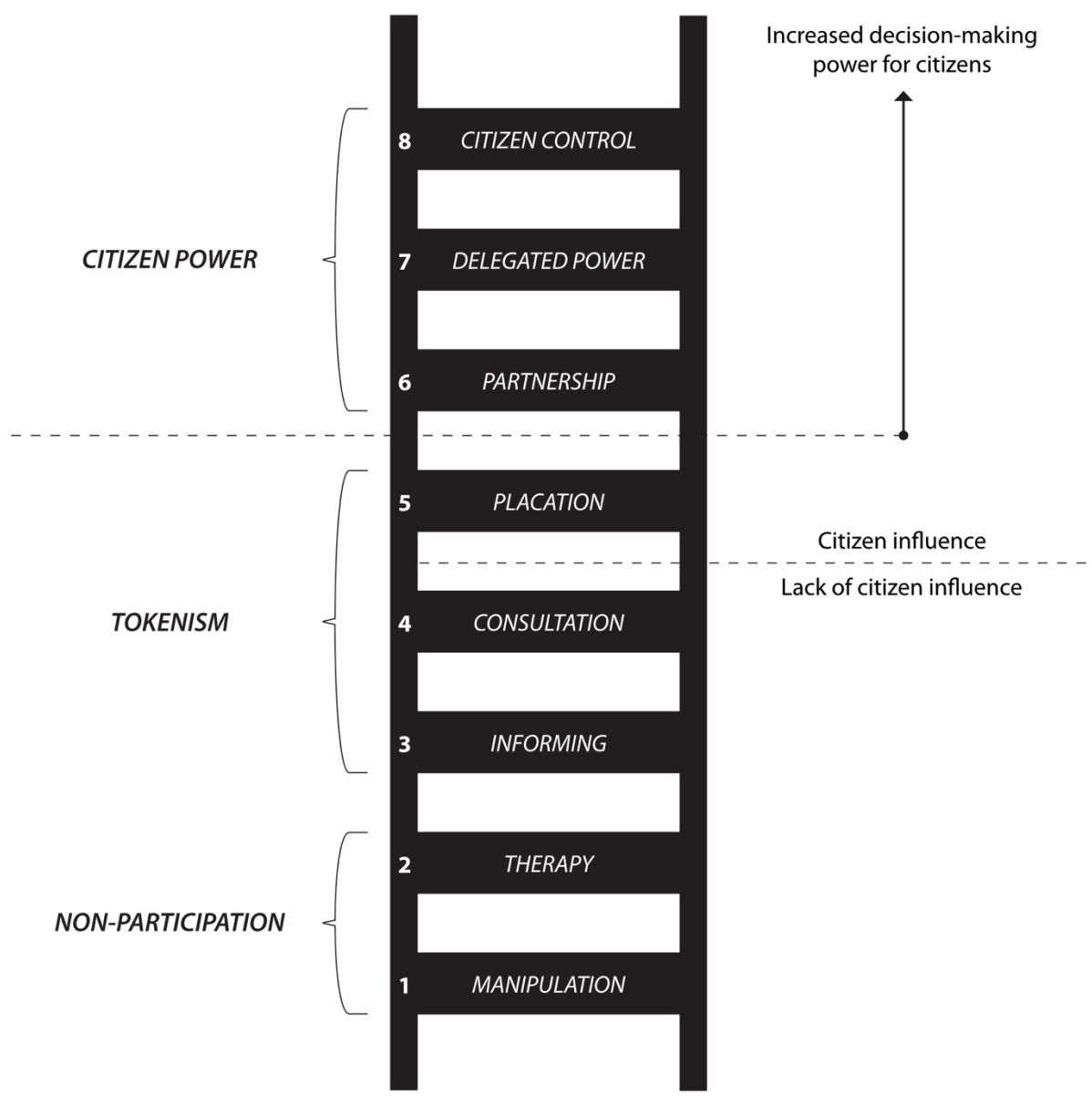

Figure 3. Arnstein's participation ladder (1969, p. 217)

The first two levels (1 and 2) correspond to non-participation. Participants are manipulated by decision-makers seeking to control their behavior and opinions, which are seen as deviant and threatening to the powers in place. The next three levels (3–5) are equivalent to "tokenism", or symbolic pseudo-participation in which users and decision-makers enter into a process of dialogue but where final decision-making remains in the hands of the decision-makers. The last three levels (6–8) are characterized by shared decision-making power. Only these three levels correspond to true participation in Arnstein's sense, but they are rarely observed in practice.

As with all models, this scale is a simplification of reality, and its author acknowledges that such a representation lacks nuance (Arnstein 1969). Although its simplicity is also its strength, the scale's linearity allows only one variable to be taken into account, in this case the level of decision-making involvement, which does not reflect the full complexity of participation (Cardullo and Kitchin 2019). Moreover, this model envisages total user power as the only desirable form of participation. Some authors therefore propose adaptations (Douay 2016; Cardullo and Kitchin 2019), while others have developed new multidimensional representations (Fung 2006; Schelings 2021), incorporating other factors such as participant selection (Who participates?), communication mode and decision-making process (How to participate?), the impact of participation (Why participate?) or its temporality (When to participate?). While there are many critics, Arnstein's model remains a reference today (Castell 2016). On this common basis, the literature nevertheless proposes other lines of thought to differentiate the various forms of participation.

1.1.5. The various forms of citizen participation

First of all, several authors make a distinction between "real" and "fake" participation. Participation is genuine or authentic when there is a sharing of decision-making power with participants who are recognized as legitimate actors (Bonvin 2013; Luck 2018b). Conversely, participation can be factitious or symbolic when decision-makers organize participatory initiatives for form's sake, but ignore the results afterwards (Arnstein 1969; Kravagna et al. 2013), or when participants do not dare deviate from the designer's vision in a co-design process (Luck 2018a). In this respect, information sessions are sometimes equated with false participation when citizens are passive receivers of information provided by decision-makers (Arnstein 1969).

Secondly, participatory initiatives can be top-down or bottom-up. Some authors distinguish between "breeding" (top-down, institutionalized) and "wild" (bottom-up, spontaneous) democracies (Reuchamps and Caluwaerts 2013). The difference between these two approaches lies in the impetus for the participatory approach, whether it comes from the public authorities or local residents (Zetlaoui-Léger

2013). Most often, the sponsors are the decision-makers and the process is organized in a top-down, institutionalized way, but participation can also result from the action of a local community in a bottom-up, unconventional approach (Damay and Mercenier 2018). By definition, a community brings together people living in the same neighborhood, street or even building, who "share common problems and resources which may be ground for collective action" (Castell 2016, p. 309). Consequently, bottom-up actions generally correspond to local projects on a (very) small scale (Maier 2001; Macaire 2009), while top-down approaches cover larger-scale interventions, on the scale of the city, or even the country or the European Union (Damay and Mercenier 2018).

Furthermore, citizen participation can be "active" or "passive". Participation is active when citizens are physically present and engaged in the participatory process, in face-to-face meetings and assemblies (Irvin and Stansbury 2004). It is, of course, possible to go one step further than conventional consultation and ensure concrete, tangible participation by inviting citizens to participatory workshops (Luck 2003, 2018b). Conversely, participation is passive when citizens have no direct contact with decision-makers or designers (Glass 1979) and are solicited via an online suggestion box or exchange information via a website, for example. The active/passive dichotomy therefore refers rather to the direct or indirect nature of the exchange between actors, and not so much to the carrying out of an action or the taking of an initiative. However, we must be careful not to confuse active participation with direct participation, which involves the delegation of decision-making power to participants, who then act as self-managers (Blondiaux 2007).

The literature therefore describes participation in terms of a series of binary oppositions which, as Arnstein already suggested, can actually be placed on a scale ranging from non-participation to total participation. This continuum can be applied in design to identify the posture of end-users in relation to that of the designer, according to a gradation ranging from "without", or even "against" them, to "by" them (Biau et al. 2013) (see Figure 4). Between these two extremes, designers can assess the impact of pre-established proposals "on" users, propose solutions specifically designed "for" them or consider them as partners "with" whom they design these solutions.

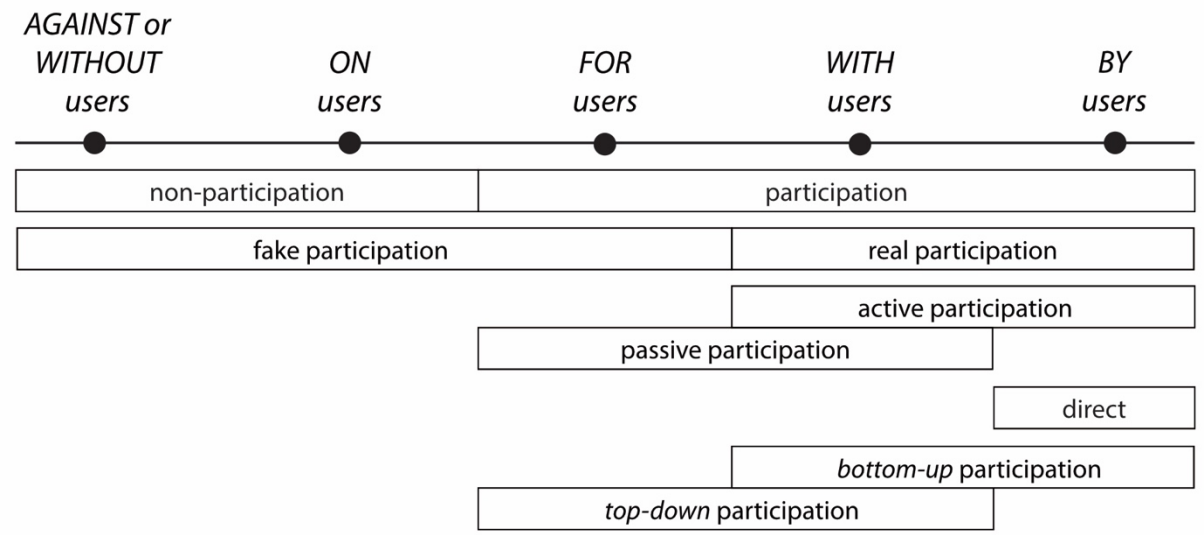

Figure 4. Participant investment continuum: without, on, for, with or by citizens (Schelings 2021)

While the positions "on" and "for" users correspond to user-centered design, the positions "with" and "by" designate user-driven design (Sanders 2008; Crutzen and Zwetkoff 2018). The egalitarian "with" posture, where both parties engage in a process of co-design or co-decision is recognized as a success factor, whereas other postures reveal the hierarchical ascendancy of one actor over the other and sometimes result in dysfunction (le Maire 2009).

Similarly, it is always a good idea to strike a balance between top-down and bottom-up, active and passive, direct and indirect schemes. While passive participation is negatively connoted and often condemned, active participation is generally praised (Irvin and Stansbury 2004). However, this "athletic conception of participation" (Bonvin 2013, p. 51) only includes the most active and motivated participants, excluding others who are unavailable or indifferent. The use of digital technology can, however, help solicit some of these different audiences, but participation is likely to be more passive (Simonofski et al. 2019). In any case, even modest participation remains worthwhile, as "silence (and therefore non-participation) is the most formidable enemy of social justice" (Bonvin 2013, p. 43).

On the other hand, when participation and participatory design become too institutionalized, they become fixed and routine processes, just like other administrative procedures (Irvin and Stansbury 2004). As a result, the involvement of non-designers loses its spontaneity as initiatives become

institutionalized and are the result of a top-down rather than bottom-up logic (le Maire 2005, 2009). We therefore agree with certain authors who insist that top-down institutional mechanisms must never replace unconventional bottom-up initiatives, but rather complement them (Fung 2006; Damay and Mercenier 2018); otherwise, we run the risk of simply signing the death warrant of participation itself.

1.1.6. Definition of « participatory design »

With the main historical markers of participation in place, we feel it is important to set out the framework and definition of what will be understood by "participatory design" in the remainder of this chapter.

The first essential element of the framework: participatory design is obviously characterized by the involvement of users, often non-designers, in decision-making and design processes, whether these processes concern political and urban issues or aim at the collective production of services, artifacts or spaces. The aim is to include future users, meaning all those concerned and affected by the project (Binder et al. 2008; Brereton and Buur 2008; Blomkamp 2018; Lundmark 2018). This involvement, as we have seen, is essential today if the artifact is to be designed in accordance with its use (Charrier et al. 2013) and in line with users' needs (Sanders and Stappers 2008).

The second element of the framework: involving users means not only inviting them to participate, but above all giving them a voice and taking it into account (Bjögvinsson et al. 2000). To ensure that the voice of non-designers is truly heard, we need to go beyond the actors' ability to show empathy (empathy of designers towards non-designers; empathy of non-designers towards absent users) and beyond empowerment, or "enabling" non-designers to participate. One principle seems essential: the willingness of designers and decision-makers to redistribute decision-making power (Arnstein 1969). Citizen participation is indeed more likely to succeed if all parties involved are firmly convinced that it is of interest and value (Luck 2018b) and are committed to taking the results of participation into account (Rowe and Frewer 2000).

The third element of the framework: there is a wide variety of participatory approaches, and those involved in participation make informed choices about methods that are appropriate to the context and likely to have an impact (Maier 2001). The existence of a very wide range of methods and tools reveals both the absence of a universal or systematic framework that would be relevant in all situations, and the need for an appropriate process for each new initiative (Kravagna et al. 2013). Whether it draws on previous experience and/or is tailor-made, the participatory method selected must be in line with the objectives (Glass 1979). With this in mind, each participatory process can offer a different degree of decision-making latitude in line with the specific context under consideration, without necessarily seeking to achieve the "citizen power" dear to Arnstein, but without falling into the trap of pseudo-participation either (Fung 2006; Tritter and McCallum 2006; Cardullo and Kitchin 2019). In the interests of transparency, the expected level of involvement must be announced to participants.

With this framework in mind, we will use Zetlaoui-Léger's definition of "participation" to construct our understanding of "participatory design":

> In its most generic sense, the term participation evokes the involvement of local residents in the implementation of actions concerning their living environment. This contribution may relate to the content of a project, and thus fall within the realm of co-production, or to its validation, and thus fall within the realm of co-decision (Zetlaoui-Léger 2007, p. 70).

This definition introduces the notion of living environment and makes participation a situated practice (Luck 2018b), which corresponds to the realities and expectations of designers. Moreover, this definition no longer confines non-designers to a purely decision-making influence dear to Arnstein, but extends it to the (co)production of solutions. In "participatory design", citizen action thus takes on a more tangible and concrete character that calls for a redefinition of its contours.

1.1.7. Participatory design today

Beyond the historical understanding of participation, there is now a growing interest in participatory design. One of the reasons for this is a certain awareness on the part of decision-makers and designers, already mentioned above: we can see in the field that users can really oppose unpopular measures, lose trust (Rowe and Frewer 2000) and lead these measures to failure. In architecture, this was the case, for example, in certain eco-district projects, where designers quickly realized that the involvement of (future) residents beyond technical considerations was crucial to support the transition to new lifestyles (Zetlaoui-Léger 2013) and thus ensure the sustainability of the model and the built system.

Alongside this challenge, participatory design also makes it possible to go beyond mere co-decision by opening up the design and production process to people who are neither trained nor theoretically empowered for it (Binder et al. 2008; Blondiaux and Sintomer 2009). In some extreme systems, even the "creative act" and "creative synthesis", generally reserved for design professionals, can be opened up and shared with all co-designers (Macaire 2009), thus overturning an entire profession.

Participants' originally militant and committed stance is gradually running out of steam: the number of mechanisms is multiplying without responding to any specific user demand, and in this way, they are becoming "usual" and sometimes even tedious. The advent of information and communication technologies (ICT) further multiplies the possibilities for participation, and over-solicited citizens no longer feel the urgency to participate because they sense that there will probably always be a subsequent initiative. Furthermore, some devices are implemented again and again only to secure a certain citizen acceptability and do not necessarily correspond to a precise user need. We have moved on from a system where citizens mobilized for greater public participation, and are now at the dawn of a participatory system that is seeking its audience.

At the same time, in the collective imagination, citizen participation is always ambitious and always seeks to climb higher on Arnstein's ladder. This recognition of citizens as actors certainly entitles them to a voice as well as tends to make them responsible for the success of the project and, at the same time,

to relieve decision-makers of some of their obligations (Blomkamp 2018). This pressure on participants' shoulders is the legacy of the ultimate echelon of citizen control ideal, which has never faded away. This ideal assumes extreme citizen involvement, even though balanced processes "with" citizens are recognized as more effective because they are based on complementary expertise and shared responsibilities. This means that citizens, too, find their roles and tasks radically altered.

1.2. Designers: a profession undergoing upheaval

1.2.1. Evolution of the architect

In the field of participatory design, we might think that there is no longer any real contrast between designers and users (Brereton and Buur 2008). We can see the gradual erosion of hierarchical relationships (Bherer et al. 2018; Luck 2018b) in favor of an apparent dilution of the boundaries between the statuses of designer and non-designer (Luck 2003; Lundmark 2018). In reality, the entry onto the scene of an additional actor, the lay non-designer participant, is accompanied by major upheavals in the architect's constantly changing professional practice (Lee 2008; Bherer et al. 2018). Rather, this integration implies not only a renewal and expansion of the designer's role, but also numerous questions about the legitimacy of the non-designer actor and the professional's positioning towards this non-designer.

As non-designers become more and more frequently and "deeply" involved in the design process, some design professionals are skeptical about their legitimacy as participants in both the decision-making and design processes. Without dedicated training, how can non-designers "take the place" of decision-makers or design professionals? The integration of non-designers into the process is still sometimes seen as a threat by professionals, who feel they are losing their authority and legitimacy (Zetlaoui-Léger 2013). Whether it be the designer who can no longer boast of being the sole creator of a work (Hill 2003) or the decision-maker who becomes the executor of the four wills of the citizenry (Biau et al. 2013), experts can thus display a clear protectionism towards their profession (Siva and London 2011). In

addition to the multiple upheavals observed in professional practice, it is also the collective culture of architecture that is evolving (Blomkamp 2018), an evolution that some architects are not ready to embrace. Their reticence in the face of such societal change thus echoes the "path dependency" syndrome, according to which everyone prefers to maintain their habits rather than confront novelty (Kravagna et al. 2013).

This defensive attitude is explained in particular by the desire to safeguard the specificity of the knowledge held by these experts (Biau et al. 2013) and by the anxiety of an extreme democratization of their profession (Bacqué and Gauthier 2011), or even its uberization, in the image of self-build projects that do without architects. In this context, taking citizens' needs into account in design is sometimes seen as a hindrance to individual creativity (Charrier et al. 2013). This loss of freedom is one of the main reasons why experts question the ability of users to participate.

Even without reaching that point, design is no longer a solitary process, but a collaborative one. It inevitably involves several players and their individual cognitive representations (Smulders et al. 2009). In any case, this implies the disappearance of "the figure of the authoritarian, visionary architect" who imposes their construction on society, to be replaced by a co-designer architect who is "modest and attentive to the particularities of users" (le Maire 2009, p. 20).

1.2.2. The main challenges of participation in design

The lack of conviction among professionals regarding the added value of involving non-designers in the design process (see section 2.1.1) is often reinforced by other challenges inherent in the reality of the design profession. While scientific literature and field experience frequently use the terms "limitations", "constraints" and "drawbacks", we prefer to speak of "challenges", as most of the weaknesses reported by authors and designers open up opportunities for improvement.

To begin with, citizen participation is generally seen as a time-consuming and energy-intensive process for all the actors involved (Irvin and Stansbury 2004; Jacquet and van der Does 2018). It is true that

participatory design requires additional human, material, temporal and budgetary resources compared to a traditional design process (Zetlaoui-Léger 2015). Thus, participation constitutes a job in its own right on the part of designers and non-designers, and their collective investment is accompanied by high expectations for the results of the process (Lundmark 2018). From this perspective, participation represents an upstream, long-term investment whose benefits should ideally justify the efforts made (Rowe and Frewer 2000). Solutions developed through a participatory process are generally more relevant and acceptable, as they respond to real needs, embody a shared vision and generate a sense of ownership (Blomkamp 2018). Conversely, the top-down imposition of solutions sometimes leads to strong resistance from users, who refuse to adopt them and jeopardize their sustainability (Schuurman et al. 2010).

Architectural practice is generally subject to a precise regulatory framework, which can restrict the implementation of a participatory approach. Design projects are bound by strict administrative and legal constraints that are defined by specifications and an architectural program imposed by the client. In the context of public procurement contracts or even competitions, the programming is in the hands of the client and generally does not involve the project team. The programming phase corresponds to "defining what is expected of a project" or "clarifying the demand" (Leonet 2018, p. 20). In practice, this is also one of the best phases for citizen participation, because it mobilizes the user expertise of citizens who can express their needs upstream of the design project (Dris and Zetlaoui-Léger 2022). However, if users are not invited to participate as early as the programming phase, and therefore as soon as the design "rules of the game" are drawn up, their participation becomes very difficult for designers to integrate, as they have no latitude to adjust and develop the predefined program. It is therefore common for user participation to be developed on an ad hoc basis, for a small part of the project where there is still room for negotiation, or in parallel with the design process, at the risk of not really influencing the final project.

Lastly, citizen participation in design sometimes raises issues of intellectual property. When design becomes a collective activity, and one that is shared by professionals and "lay people", one of the major conflicts that can arise concerns the "authorship/parenthood" of ideas (Lee 2008). It is generally

impossible to trace the ideas and information exchanged during a collective and subjective process, and no partner can claim to be the sole "owner" (Lévy 2001). In the absence of a clear division of roles, designers often play the dual role of facilitator and designer and contribute to the project alongside the participants, without either party really being able to claim ownership of the project (Lee 2008). This situation can create confusion and breach trust between co-designers (Lee 2008), as well as encourage the creation of a partnership in which all parties agree to relinquish ownership of the project (Lévy 2001). For example, as part of our research, we conducted participatory workshops at the end of which Walloon citizens proposed challenges to the teams of a hackathon. During the hackathon, the teams of hackers developed the citizens' ideas into open source technological protocepts. Nevertheless, the relinquishment of intellectual property rights must be voluntary and shared by both parties (Lévy 2001); otherwise, certain already marginalized groups may be deprived of the opportunity to appropriate and develop their own ideas (Hope et al. 2019).

1.2.3. Habitus shock of participatory design

Experts and citizens belong to two different worlds: the former to the professional world of design and the latter to the "real" world of use. In sociology, culture shock is the result of the encounter between two different cultures, which leads to mutual incomprehension and difficulties in immersing ourselves in the culture of the other (Adler 1975). This theory was initially introduced to describe the integration process for people moving abroad, but has since been extended to all situations involving a loss of reference points and incompatibility of familiar patterns (Siva and London 2009). Siva and London refer instead to habitus shock (2011), where habitus is a way of being or acting governed by regular practices

(Bourdieu 1986). From this perspective, architecture or the more general field of design are specialized practices requiring specific knowledge and training with which users are unfamiliar (Siva and London 2011). This gap between habitus is often perceived negatively, as it generates discomfort, confusion and frustration, as well as opens the door to adjustment by the actors (Siva and London 2011).

When users are invited to participate and co-design, the realities of designers and non-designers come together and create at their intersection a field of collaboration (Lee 2008). Initially, this is uncomfortable for the professional, but it gradually becomes an opportunity to engage in dialogue with people outside the world of design (Binder et al. 2008). Several authors stress the importance of defining a common language and frame of reference between the actors to ensure mutual understanding (Luck 2003; Blomkamp 2018; Lundmark 2018). In this way, the sharing of habitus can lead to positive consequences as it also nurtures a process of mutual learning (Siva and London 2009), which is one of the key principles of civic participation (Glass 1979). Through their participation, users discover the world of design and professionals gain access to the perception of citizens (Luck 2007). It is therefore an educational process, in which each stakeholder learns to understand the other and is transformed through the acquisition of new knowledge (Jacquet and van der Does 2018; Lundmark 2018).

We are seeing a profound change in design, both social and cultural, which calls into question long-established practices and has repercussions even in the training of future architects, designers and urban planners (Macaire 2009; Luck 2018a). In this respect, Sanoff is considered to be one of the pioneers behind the development of participatory design in architecture. He introduced a new option dedicated to community participation in the Master of Architecture studies at the University of North Carolina (Luck 2018a). In the world of research, the design participation conference organized by the Design Research Society in 1971 also made a major contribution to promoting the involvement of users in the design process (Lee 2008).

1.3. On the user side: changing roles

Symmetrically, in participatory design, end-users and citizens leave their role as passive receivers to become genuine partners of the designers (Blomkamp 2018). In this context, non-designers are seen as equally responsible for the success of the participatory process as professionals. Faced with this challenge, some non-designers themselves are still questioning their ability to argue, to take decisions that will have an impact on their fellow citizens, to be creative or to understand how certain systems and

technologies work. Their roles and missions, as well as their own perception of themselves within a complex process, are all being turned upside down.

This section focuses on the keys held by these end-users. The primary quality of participants is generally that they are ordinary citizens, but this generic term covers many different realities. Behind this word used systematically to designate people, there are many different conceptions of citizens and users. The way in which users are perceived will also determine the product, space or service that is ultimately designed (Hill 2003). Moreover, citizens possess a variety of knowledge which, far from being exclusive, adds up to citizen expertise.

1.3.1. All citizens, all users, but what else?

In participatory processes, a distinction is made between participants and sponsors, meaning respectively the people invited to take part and the people behind the participatory initiative (Bherer et al. 2017). These actors are all stakeholders, to whom can be added experts and other contributors who have come to share their detailed knowledge of a subject, or the indirect beneficiaries of the project concerned (Bherer et al. 2018). These may include secondary users, who do not use solutions directly (unlike primary users), but may use what they produce (Schuurman et al. 2010). There are also bystanders (passers-by, spectators), who are exposed to a solution and may be impacted by the use made of it by others (Ferneley and Light 2008).

Since the late 1960s, groups of citizens have been demonstrating to make their voices heard by politicians and to have a say in decision-making. These demands for direct democracy and citizen control gave rise to the model of the participating citizen – a person who is active in the life of their community and always ready to get involved to defend their point of view.

This notion of a participating citizen automatically refers us first and foremost to the legal meaning of a citizen, in other words a person who is legally recognized as a native or naturalized citizen of a country or state. Citizens are therefore sometimes regarded as voters when they enjoy their right to vote

(Kravagna et al. 2013) and sometimes as taxpayers when they file their tax returns (Tritter and McCallum 2006). However, this official vision of the citizen is not usually the one we think of in the context of participatory processes. Rather, participating citizens are people in general (Rowe and Frewer 2000): residents, neighbors, local people, users (Castell 2016).

The problem with a term as vague as “citizen” or “user” is that it tends to encompass the whole spectrum of people concerned in a single homogeneous group (Schuurman et al. 2010). This phenomenon intensifies when we talk about ordinary citizens, lambda citizens, average users or general users (Rowe and Frewer 2000; Schuurman et al. 2010). In reality, these designations are initially intended to differentiate between participants from the professional world and lay participants who do not necessarily have any knowledge of the subject in question (Bjögvinsson et al. 2000). Nevertheless, the average user often goes beyond this distinction and is given fairly general characteristics, to the point where they become a kind of “superuser”: “a six-foot-tall, 20-year-old male, with perfect vision and a good grip” ((Fletcher 2001) quoted by Verhulst et al. (2016, p. 3)).

This stereotype is reminiscent of Corbusier’s Modulor, and the way in which end-users were seen as interchangeable standard subjects cast from the same mold and therefore easily adaptable to modernist architecture (Choay 1965; Zetlaoui-Léger 2013). In particular, functionalism conceives of users as universal beings, as cogs in a machine that only functions properly if they conform to their living environment, express predictable basic needs and adopt acceptable behaviors (Hill 2003; Zetlaoui-Léger 2013). This reductionist approach to users (Schuurman et al. 2010) suits designers, who now have to take into account only one user profile, which is not an innocent abstraction (Hill 2003). The user is reduced to a set of fictitious images, anticipated by decision-makers and designers, but which probably do not reflect the multiple lived realities, which are richer in their very essence (Verhulst et al. 2016). Thus, users are defined not only by the status they are attributed, but also by their identity, desires, wishes and aspirations (Vanolo 2016). Furthermore, this simplistic vision has the major disadvantage of impoverishing architectural and urban design and experience (Pallasmaa 2005).

Unfortunately, this tendency to consider the user as universal did not end with the fading of modernism. It is still very prevalent today, as evidenced by the first technocratic models of the smart city and the distance maintained with the citizens of these connected environments (Vanolo 2016). Indeed, little effort has been made to date to better understand who these citizens are (Shelton and Lodato 2019). The specific characteristics of each individual, and the injustices suffered by some, are erased in favor of a supposedly representative user (Vanolo 2016). Some decision-makers also take advantage of this to proclaim the inclusive, or even universal, nature of their initiatives, because by taking everyone into account, they are not excluding anyone (Shelton and Lodato 2019).

The stereotype of the universal user therefore still dominates some discourses, even recent ones. This is because it is easier for decision-makers to justify their participatory actions if there is only one type of citizen to recruit, and an undefined one at that (Shelton and Lodato 2019). It should also be noted that participants who are active, informed, motivated, responsible and creative seem to be gradually becoming the preferred image for the implementation of participatory schemes. Despite the laudable intention of giving a real place to non-designers, it has to be said that not everyone will fulfill all these "super-participant" qualities. It is therefore crucial to broaden the spectrum to include non-participants, the digitally impaired, the protesters, the disinterested, etc. (Vanolo 2016). Their needs must also be recognized, and we must accept their possible willingness to be passive with regard to the decision-making mechanisms that are shaping our living environments of tomorrow.

1.3.2. Towards a typology of users: from consumers to participants

Several authors have moved away from the simplistic model of a uniform user to build more elaborate typologies that take better account of end-users in design and innovation processes (Schuurman et al. 2010).

The best-known theory is probably Rogers' Diffusion of Innovations theory, according to which the adoption of new products by the public follows a normal distribution over time (Rogers 1983). As shown in Figure 5, each segment of the curve corresponds to a typical consumer profile, to which Rogers

attributes personality characteristics (Terrade et al. 2010). He defines five profiles: Innovators, Early Adopters, Early Majority, Late Majority and Laggards. These are characterized by increasingly low speed of technology adoption, interest in novelty and power to influence peers (Rogers 1983). Rogers also studies the socio-demographic variables that determine the transition from one profile to another, such as the level of education, level of wealth and social status.

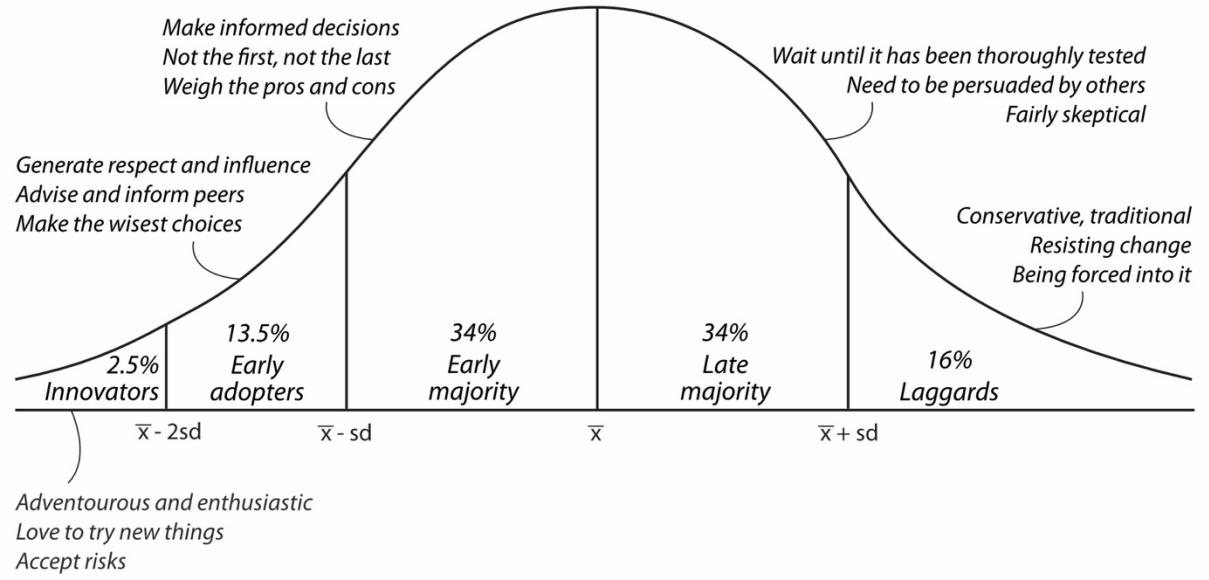

Figure 5. The spread and categorization of users adopting innovations, according to Rogers (1983, p. 247)

This model presents a range of user profiles, but their naming and description tend to promote the left-hand side of the spectrum, namely those who adopt technologies relatively quickly. As with the Arnstein scale, which primarily encourages the participation of militant and committed citizens, the Rogers curve suggests a preference for technology-savvy citizens over all other users. In our research, these models are not seen as a gradation of profiles from more to less desirable, but rather as a range of potential participants who each bring their own perspectives. In the age of low-tech and degrowth, Rogers' model could be revised to include extremely innovative users who nonetheless reject the systematic use of technology, particularly high-tech.

In line with Rogers, von Hippel (1986) also looked at the diffusion time of innovations to users. He introduced lead users, who could be placed at the very beginning of the curve, even before the

innovators. These lead users have “present strong needs [that] will become general in a marketplace months or years in the future” (von Hippel 1986, p. 791). In other words, these users encounter a specific problem in their daily activities, but no satisfactory solution yet exists on the market (Schuurman et al. 2010). Lead users therefore not only adopt new products, but also imagine their own solutions (Schuurman et al. 2010) and demonstrate their creativity (Sanders and Stappers 2008). Faced with unsuitable products, lead users are highly motivated and find it easier to change their habits and detach themselves from what already exists, making them effective allies in participatory design processes (von Hippel 1986). Von Hippel encourages us to call on them particularly in more technological fields, where development is much faster than adoption. Nevertheless, this approach is rather elitist, and implicitly assumes that other users are less creative, and that the very small group of lead users is in a position to propose solutions that will suit the greatest number (Rowe and Frewer 2000; Sanders and Stappers 2008).

These first two terminologies primarily considered citizens as consumers. It was not until the late 1980s that they were more often referred to as “end-users”, with the emergence of user-centric approaches, rather than market-centric ones (Sanders 2005). More recently, citizens have become “participants” (Binder et al. 2008), or even “co-designers”, “co-creators” (Sanders 2005) or “co-decision-makers” (Luck 2007). Citizens are thus gaining more and more influence in decision-making processes in the design field and are gradually being recognized as genuine partners of designers and/or decision-makers, even if it is still not clear how to take into account the specificities and richness brought by each individual profile.

1.3.3. Realistic typology: “assembled users”

Typologies are useful for distinguishing different user profiles. However, like all classifications, they tend to simplify reality by modeling it using a reduced number of factors. They are therefore completely abstract models of users that do not reflect the complex nature of users and tend to reduce their diversity (Verhulst et al. 2016). Even when this diversity is taken into account, designers generally limit

themselves to considerations of disability, socioeconomic status or ethnic origin (Tritter and McCallum 2006). A single typology of users is therefore insufficient to capture and reflect their complexity.

Sometimes, however, designers have no choice but to rely on theories and models such as those presented above. For example, in architectural competitions, designers are often not allowed to meet clients and/or future users, who then become hypothetical characters shaped by experts (Verhulst et al. 2016). Verhulst and colleagues even borrow the term “homunculus” from Alfred Schutz to describe this abstract user as a puppet, a caricatured, imaginary being to whom characteristics are assigned as the design progresses and the scenario is constructed. Homunculi thus correspond to a constantly evolving user model that combines attributes emanating directly from the problem posed and the designers, but representing no one in particular (Verhulst et al. 2016). For example, when designing an apartment building, one architect might imagine that users would prefer to park behind the building rather than in the basement, that they would only take the elevator if they had to go up more than three floors, or that they would prefer to have a large living room and a small kitchen. Another architect might imagine the opposite.

In reality, all these scenarios are the product of the imagination of architects who, in the absence of users, have no choice but to rely on their own experiences and shared visions. Designers thus empathize with their clients, but their imagination is limited by their personal experience (Luck 2003). Users therefore once again tend to become abstract beings, whose needs and perceptions are both generalized and indeterminate (Verhulst et al. 2016).

To remedy this one-sided view, Wilkie (2010) proposed the user assembly model. This researcher has studied the way in which users are mobilized in user-centered design processes, specifically in the field of ICT and technological development (Wilkie 2011). He found that users are an integral part of the system: they influence both the social and technological dimensions of design, but are also themselves transformed in the process (Wilkie 2010). Users are then seen as dynamic heterogeneous compositions resulting from several viewpoints, meaning that they are conceived by several authors, several designers, several issues, several theories (Verhulst et al. 2016). These sociotechnological assemblies of users mean

that we can no longer limit ourselves to existing, sometimes inaccessible people, but that we can break them down into multiple characteristics that can then be added up to recompose new user profiles (Wilkie 2010). The models developed reflect the multiple interests, different actions and varied knowledge of users that feed into the design process, even if they are not continually "available" to designers and the process (Wilkie 2010). It is therefore essential for designers and participants to be aware that there are non-participants whose interests and characteristics should also be taken into account during the co-design process.

Participatory design generally suffers from low participation rates and a lack of representativeness (Damay and Mercenier 2018). In reality, each participatory setup can attract a different number and variety of participants, depending among other things on the level of involvement required, the socioeconomic profile, availability, level of education or the target audience's source of motivation (Ryan and Deci 2000; Irvin and Stansbury 2004; Kravagna et al. 2013). Some recruitment techniques are more effective than others in reflecting the population's diversity, most notably the drawing of lots (Rowe and Frewer 2000). In practice, however, participatory processes are most often open to anyone wishing to take part, so the technique used is self-selection (Fung 2006). This voluntary recruitment has the merit of offering the same opportunity to all potential participants (Tritter and McCallum 2006) and of being considerably less costly than the random method (Kravagna et al. 2013). Between withdrawals and spontaneous participation, it is generally difficult to predict which participants will attend and which will not. The ability to accommodate such a diversity of profiles is probably the greatest quality of collective intelligence, which can then claim to surpass individual intelligence. Indeed, previous research shows that a "higher" form of intelligence emerges more readily within groups that are characterized by the diversity of their members and the ability to communicate with each other (Williams Woolley et al. 2015; Dortheimer 2022). The ideal group composition does not include a dominant way of thinking that would limit creativity, but incorporates a sufficient variety of perspectives, without becoming too heterogeneous at the risk of hindering interactions (Williams Woolley et al. 2015; Dortheimer 2022).

1.3.4. Diversified citizen knowledge that can be mobilized for participatory design

Users possess several forms of knowledge that can be grouped into four categories: ordinary reason, user expertise, professional competence and "citizen profession" (Sintomer 2008). All this knowledge comes from different sources but can be put to good use in the design process. This is one of the reasons why non-designers are called upon to participate, as they hold information that is inaccessible to designers.

To begin with, end-users have ordinary reason, in other words, the ability to use common sense, to judge a situation as fairly as possible and to develop a critical mind (Sintomer 2008). This concept comes close to common sense, as it mobilizes knowledge that is accessible to everyone and more or less shared within a community (Sintomer 2008). The "common individual" is therefore able to draw on their experience, reflexive outlook and subjective reasoning to make an informed and fair decision, in cases where scientific reasoning would not allow it (Blondiaux 2007; le Maire 2009). The most frequent application of this form of knowledge can be found in the participation of participants designated by lot in jury trials (Blondiaux and Sintomer 2009). The user knowledge used here is therefore quite commonplace and banal, but crucial in complementing the technical, scientific and professional knowledge of specialists (Sintomer 2008; le Maire 2009).

Non-designers also possess user knowledge, which is naturally accessible to all (Bacqué and Gauthier 2011). This is the local, subjective knowledge that users develop when interacting with a space or using an artifact in a specific context (Sanders 2005; Fung 2006). This knowledge is therefore experiential and tacit, rather than theoretical and formal, and emanates from their feelings, perceptions and opinions (Bjögvinsson et al. 2000; Luck 2003). Non-designers are seen in this light as experts in their own lifestyles, daily experiences and local environments (Sanders and Stappers 2008; Blomkamp 2018; Luck 2018a), because who better to know their needs, preferences and priorities than the users themselves (Fung 2006; Sintomer 2008)? Designers recognize this user expertise as sensitive knowledge

complementary to their own (Maier 2001; Blomkamp 2018), because they have realized that they cannot rely solely on their own expertise, which is essentially technical (Davenport et al. 2012). Design, whether of spaces, buildings, objects or services, requires getting up close and personal with future users to gain a practical, real-life perspective (Sintomer 2008).

In addition to these two types of knowledge available to everyone, some citizens possess professional knowledge that can be mobilized in a participatory design process (Sintomer 2008; Damay and Mercenier 2018). This is the case, for example, of a doctor who takes part in a co-design workshop for a new hospital, or an architect who is part of a consultative commission for land redevelopment. This additional knowledge has been acquired as part of their career, but can be reinvested outside the professional framework to feed collective reflection (Sintomer 2008).

Lastly, non-designers may hold activist knowledge "acquired during previous associative or trade union experiences" (Damay and Mercenier 2018, p. 17). They may also learn from their participation and, in particular, assimilate new "participatory" skills (Damay and Mercenier 2018; Lundmark 2018), such as the ability to construct an argument (Bächtiger et al. 2010) or a better understanding of political issues and democratic processes (Sintomer 2008; Jacquet and van der Does 2018). By dint of participation, some users develop a taste for it, multiplying participatory experiences and becoming increasingly comfortable as participants. We will refer to these regulars as "usual suspects" (May 2007) or "professional participants", echoing the notion of "citizen profession" introduced by Nicolet (1988). In the days of the Roman Republic, being a citizen was a full-time job that required daily practice (Nicolet 1988; Sintomer 2008).

All this knowledge can be put to good use in decision-making and design processes. Le Maire (2009, p. 346) points out that "the lambda is only of interest if he or she is informed", meaning that the participation of non-designers will be all the richer if they have knowledge useful to design. In fact, there is no such thing as an uninformed participant, since they always have at least some knowledge of use, or even other specific knowledge to put at the service of the participatory project (Damay and Mercenier 2018). In short, the lambda non-designer is a kind of "political fiction", since in reality,

participants are always relatively well-informed and committed, and sometimes already organized into associations (Blondiaux 2007).

2. Evolving roles and contemporary issues in participatory design

This section is based both on observations reported in the literature and on empirical results from our doctoral thesis (Schelings 2021). On the one hand, we rely here on three major findings from the literature. Firstly, citizen participation is a multi-dimensional process. Secondly, it brings about an upheaval in the profession of designers and the role of users. Thirdly, the users are multiple and varied. On the other hand, the discussion here draws on various research fields: interviews with 30 local and international experts, whether practitioners and/or theorists of citizen participation, analysis of digital participation processes driven by online platforms, in situ observation of a participatory budgeting process organized in Montreal and experimentation with our own co-design process in Wallonia, for a total of 12 workshops and four retrospective focus groups. The material collected, compared with the scientific literature, enables us to better understand the dynamics of the distribution of roles between designers and non-designers, as well as the emergence of new roles.

2.1. Understanding the complementary roles of designers and users

Designers and users may work together, but their respective roles remain distinct. The division of roles between designers and non-designers is generally based on the knowledge of each. The literature identifies several relationships between designers' and users' knowledge, which we group into three main statements: 1) everyone iscreative; 2) knowledge is complementary; and 3) knowledge is specific. This third observation may come as a surprise and seem to run counter to the very essence of participation, but we will see that this is not the case.

2.1.1. Citizen creativity

Creativity can be defined as "the ability to have an idea or to produce something that is both novel and contextually appropriate" (Bonnardel 2006, p. 21). A creative idea or solution is thus described as "original, valuable, and realizable" (Kristensson et al. 2004, p. 6). Creativity is therefore a multidimensional phenomenon that can be measured both quantitatively, on the basis of the fluidity of ideas (their number per unit of time), and qualitatively, on the basis of the originality of ideas (their degree of novelty) (So and Joo 2017), without forgetting their appropriateness to contextual constraints (Bonnardel 2006).

Creativity is an intrinsic component common to all design activities (Motte 2004). In a participatory process, the act of creation becomes collective (Macaire 2009), and every individual is able to participate (Blomkamp 2018). This shift to a participatory mindset is not a given, but is based on the belief that everyone is creative (Sanders and Stappers 2008). This is in line with the idea that there is no creative mechanism that is not accessible to anyone who wants it, since creativity is not the privilege of any particular qualification (Candy 1997).

Some authors defend the idea that any individual can be creative, provided they develop a passion and expertise in the field, as lead users do (Sanders 2005; Schuurman et al. 2010). In their study of the creative potential of "ordinary" users, Kristensson et al. (2004) argue, however, that this condition is not essential, and that different actors bring different forms of creativity to the project. In their case study, high levels of interest and expertise (professional) resulted in ideas that were more easily implemented, while lower levels of experience (ordinary) generated more useful and original ideas (Kristensson et al. 2004).

In fact, less experienced people are more likely to think outside the box and potentially come up with new ideas (Schuurman et al. 2010). The participants' lack of technical knowledge does have the disadvantage of generating ideas that are sometimes unrealistic, as well as the advantage of departing from what already exists and opening up new perspectives (Kristensson et al. 2004). The absence of

user training is therefore not an obstacle to their participation in the creative design process (Lee 2008). Similarly, non-designers are not constrained by the techniques and procedures usually used in decision-making, and can contribute to the development of innovative approaches (Fung 2006).

When observing a participatory budget in Montreal, the facilitators were quick to point out a list of constraints inherent to the process, namely budgetary limits and technical impositions. In a retrospective focus group, participants recognized both the advantages of having a set of "rules of the game" enabling them to put forward realistic ideas, and the difficulty of integrating them without limiting their creativity. Even if they deplore the "narrow" framework in which they were led to participate, with the most creative ideas gradually being discarded by the facilitation methods, the residents emphasize the relevance of the proposed projects, which admittedly lack originality, but do meet the needs of the neighborhood.

On the basis of the literature and empirical data we have been able to gather, the creativity of "non-designers" can be considered on an equal footing with that of "designers", even though the effects and results of each form of creativity may turn out to be very different. In reality, the nature of these effects and results is ultimately less important than the processes by which they are achieved. As the collective process unfolds, it is in the exchange, transfer and construction of knowledge that the full potential of participatory design is revealed.

2.1.2. Knowledge complementarity

As specialists in living, users possess specific knowledge that enriches urban and architectural thinking (Biau et al. 2013). From then on, professional and scientific knowledge no longer prevails over non-professional knowledge of use, but complements it (Tritter and McCallum 2006). Participatory design processes thenenable this knowledge to be exchanged to improve both the decisions made and the solutions devised (Fung 2006; le Maire 2009).

On the one hand, a transfer of knowledge takes place from users to experts (Luck 2003), who learn about the traditions, values, needs, preferences and goals of the inhabitants (Fung 2006; le Maire 2009). Experts thus benefit from their finer, more proximal knowledge of the terrain, which has been acquired over a longer temporality and under varying conditions (Damay and Mercenier 2018). Users are also able to pinpoint the problems they encounter and identify local priorities (Fung 2006), thus anticipating and avoiding the possible rejection of certain unsuitable measures (Irvin and Stansbury 2004). On the other hand, citizens become familiar with administrative processes, legal standards, technical and construction constraints, architectural language and political jargon, for example (le Maire 2009; Damay and Mercenier 2018). They gradually leave a position sometimes considered "resource-weak" and move towards a more informed position (Siva and London 2011; Bjögvinsson et al. 2012; Norouzi et al. 2015).

Through the organization of participatory workshops in Wallonia, we realized that the first meetings had enabled citizens to identify clear issues and propose ideas that they would have liked to develop in their city, but were unfortunately unable to realize on their own. With the participatory process taking place in a smart city context, most of the proposals took advantage of new technologies to create mobile applications or web platforms for the benefit of citizen communities. To turn these ideas into reality, we collaborated with the Citizens of Wallonia hackathon, during which teams of hackers (citizens and professionals) took up the challenges proposed during our participative workshops to create proto-concepts and prototypes. The richness of the solutions developed was the result of combining the local knowledge of the citizens who came up with the ideas with the technical and technological knowledge of others (amateurs or professionals).

Thus, the greatest benefit of involving citizens in the making of their built environment is not so much to improve each individual's knowledge, but rather to combine them to create new hybrid knowledge (Macaire 2009; Biau et al. 2013). This principle of knowledge complementarity undermines the ideal of direct participation and encourages balanced collaborations.

2.1.3. Knowledge specificity

As we have seen, all actors contribute to the design process, but this does not mean that each actor can lay any stone and therefore carry out any task in the design decision-making process. In other words, it is not a question of eliminating the roles of designer, decision-maker and user, but rather of getting these three actors to cooperate, each with regard to their specific knowledge (Zetlaoui-Léger 2013).

Each actor has a different expertise and is expected to perform specific tasks that they master better than anyone else. Generally speaking, designers are the guarantors of the project's aesthetic dimension, as well as of compliance with technical and functional requirements (Lee 2008; Charrier et al. 2013). Their role goes beyond problem-solving and includes defining a concept that structures the project into a coherent whole (Stals 2019). They are also responsible for producing external representations and iteratively validating the proposed concept (Safin 2011). Decision-makers, whether representatives of the project owner, sponsors or public authorities, are responsible for making decisions, and must be able to intervene when necessary (Bacqué and Gauthier 2011; Damay and Mercenier 2018). With rare exceptions (e.g. certain participatory budgets), they are also the ones who will set the budget and determine the resources to be made available with regard to other ongoing or future projects. As for users, they can feed into the process at various levels, whether by formulating the problem, expressing their needs or proposing embryonic solutions (Tritter and McCallum 2006; Smulders et al. 2009). These areas of expertise are all equally important and may sometimes overlap, but they are not interchangeable.

In interviews with people involved in organizing all kinds of participatory processes, one of the clear messages was to clearly delineate the roles of each party, so that designers and users are neither disappointed nor frustrated by the results achieved following their involvement. For example, several interviewees explained that some participants were sometimes surprised to find that their ideas did not find their way into the final project, that designers sometimes regretted being relegated to the rank of facilitators with no real influence on the design and that decision-makers sometimes realized too late that they should have better marked out a process whose results could not be implemented. These

testimonials demonstrate that a participatory process mobilizes a wide range of knowledge that cannot be held by citizens alone.

As a result, the active participation and deep involvement of citizens does not necessarily make them designers (Siva and London 2011). Indeed, “all people are creative but not all people become designers” (Sanders and Stappers 2008, p. 8). In a participatory process, the recognition of professional expertise by users is therefore just as crucial as the recognition of user expertise by professional experts (Siva and London 2011).

2.2. A new role for participation professionals

For a long time, citizen participation was very often based on an exclusively vertical relationship between a party holding authority (decision-makers, researchers and/or designers) and a citizen party. In this dual configuration, the relationship between stakeholders, whether bottom-up or top-down, can become conflictual, as it confronts two habitus, two visions of the world colored by different practices and modes of operation. Indeed, participants are characterized by a rather micro- and experiential perception, whereas professionals have a more macro- and technical vision. For example, the first reflex of the participants we met at various meetings is to express themselves in relation to very localized experiences (for instance, the perception of a pothole hazard in front of their driveway), and they sometimes have difficulty projecting themselves onto a geographical scale larger than their street or neighborhood. The designers, for their part, will seek to build a coherent overall vision. According to habitus shock theory (Adler 1975), these complementary perspectives will eventually enrich each other, but this requires space for dialogue and a certain amount of time for mutual adaptation.

In order to facilitate exchanges and re-establish a certain horizontality between the various stakeholders, a new intermediary actor is entering the participatory design scene. This participation professional is a “(person) working in the public, private, or third sectors that (is) paid to design, implement, and/or facilitate participatory forums” (Bherer et al. 2017, p. 1). Faced with a growing demand for participation, public authorities are hiring professional participation experts and entrusting them with the organization

of the process (Maier 2001). Given the multiplication and diversification of possible approaches, this professionalization of participation also responds to a need to develop expertise specific to participatory practice (Bherer et al. 2018).

While this is not a generality and is an emerging phenomenon, many participation professionals come from the world of design (Lee 2008). Although they are generally assimilated to consultants from specialized firms, designers of participatory processes also refer to municipal officials in charge of the participatory dynamic in their city, or architects who solicit their users during the development of a project, for example. Nevertheless, it is becoming increasingly difficult to manage citizen participation in-house unless you have a unit dedicated to this issue, as it is a job in its own right that often requires a small team to devote itself fully to it.

The advent of this new profession leads to a new organization of the players involved in the design of urban and architectural projects. Figure 6 is based on the diagram proposed by Zetlaoui-Léger and Meunier (2016), which links owners, developers and users, but is amended to include a fourth, central mediating pole. Participation professionals designing participatory processes are effectively in touch with all stakeholders and adopt a posture of neutrality in order to integrate the perspectives of all players and get them to work together to achieve a common project. This new organization limits power struggles and enhances the value of all types of expertise, whether strategic, technical, aesthetic, functional, day-to-day or usage-based.

In this organizational scheme, designers (architects, urban planners, architectural engineers, etc.) can play two different roles, as planning and construction professionals and/or as participation professionals. Participatory design is therefore less a threat to the design profession than an opening to new and promising professional perspectives. Designers can now put their communication skills and collaborative experience to good use in the service of participation.

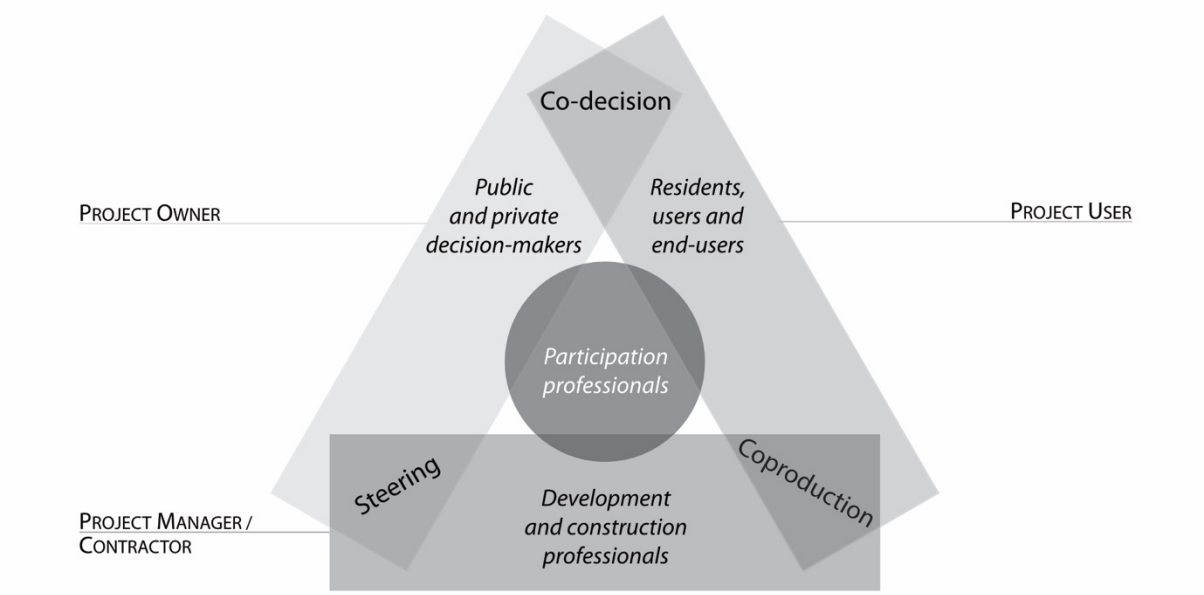

Figure 6. A diagram of stakeholder organization proposed by Zetlaoui-Léger and Meunier (2016, p. 33), to which we have added participation professionals

However, the design of a participatory process cannot be improvised, and even if design professionals are predisposed to it, specific training is required. One of the risks of a "naïve" approach to participatory design is to always use the same tools and methods regardless of context, or even to replicate complete processes from one case to another. This phenomenon of universalizing participatory methods is problematic, as it sees the participatory process as a set of standardized solutions that can be exported and applied everywhere.

This phenomenon of reuse also reveals the voracity of certain "new prophets of participation" who are seizing on a booming market to make a profit (Blondiaux 2007; Bherer et al. 2018). This raises the question of whether the services they offer are really appropriate, or whether they are just trying to monetize the knowledge they have acquired by marketing it (Bherer et al. 2017). The participation professional is therefore not always viewed in a positive light, all the more so because they are a service provider bound to the client (most often local authorities in the field of cities) by a contract that they must honor (Maier 2001; Bherer et al. 2017). At the same time, citizens have very little leverage over the participation expert, and rely on the latter's ethics, deontology and impartiality to defend citizens' interests (Macaire 2009; Bherer et al. 2017).

Participation professionals are responsible for turning non-designers' ideas into results. Participants' proposals rarely end up as such in the final project, but they must make a difference and influence the course of events, rather than reinforcing pre-established strategic schemes or validating virtually finished solutions. In this way, participants shape the solution through the expression of their needs and the formulation of ideas. The designer's job is then to integrate the citizens' voice into the project, sublimating their proposals into concrete, achievable elements in keeping with the project as a whole. Designers are always responsible for the creative synthesis, while participation professionals become the "guarantors of the collective interest in order to preserve an overall 'coherence' that they want to be both aesthetic and constructive" (Biau et al. 2013, p. 22).

With this in mind, participation professionals need to be particularly attentive to the exchanges between participants and the justifications they put forward in (dis)favor of certain ideas expressed. The proposals of non-designers may sometimes lack realism, maturity or creativity, but their richness lies in discussion. According to Luck (2018b), the aim of participation is not to reach a half-tone consensus, but to take account of conflicts in a constructive debate to define priorities. The task of the participation professional is to understand the arguments behind the proposed solutions, so as to be able to integrate this point of view into the project not literally, but substantially. Local experts also spoke of the importance of elevating the debate by capturing the essence of non-designers' suggestions and reformulating them into concepts that can be mobilized to move the project forward.

Ultimately, participation professionals need to be highly flexible, always listening to participants and adapting the process according to objectives, participant feedback and the results obtained at each stage. This altruistic posture of putting themselves at the service of citizens may seem less appealing to designers who are still influenced by the model of the authoritarian architect or creative urban planner. Nevertheless, we maintain that this vision is outdated, and that design activity must progress towards a fundamentally collective approach. The emergence of the profession of participation professional is therefore one step in a global shift towards a participatory mindset.

2.3. A new role for user ambassadors

Valuing the complementary and specific knowledge of designers and non-designers motivates a clear distribution of roles throughout the project. Through the variety of participatory processes put in place, the roles played by participants are multiple: informants, actors, collaborators, testers, etc. Users can take part in the design process in a variety of ways and become involved at different levels and times. Given users' ability to problematize, some authors advocate their participation from the very earliest phases of the design process, particularly during the programming of the project to be designed (Charrier et al. 2013; Leonet 2018). In this way, it remains possible to truly integrate the results of citizen participation into the project, whereas participating too late often generates frustration.

In this respect, the Montreal participatory budget we observed has the interesting feature of including residents from the very first phase of the process, namely planning. Although this configuration is widely promoted in the literature, our study shows that such very early involvement is only suitable for a certain type of extremely active and invested user. Regular participants are generally unwilling to get involved to this extent, and some even prefer to intervene further down the line, when things start to get concrete. Among the roles they are assigned and those they choose to take on, it is therefore not uncommon to observe a discrepancy between what is expected of users as participants and what they are actually prepared to do. The advantage of upstream participation is obviously the way in which participants shape not only the content, but also the form of the process. Moreover, the residents involved feel more responsible towards others and develop an empathetic posture.

Through our study, this particular role of actively invested and empathetic user attracted our attention, both because of its unanimous recognition by all parties involved, and because of its novelty compared to roles previously identified in the literature. This "ambassador" role implies that users become responsible for the participatory process in two respects.

On the one hand, they are called upon to communicate about their participation, to promote the initiative around them and to mobilize new recruits within their entourage. The dissemination of the project and

its results is therefore not the exclusive responsibility of the designers “in charge” of the participatory processes, but also falls to the participants themselves. Disseminating the initiative not only enhances the value of the project, but also broadens the community of potential participants. Witnessing the (positive) experience of a few participants could lead others to become aware of the benefits of participatory design and join the initiative or become involved in other processes in the future.

This ambassador role has already been successfully applied in the hospital world through the “patient partner” model developed in Canada. The aim is to integrate patients into the improvement of their healthcare through collaboration with healthcare professionals and the representation of other patients (Pomey et al. 2015). Similarly, in participatory design processes, ambassadors can play the role of spokesperson for the citizen voice and best represent their fellow citizens during the participatory process. This role is both assumed and feared by participants, as they are aware that their participation could profoundly influence the lives of many others, the majority of whom are not present. They therefore feel a duty to the community, but worry about making the wrong choices or overlooking particular situations. As a result, participants no longer present themselves as isolated individuals, but empathize with others in their town or neighborhood.

Such a unifying, empathetic ambassadorial posture is at odds with some of the limitations of participation identified in the literature, namely the sometimes individualistic attitude of participants and their tendency to use participatory processes for their own benefit (Irvin and Stansbury 2004). Our empirical observations have shown the opposite to be true, with some participants testifying to their desire to observe the impact of the participatory process and to see the overall project come to fruition, without waiting to see their personal ideas reflected in it. This posture is encouraged by the methods used and the instructions provided by the team, who seek to establish a state of mind centered on respect and collaboration between participants, as well as stems from the current participatory context. It would seem that today’s users are adopting a more constructive stance than they did in the past, when they drew up specific lists of grievances and got involved for exclusively personal reasons. Obviously, these protest reactions were originally linked to a particular context, where citizens had no power to act and

were fighting to be heard. In the digital age, the general atmosphere is different, as there are more opportunities to express ourselves. In our view, this promotes participation that is less spontaneous, but more poised, less revolutionary and more supportive.

Our observations show that the deployment of this ambassadorial role is a gradual process, which needs to be anchored in long-term participative approaches. Tight timing has the effect of paralyzing participants, who do not feel ready to make decisive decisions in a hurry. It is therefore preferable to allow for latency and to involve non-designers from the earliest stages of the project in order to give them the opportunity to gradually shape a shared vision. They express their willingness to act as guarantors of the general interest but they also need time to reach a stage where they can make reasoned choices, while respecting the concerns of as many people as possible, including those who are not present. As one Montreal participant pointed out, it is much easier and quicker to think in our own name than to consider the needs of our neighbors.

Furthermore, empathy is not always easy, especially when you do not know exactly the situation and perspective of others. In such cases, the use of personas can support participants' thinking and help them put themselves in the shoes of people who may think or act differently. During the participative workshops we organized, participants really appreciated these caricatured profiles and played the game of representing interests with which they did not necessarily identify, but which they felt were just as important as their own. This ability to put ourselves in the shoes of other users is one of the supposed qualities of professional designers, and testifies to the acquisition of new skills by citizens through their participation.

However, participants do not become designers, nor can they perform the complex design tasks that are the responsibility of professionals. Our results highlight the added value of users' contributions in problematizing and defining project objectives based on real needs, as well as their limited involvement in the formal design phase. These observations are linked to the relatively limited scope of the participatory budget, which circumscribes the roles and responsibilities of the user ambassador. Other processes allow users to be involved in the formal design phase and even in the implementation phases,

which is possible if the process has been designed to entrust them with a role as co-designers alongside professionals. In the experiences we have observed, certain stages of the design process remain essentially in the hands of the designers, and the participants are not always able to ensure that the citizen's voice is transmitted continuously throughout the project. The iterative nature of the process, with its back-and-forth between citizens and designers, and thus between program/problem and solution, is therefore a factor that facilitates the adoption of the ambassador role. However, it is important to remember that programming and formal design are generally two subsequent phases, and that the participants involved are therefore not necessarily the same. This limits the possibility of a participant taking on the role of ambassador.

Another way of encouraging this position is to opt for polarizing but non-polemical topics and design objects, as these will naturally generate a team spirit that transcends individual and personal interests. In this way, many participatory approaches seek to achieve consensus in order to mitigate or avoid conflicts that might arise between parties (Bherer et al. 2017). However, we would like to add a few nuances with regard to the choice of participatory theme and potential conflict management. While polemical themes limit the adoption of an ambassadorial position, they are no less interesting or crucial to address through a participatory design exercise. Some authors value controversy, or agonism, as a means of enriching participatory exchanges and going beyond the achievement of a consensus that is sometimes too obvious or lacking in relief (Bobbio and Melé 2015; Luck 2018a). According to some, citizen participation is all the richer when it accepts divergent perspectives and confronts them constructively (Björgvinsson et al. 2000). With this in mind, one of the experts we interviewed expressed a strong reluctance to deal with politically correct topics, which they felt distracted attention from the really important issues at hand.

We therefore insist on the fact that the theme of participation must obviously be important in the eyes of the participants. It also needs to stem as much as possible from a convergence of interests among decision-makers, designers and non-designers, but without necessarily immediately rejecting potentially conflicting themes. It is quite possible, in fact, that "the parties' positions may appear diametrically

opposed, but their interests are not totally incompatible, and so agreements can be reached that generate new configurations, with reciprocal benefits" (Bobbio and Melé 2015, p. 13). Discussion, moreover, may not always lead to agreement, but it does reveal the diversity of viewpoints and respects everyone's contribution (Blondiaux 2007). In this respect, the literature also mobilizes the notion of "constructive conflict", originally introduced in the fields of governance and democracy as a means of bridging the chasm and rebuilding trust between citizens and governments (Elias and Alkadry 2011). Constructive conflict is generally opposed to consensus-building and can become a process of negotiation and learning. In the field of design, constructive conflict has the advantage of opening up dialogue between parties, identifying multiple perspectives and exploring different potential solutions (Cuppen 2012).

When the various parties recognize the need to work together to unblock a situation, it is then possible to enter into negotiations and reach compromises. Some authors remind us that the aim of compromise is not to neutralize conflict, but rather to open up a debate that makes it possible to become aware of other opinions, reflect on the most important points and gradually align priorities (Björgvinsson et al. 2000; Luck 2018a). This alignment is one of the first steps in the participatory design process, which requires identifying a common problem despite divergent interests. For example, during a participatory workshop organized in Wallonia, local authorities had proposed that citizens think about the development of a public square and establish a new cultural center there. Some participants directly expressed the wish not to build this square in order to preserve a green space. In the end, both parties agreed to keep an open area on one side and a built-up area on the other, with proposals such as a plant façade, an outdoor scenery or even highly glazed façades to lighten the building's impact on the landscape. We believe that certain more sensitive topics, however, are likely to give rise to confrontations that no facilitator, no matter how experienced, will be able to curb through a few participatory workshops. These kinds of themes, particularly those linked to values (see Chapter 2), beliefs and socio-cultural issues, probably deserve to be dealt with differently: by setting up advisory commissions to create a longer period of participation that goes beyond the framework of a participatory design project.

Finally, it should be noted that participants who take on the role of ambassadors condemn non-participation in a way. Paradoxical to their desire to carry the voice of their fellow citizens, they believe that absentees are always wrong and that we must be present to have our say. In reality, they distinguish between people who cannot participate, but who would like to if they could afford to, and people who do not want to participate (for lack of thematic interest, confidence or conviction). According to them, these principled non-participants are often the ones who will ultimately complain about the outcome of the project, even though they did not seek to get involved despite having the means to do so. While it is easier to criticize an initiative a posteriori than to get personally involved, it should be remembered that non-participation greatly reduces the impact of citizens on the project, whether it is the result of a deliberate choice aimed at protest or an impossibility constrained by an insufficiently inclusive process. According to Bonvin (2013), "those who participate have the opportunity to defend their points of view and claims more effectively […]; anyone who does not participate is in a sense excluded from the processes of constructing social reality". In a way, then, participant ambassadors facilitate the inclusion of a citizen's perspective in design, but a broader mobilization is still needed to avoid the exclusion of certain groups.

2.4. Other contemporary issues linked to new forms of digital participation

This final section provides a few details on the new forms of digital participation, which are very popular in the smart city context. These digital participatory approaches are in contrast to the more traditional analog approaches, which use, for example, consultative commissions, neighborhood committees, citizens' juries, mini-publics, surveys, co-design workshops, guided tours and cultural probes. Digital modalities are more recent, and are characterized by the use of information and communication technologies (ICT) to support citizen participation and operate remotely and/or asynchronously. These include crowdsourcing platforms, collaborative and open databases, online consultations via websites and social networks, as well as interactive and persuasive urban installations and real-life technology tests.

Digital participation can sometimes simply consist of providing data (consciously or unconsciously), for example, through the geolocation of our smartphone (de Lange and de Waal 2013). New forms of digital participation can also resemble passive participation (in the sense that there is not necessarily direct contact with the other actors involved, particularly designers and decision-makers).

We studied a case of asynchronous digital participation through the analysis of online platforms developed in Wallonia to enable citizens to submit their ideas for their city. This form of participation has the advantage of existing, but nevertheless presents a number of limitations, notably linked to the online modality.

In addition to the lack of communication and the lack of transparency in the data processing phase, the drawback is that some of the ideas put forward are not always accompanied by a justification. As a result, participation professionals do not necessarily have the keys they need to interpret and aggregate the proposals. During co-design workshops, on the other hand, participation professionals are in direct contact with the participants, they are involved in the argumentative exchanges, which they can understand in depth, and they are led to structure the exchanges so as to be able to summarize the main results at the end of each session. It is essential to share this summary with the participants, who expect feedback from their participation, and to build on this common base during the next session, so that all participants are on the same footing and do not continually go back over previous decisions.

On the other hand, in retrospective focus groups, participants who had submitted an idea to the online platform complained about the juxtaposition of ideas, which were put into competition rather than being enriched. In this context, each person participates from behind their screen and drafts their proposal individually, without necessarily thinking about how it could be adapted to suit other people's profiles. The sheer volume of ideas proposed on this type of platform also leads to a dispersal of citizens' concerns, a dilution of votes, an emphasis on micro-problems and a weakening of an overall vision.

In addition, digital participation tends to favor lobbying effects, and sees the emergence of a different type of ambassador than that described in section 2.3, who does not seek to represent the greatest number

but rather a reduced collective with very specific interests. This type of participant is also present in face-to-face processes, but the dynamics of exchange and moderation by a facilitator help to limit any influence they may have if they threaten the freedom of expression of other participants. In fact, the experts interviewed have no particular objection to the idea of involving specific communities and developing projects dedicated to them, provided they do not generate new problems for other players present. Thus, participation that leads to a very specific project that suits a small group of people is perfectly valid, as long as it does not cause any collateral damage. All the players involved – participants and participation professionals alike – therefore have an ethical duty to consider the impact of their participation on the communities represented and those not represented.

Ultimately, we can see that online participation seems to complicate the mission of the participation professional and hinder the development of the citizen ambassador. Empathizing is an extremely difficult task, all the more so when you do not have an overall view of the proposals put forward. In the case we have studied, the immediate, competitive and solitary nature of digital participation prevents collaboration and encourages individualism. Rather than co-constructing a collective vision around a targeted theme, each individual freely proposes their ideas without confronting them with the perspectives of fellow citizens. Moreover, rather than disseminating the global initiative to attract new contributors, each participant disseminates their personal idea to recruit adherents and obtain more votes. Therefore, although digital participation is often valued for its ability to mobilize a greater number of participants (Jankowski et al. 2019), our study of different digital devices shows that their individual inputs accumulate without enrichment or emulation.

3. Conclusion

This chapter reviews the upheavals linked to the rise of citizen participation in the world of design, particularly from the point of view of the actors involved and impacted by these changes. Based on the literature and our empirical findings, we first looked at the establishment of a participatory mindset and the integration of users into design processes. We then focused primarily on the roles and responsibilities

of designers (the organizers of participation) and non-designers (the participants). This perspective highlights two concomitant phenomena: the amplification of the designer's role beyond that of designer, and the dilution of the roles of designers and non-designers, who must collaborate on various tasks during the participatory process. We are thus witnessing the emergence of two complementary roles: the user ambassador, empathetic and rallying, who acts as a spokesperson for the citizen's voice; and the participation professional, who becomes the mediator among the project owner, the contractor and the user.

Contrary to popular belief that citizen participation endangers the design profession and diminishes its work, we are actually witnessing a proliferation of its potential roles. This implies that designers are now being called upon to manage participatory processes, taking on new responsibilities that they do not always feel are their remit. Even if they are (implicitly) trained in group and project management, the training of future architects, urban planners and architectural engineers could therefore include new participative keys. They will then be better equipped to seize new professional opportunities and become facilitators, animators, recruiters or organizers of participatory processes.

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5. References

Adler, P.S. (1975). The transitional experience: An alternative view of culture shock. Journal of Humanistic Psychology, 15(4), 13–23.

Arnstein, S.R. (1969). A ladder of citizen participation. Journal of the American Planning Association, 35(4), 216–224.

Bächtiger, A., Niemeyer, S., Neblo, M., Steenbergen, M.R., Steiner, J. (2010). Disentangling diversity in deliberative democracy: Competing theories, their blind spots and complementarities. The Journal of Political Philosophy, 18(1), 32–63.

Bacqué, M.-H. and Gauthier, M. (2011). Participation, urbanisme et études urbaines. Quatre décennies de débats et d'expériences depuis "A ladder of citizen participation" de S. R. Arnstein. Participations, 1(1), 36–66.

Barcenilla, J. and Bastien, J.-M.-C. (2010). L'acceptabilité des nouvelles technologies : quelles relations avec l'ergonomie, l'utilisabilité et l'expérience utilisateur ?. Le Travail Humain, 72(4), 311–331.

Bherer, L., Gauthier, M., Simard, L. (2017). The Professionalization of Public Participation. Routledge, New York.

Bherer, L., Gauthier, M., Simard, L. (2018). Quarante ans de participation publique en environnement, aménagement du territoire et urbanisme au Québec : entre expression des conflits et gestion consensuelle. Cahiers de Géographie Du Québec, 62(175), 15–40.

Biau, V., Fenker, M., Macaire, E. (2013). Les métiers de l'architecture et de l'urbanisme à l'épreuve de l'implication des habitants et des usagers. In Cahier Ramau 6 : L'implication des habitants dans la fabrication de la ville Métiers et pratiques en question, Biau, V., Fenker, M., Macaire, E. (eds). Villette, Paris, 11–28.

Binder, T., Brandt, E., Gregory, J. (2008). Design participation(-s). CoDesign, 4(1), 1–3.

Björgvinsson, E., Ehn, P., Hillgren, P.-A. (2012). Design things and design thinking: Contemporary participatory design challenges. Design Issues, 28(3), 101–116.

Blomkamp, E. (2018). The promise of co-design for public policy. Australian Journal of Public Administration, 77(4), 729–743.

Blondiaux, L. (2007). La démocratie participative, sous conditions et malgré tout. Mouvements, 50 (2), 118–129.

Blondiaux, L. and Sintomer, Y. (2009). L'impératif délibératif. Rue Descartes, 1(63), 28–38.

Bobbio, L. and Melé, P. (2015). Introduction Les relations paradoxales entre conflit et participation. Participations, 3(13), 7–33.

Bonnardel, N. (2006). Créativité et conception - Approches cognitives et ergonomiques. Groupe de Boeck, Brussels.

Bonvin, J.-M. (2013). Chapitre 2 : La participation à l'aune de l'approche par les capacités d'Amartya Sen. In La participation en action, Claisse, F., Laviolette, C., Reuchamps, M., Ruyters, C. (eds). Peter Lang, Lausanne, 41–54.

Bourdieu, P. (1986). Habitus, code et codification. Actes de La Recherche En Sciences Sociales, 64(1), 40–44.

Brereton, M. and Buur, J. (2008). New challenges for design participation in the era of ubiquitous computing. CoDesign, 4(2), 101–113.

Candy, L. (1997). Computers and creativity support: Knowledge, visualisation and collaboration. Knowledge-Based Systems, 10(1), 3–13.

Cardullo, P. and Kitchin, R. (2017). Being a 'Citizen' in the Smart City: Up and Down the Scaffold of Smart Citizen Participation. Springer, Dublin.

Castell, P. (2016). Institutional framing of citizen initiatives: A challenge for advancing public participation in Sweden. International Planning Studies, 21(4), 305–316.

Centre d'Écologie Urbaine de Montréal (CEUM) (2018). Bâtir ensemble la ville active. Boîte à outils - Urbanisme participatif [Online]. Available at: https://urbanismeparticipatif.ca/outils.

Charrier, M., Mahdjoub, M., Bazzaro, F., Sagot, J. (2013). Intégration de l'ergonome dans le processus de créativité du designer industriel : application à une conception architecturale centrée sur l'usage. Intégration, 4(5), 9.

Choay, F. (1965). L'Urbanisme, utopies et réalités : une anthologie. Le Seuil, Paris.

Cross, N. (1982). Designerly ways of knowing. Design Studies, 3(4), 221–227.

Crutzen, N. and Zwetkoff, C. (2018). Chapitre 8 : Ville intelligente. De la Smart City à la démarche Living Lab ?. In Regards sur la ville. Échanges et réflexions à partir de Liège, Brahy, R., Dumont, E., Fontaine, P., Ruelle, C. (eds). Presses Universitaire de Liège, Liège, 175–195.

Cuppen, E. (2012). Diversity and constructive conflict in stakeholder dialogue: Considerations for design and methods. Policy Sciences, 45, 23–46.

Damay, L. and Mercenier, C. (2018). Démocratie participative. Mouvement Communal, 924, 12–22.

Dortheimer, J. (2022). Collective intelligence in design crowdsourcing. Mathematics, 10(539), 24.

Douay, N. (2016). Planifier à l'heure du numérique. PhD Thesis, Université Paris-Sorbonne, Paris.

Dris, Y. and Zetlaoui-Léger, J. (2022). Dictionnaire critique et interdisciplinaire de la Participation, DicoPart, 2nd edition. GIS Démocratie et Participation [Online]. Available at: https://www.dicopart.fr/programmation-participative-2022.

Dubois, M. and Bobillier-Chaumon, M.-E. (2009). L'acceptabilité des technologies : bilans et nouvelles perspectives. Le Travail Humain, 72(4), 305–310.

Elias, M.V. and Alkadry, M.G. (2011). Constructive conflict, participation, and shared governance. Administration and Society, 43(8), 869–895.

Ferneley, E. and Light, B. (2008). Unpacking user relations in an emerging ubiquitous computing environment: Introducing the bystander. Journal of Information Technology, 23(3), 163–175.

Findeli, A. and Bousbaci, R. (2005). L'éclipse de l'objet dans les théories du projet en design. The Design Journal, 8(3), 35–49.

Fletcher, V. (2001). A neighborhood fit for people. In Universal Design Handbook, Preiser, W. and Ostroff, E. (eds). McGraw-Hill, New York, 60.1–60.15.

Fondation Roi Baudouin (2006). Méthodes participatives : Un guide pour l'utilisateur. Fondation Roi Baudouin, Brussels.

Fung, A. (2006). Varieties of participation in complex governance. Public Administration Review, Special issue, 66–75.

Glass, J.J. (1979). Citizen participation in planning: The relationship between objectives and techniques. Journal of the American Planning Association, 45(2), 180–189.

Hight, C. and Perry, C. (2006). Collective intelligence in design. Architectural Design, 76, 5–9.

Hill, J. (2003). Actions of Architecture: Architects and Creative Users. Routledge, London.

von Hippel, E. (1986). Lead users: A source of novel product concepts. Management Science, 32(7), 791–805.

Hope, A., D'Ignazio, C., Hoy, J., Michelson, R., Roberts, J., Krontiris, K., Zuckerman, E. (2019). Hackathons as participatory design: Iterating feminist utopias. Proceedings of the 2019 CHI Conference on Human Factors in Computing Systems, 1–14.

Irvin, R.A. and Stansbury, J. (2004). Citizen participation in decision making: Is it worth the effort? Public Administration Review, 64(1), 55–65.

Jacquet, V. and van der Does, R. (2018). Should We Care about Small-Scale Deliberation? A Systematic Literature Review of Minipublic Consequences. Kongress der Deutschen Vereinigung für Politikwissenschaft, Frankfurt.

Jankowski, P., Czepkiewicz, M., Młodkowski, M., Zwoliński, Z., Wójcicki, M. (2019). Evaluating the scalability of public participation in urban land use planning: A comparison of Geoweb methods with face-to-face meetings. Environment and Planning B: Urban Analytics and City Science, 46(3), 511–533.

Jones, J.C. (1970). Design Methods: Seeds of Human Futures. John Wiley, Chichester.

Kravagna, M., Reuchamps, M., Delberghe, S. (2013). Chapitre 1 : Qu'est-ce que la participation ? In La participation en action, Claisse, F., Laviolette, C., Reuchamps, M., Ruyters, C. (eds). Peter Lang, Lausanne, 25–39.

Kristensson, P., Gustafsson, A., Archer, T. (2004). Harnessing the creative potential among users. Journal of Product Innovation Management, 21(1), 4–14.

de Lange, M. and de Waal, M. (2013). Owning the city: New media and citizen engagement in urban design. First Monday, 18(11).

Lee, Y. (2008). Design participation tactics: The challenges and new roles for designers in the co-design process. CoDesign, 4(1), 31–50.

Leonet, J. (2018). Les concepteurs face à l'impératif participatif dans les projets urbains durables : le cas des écoquartiers en France. Conservatoire national des arts et métiers – CNAM, Paris.

Lévy, P. (1994). L'intelligence collective : pour une anthropologie du cyberspace. La découverte, Paris.

Lévy, P. (2001). L'anneau d'or. Intelligence collective et propriété intellectuelle. Multitudes, 2(5), 209–220.

Luck, R. (2003). Dialogue in participatory design. Design Studies, 24(6), 523–535.

Luck, R. (2007). Learning to talk to users in participatory design situations. Design Studies, 28(3), 217–242.

Luck, R. (2018a). Participatory design in architectural practice: Changing practices in future making in uncertain times. Design Studies, 59, 139–157.

Luck, R. (2018b). What is it that makes participation in design participatory design? Design Studies, 59, 1–8.

Lundmark, S. (2018). Design project failures: Outcomes and gains of participation in design. Design Studies, 59, 77–94.

Macaire, E. (2009). Des architectes à l'épreuve de la participation. In Ville éphémère, ville durable - Nouveaux usagers, nouveaux pouvoirs, De Coninck, F. and Deroubaix, J.-F. (eds). L'œil d'Or, Paris, 135–147.

Maier, K. (2001). Citizen participation in planning: Climbing a ladder? European Planning Studies, 9(6), 707–719.

le Maire, J. (2005). L'architecture participative : essai de chronologie. Les Cahiers de La Cambre : Architecture, 3, 123–132.

le Maire, J. (2009). La grammaire participative. Théories et pratiques architecturales et urbanistiques 1904-1968. PhD Thesis, Université Paris I Panthéon-Sorbonne, Paris.

May, J. (2007). The triangle of engagement: An unusual way of looking at the usual suspects. Public Money and Management, 27, 69–75.

Motte, D. (2004). The cognitive aspects of the engineering design activity – A literature survey. Proceedings of the TMCE 2004, 91–101.

Nguyen, C., Bleus, H., Van Bockhaven, J. (2018). Smart City. Le guide pratique. Tome 2 : Comment rendre le citoyen acteur de son territoire ?. In Smart City, Basile, C. and Crutzen, N. (eds). Smart City Institute, Liège.

Nicolet, C. (1988). Le métier de citoyen dans le Rome républicaine. Gallimard, Paris.

Norman, D. (2013). The Design of Everyday Things. Revised and Expanded Edition. Basic Book, New York.

Norouzi, N., Shabak, M., Embi, M.R.B., Khan, T.H. (2015). The architect, the client and effective communication in architectural design practice. Procedia-Social and Behavioral Sciences, 172, 635–642.

Pallasmaa, J. (2005). The Eyes of the Skin: Architecture and the Senses. John Wiley & Sons, New York.

Pomey, M., Flora, L., Karazivan, P., Dumez, V., Lebel, P., Vanier, M., Jouet, E. (2015). Le "Montreal model" : enjeux du partenariat relationnel entre patients et professionnels de la santé. Santé Publique, 1, 41–50.

Reuchamps, M. and Caluwaerts, D. (2013). Introduction : Le tournant participatif et délibératif. In La participation en action, Claisse, F., Laviolette, C., Reuchamps, M., Ruyters, C. (eds). Peter Lang, Lausanne, 9–21.

Rogers, E.M. (1983). Diffusion of Innovations, 3rd edition. The Free Press, New York.

Rowe, G. and Frewer, L.J. (2000). Public participation methods. Science, Technology & Human Values, 25(1), 3–29.

Ryan, R.M. and Deci, E.L. (2000). Intrinsic and extrinsic motivations: Classic definitions and new directions. Contemporary Educational Psychology, 25(1), 54–67.

Sanders, E. (2005). Information, inspiration and co-creation. The 6th International Conference of the European Academy of Design, 14.

Sanders, E. (2008). An evolving map of design practice and design research. Interactions, XV(6), 1–7.

Sanders, E. and Stappers, P.J. (2008). Co-creation and the new landscapes of design. CoDesign, 4, 1–16.

Schelings, C. (2021). Renouveau des approches participatives pour la fabrique de la Smart City. PhD Thesis, Université de Liège, Liège.

Schuurman, D., De Moor, K., De Marez, L., Evens, T. (2010). Investigating user typologies and their relevance within a living lab-research approach for ICT- innovation. Proceedings of the 43rd Hawaii International Conference on System Sciences, 1–10.

Schuurman, D., Baccarne, B., De Marez, L., Mechant, P. (2012). Smart ideas for smart cities: Investigating crowdsourcing for generating and selecting ideas for ICT Innovation in a city context. Journal of Theoretical and Applied Electronic Commerce Research, 7(3), 49–62.

Shelton, T. and Lodato, T. (2019). Actually existing smart citizens. City, 23(1), 35–52.

Simonofski, A., Serral Asensio, E., Wautelet, Y. (2019). Citizen participation in the design of smart cities: Methods and management framework. In Smart Cities: Issues and Challenges. Mapping Political, Social and Economic Risks and Threats, Visvizi, A. and Lytras, M.D. (eds). Elsevier, Amsterdam, 47–62.

Sintomer, Y. (2008). Du savoir d'usage au métier de citoyen ?. Raisons Politiques, 31(3), 115–133.

Siva, J.P.S. and London, K. (2009). Habitus shock: A model for architect-client relationships on house projects based on sociological and psychological perspectives. Proceedings of the CIB W096 Architectural management, Taiwan, 209–220.

Siva, J.P.S. and London, K. (2011). Investigating the role of client learning for successful architect-client relationships on private single dwelling projects. Architectural Engineering and Design Management, 7(3), 177–189.

Smulders, F.E., Reymen, I.M., Dorst, K. (2009). Modelling co-evolution in design practice. International Conference on Engineering Design, ICED'09, Stanford, 2.335–2.346.

So, C. and Joo, J. (2017). Does a persona improve creativity? Design Journal, 20(4), 459–475.

Terrade, F., Pasquier, H., Reerinck-Boulanger, J., Guingouain, G., Somat, A. (2010). L'acceptabilité sociale : la prise en compte des déterminants sociaux dans l'analyse de l'acceptabilité des systèmes technologiques. Le Travail Humain, 72(4), 383–395.

Tritter, J.Q. and McCallum, A. (2006). The snakes and ladders of user involvement: Moving beyond Arnstein. Health Policy, 76(2), 156–168.

Vanolo, A. (2016). Is there anybody out there? The place and role of citizens in tomorrow's smart cities. Futures, 82, 26–36.

Verhulst, L., Elsen, C., Heylighen, A. (2016). Whom do architects have in mind during design when users are absent? Observations from a design competition. Journal of Design Research, 14(4), 19.

Wilkie, A. (2010). User assemblages in design: An ethnographic study. PhD Thesis, University of London, London.

Wilkie, A. (2011). Regimes of design, logics of users. Athenea Digital, 11(1), 317–334.

Williams Woolley, A., Aggarwal, I., Malone, T.W. (2015). Collective intelligence and group performance. Current Directions in Psychological Science, 24(6), 420–424.

Zetlaoui-Léger, J. (2007). Participation. Revue Urbanisme, Special edition (30), 70–72.

Zetlaoui-Léger, J. (2013). Urbanisme participatif. In Dictionnaire critique et interdisciplinaire de la participation, Casillo, I., Barbier, R., Blondiaux, L., Chateayraynaud, F., Fourniau, J.-M., Lefebvre, R., Salles, D. (eds). GIS Démocratie et Participation, Paris [Online]. Available at: http://www.participation-et-democratie.fr/fr/dico/urbanisme-participatif.

Zetlaoui-Léger, J. (2015). Invention et réinvention de la “programmation générative” des projets : une opportunité de collaboration entre architecture et SHS pour des modes d’habiter “durables”. Revue Clara, Université Libre de Bruxelles, 3, 101–114.

Zetlaoui-Léger, J. and Meunier, F. (2016). La participation citoyenne : Réussir la planification et l’aménagement durables. ADEME, Paris.

Zimmerman, M.A. and Rappaport, J. (1988). Citizen participation, perceived control, and psychological empowerment. American Journal of Community Psychology, 16(5), 725–750.