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Digital Participation in Urban Planning
A promising tool or technocratic obstacle to citizen engagement?

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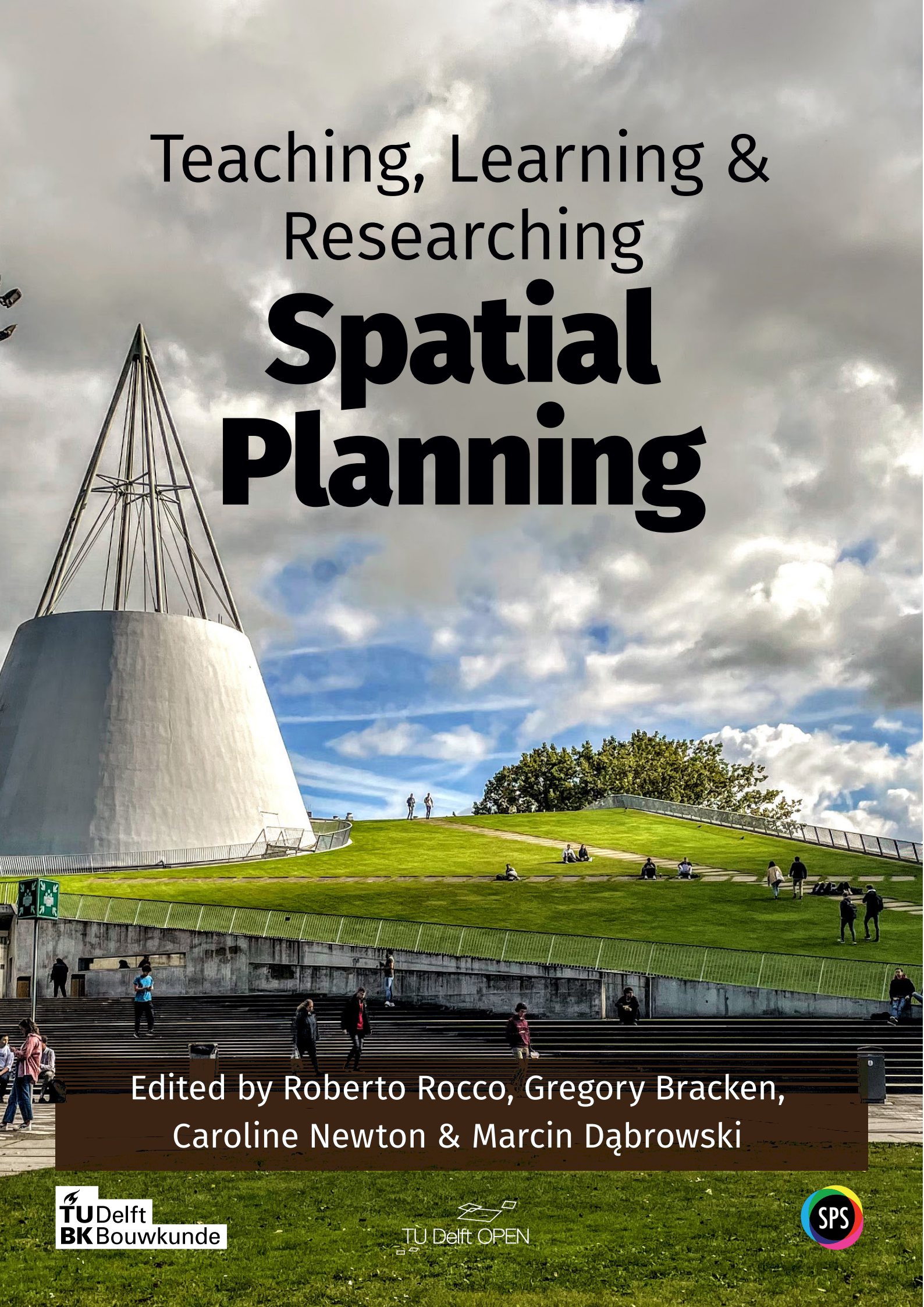

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URBANISM

Digital Participation in Urban Planning

A promising tool or technocratic obstacle to citizen engagement?

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Over time, urban planning scholars have studied ways to improve communication and collaboration between 'experts' and the 'public' in planning processes. Social media and the web 2.0 have strongly affected governments' communication with citizens. The growth of public participation, Geographic Information Systems and geo-visualisation interfaces have provided many opportunities for citizens to create and share various kinds of location-based information. Digital participatory platforms (DPPs) are a specific type of web-based technology, often adopted by governments for citizen engagement in urban planning. DPPs are explicitly built for engagement and collaboration purposes allowing for user-generated content and include a range of functionalities which transcend and considerably differ from 'conventional' social media such as Facebook and Twitter. However, simply establishing DPPs is not enough. Previous research has outlined various challenges towards DPPs attempting to leverage citizen participation in urban planning. This chapter discusses five fundamental challenges to effective citizen participation: 1) access and awareness, 2) sustaining user motivation, 3) expectation management, 4) re-establishing routines and practices, and 5) offline follow-up and decision-making. The main question is how these challenges affect the actual take-up and effectiveness of DPPs. Contrary to the common debate, the chapter will show that technology is not the main issue. Rather, the way in which DPPs are embedded in a wider participation approach is key to its success.

PARTICIPATION, DIGITAL PLATFORMS, SOCIAL MEDIA, CITIZEN ENGAGEMENT, CROWDSOURCING, COVID-19

1. Introduction

Participation of citizens in government activities at all levels has received increasing attention in many disciplinary fields, including public administration and government studies, urban planning, public service design, and information technology (Bryer & Zavattaro, 2011; Linders, 2012; Falco & Kleinhans, 2018a). Much attention derives from the potential contribution of social media, digital platforms, and other ICTs to the interactions between national, regional, and local governments and citizens. Because of wider economic trends, welfare state retrenchment, and new knowledge-sharing patterns, citizens' demands and governments' actions increasingly require two-way engagement and collaboration (Kleinhans et al., 2015). The growth of public participation geographic information systems (PPGIS), crowdsourcing, volunteered geographic information (VGI), and geo-visualization interfaces such as Open Street Map, play a fundamental role in citizen engagement strategies (Brown & Kytta, 2014). The COVID-19 pandemic has accelerated the adoption of new technologies and operational practices, also in terms of digital participation (Bricout et al., 2020).

While there is an abundance of literature on the use of social media for citizen-government relationships (e.g. Bryer & Zavattaro, 2011; Mergel, 2013), this chapter focuses on a specific type of ICT: digital participatory platforms (DPPs). These are defined as a specific type of social media explicitly built for participatory, engagement, and collaboration purposes allowing for user-generated content and include a range of functionalities which transcend and considerably differ from 'conventional' social media such as Facebook, Twitter, or Instagram. A few examples of such DPPs are Carticipe (Lille), Citizinvestor (Tampa), Commonplace (London, Newcastle, and other cities), Sticky World (Hexham), Better Rejkjavik, Maptionnaire (many countries), and Decide Madrid. Previous research has outlined various challenges to overcome in making DPPs effectively leverage citizen participation in urban planning. Without attempting to be exhaustive, this chapter uses a literature review and 27 semi-structured interviews (reported elsewhere) with public agencies and platform founder to identify five of such challenges:

1. **access and awareness**
2. **(sustaining) user motivation**
3. **expectation management**
4. **re-establishing routines and practices**
5. **offline follow-up and decision-making**

The main question we wish to address is how these challenges affect the actual take-up and effective deployment of DPPs. The chapter starts from the premise that availability and development of technology is not the main issue that needs to be addressed. Rather, the ways in which the technology is embedded in both the involved institutions and the actual participation process are more influential for the overall effectiveness of participation. However, both in planning education and the debate among practitioners, the technology itself tends to overshadow other important issues, in the wake of a dominant smart city discourse (Hasler et al., 2017; Robinson & Johnson, 2020; Townsend, 2013). This

chapter shows how the five challenges underscore the observation that 'citizens will only continue to participate if they derive some value from doing so' (Webster & Leleux, 2018: 106). In the next section, we provide a brief theoretical background to digital participation in the context of urban planning. The third section analyses the nature of the challenges for effective leverage of digital participation. The final section offers conclusions and will also reflect on how planning education should approach digital participation in its curriculum.

2. Citizen participation and digital platforms in urban planning

From the second half of the twentieth century onwards, urban planning researchers have studied many ways to increase and improve collaboration, communication, and interaction between 'experts' and the 'public' in the planning process (Friedmann, 1973; Healey, 1997; Brownill & Parker, 2010). Essentially, citizen participation is considered to be 'a cornerstone of democracy' (Roberts, 2004: 315), in which democratic legitimacy strongly depends on the nature and quality of public decision-making. Roberts (2004: 320) defined citizen participation as 'the process by which members of a society (those not holding office or administrative positions in government) share power with public officials in making substantive decisions and in taking actions related to the community'. In the context of urban planning, 'public participation may be defined at a general level as the practice of consulting and involving members of the public in the agenda-setting, decision-making, and policy-forming activities of organizations or institutions responsible for policy development' (Rowe & Frewer, 2004: 512). For example, citizens may contribute to developing plans for regeneration of public squares, parks or wider neighbourhood and infrastructure redevelopment.

Conventional citizen participation methods include a range of tools and tactics: referenda, public hearings, public surveys, conferences, town hall meetings, public advisory committees, or focus groups (Shipley & Utz, 2012). Most methods require citizens to be physically present at a particular time and place. This characteristic is associated with a range of practical problems of participation, such as limitations of time and costs in the process of policymaking, lack of motivation among citizens, weak citizen expertise, or difficulties of including socioeconomically disadvantaged and less articulate groups in the process (Roberts, 2004; Shipley & Utz, 2012; Falco, 2016).

Recently, urban planning has been reinventing itself in a multi-vocational, fragmented, and actor-relational way, underscored by the influence and power of self-organisation of various groups, associations, and networks (Boonstra & Boelens, 2011). This has been accompanied by the rise of new approaches to citizen participation that move beyond conventional methods and attempt to include various stakeholders in a more equal way. Online methods are increasingly adopted, as the Internet's unique many-to-many interactivity and ubiquitous communications promise to enable participation and co-production between citizens and governments on an unprecedented scale (Linders, 2012: 446). Many authors have identified various levels of citizens engagement and participation in government activities through the use of digital technologies (Desouza & Bhagwatwar, 2014; Ertiö,

2015; Linders, 2012; Williamson & Parolin, 2013). Such conceptualisations add to the widely acknowledged ladders developed in the past as well as more recent spin-offs (e.g., Arnstein, 1969; Falco, 2016; Hassler et al., 2017; IAP2, 2018).

As mentioned in the introduction, DPPs sustain a wide variety of features that allow for different forms of participation and collaboration between public and private actors. A systematic review of DPPs has identified the following functionalities: opinion maps, surveys, discussion forums, budget allocation, simulation design, voting and ranking of ideas, analytics, map-based and geo-located inputs for collaborative mapping (through comments, pins, or geographical features), crowdfunding, exporting in different file formats, importing and media uploading, and sharing on other social networking sites such as Facebook and Twitter (Falco & Kleinhans, 2018a). However, regardless of platform functionalities, which challenges need to be addressed to make DDPs 'work'?

3. Five challenges for effective leverage of digital participation

In this section, we address five fundamental challenges to digital, platform-based participation that are evidenced in the literature: 1) access and awareness, 2) sustaining user motivation, 3) expectation management, 4) re-establishing routines and practices, and 5) offline follow-up and decision-making.

3.1 Access and awareness

Digital participation concerns real life issues in the 'offline' world and relies on material tools and infrastructures. In other words, citizens who want to participate digitally must access the means and tools to do so. However, there is compelling evidence for a digital divide across many dimensions, ranging from socioeconomic status to competences and skills (Norris, 2001). In its essence, digital participation requires a stable Internet connection, a personal computer, tablet, or smartphone. While basic Internet access is common in many developed countries, urban areas, and affluent households, it is sometimes a much scarcer resource in poorer countries and remote areas lacking necessary infrastructure, and for poor, low-educated households lacking the means to acquire such access. COVID-19 has exacerbated existing social inequalities, including those regarding access, because huge parts of work, education, public administration, services, and other key elements of public life were moved online seemingly overnight during full lockdowns (Robinson & Johnson, 2020). In many cities across Europe, local governments and schools hastily distributed laptops and internet connections among children in deprived households, attempting to address the acute digital divide (e.g. Coughlan, 2020).

Digital (il)literacy is another key dimension of access (Bertot et al., 2012; Media Smarts, n.d.; Pizaco-Vela et al., 2012). Digital participation usually requires language processing, navigation skills, and critical thinking. Even in developed countries, significant proportions of the population have difficulty in reading, writing, and interpreting text and forms. Hence, digital illiteracy may create a barrier beyond basic access. Apart from the 'haves' and

'have-nots', there is also a distinction between the 'cans' and 'cannots'. In the latter category, visually impaired people and language minorities are an often-forgotten attention group. Even though the COVID-19 pandemic has accelerated a shift to digital technology-mediated, pervasive, applications across society, disparities in digital literacy and access, affordability, and usability continue to pose challenges for marginalized populations (Bricout et al., 2020: 94-95).

Finally, awareness is an important dimension of access (De Filippi et al., 2019). The presence of an online platform or portal established for participation purposes is not sufficient to attract people. A lack of participation cannot be directly equated to non-engagement of potential platform users. In fact, 'the reasons or motivations for non-participation are diverse, ranging from lack of awareness to disinterest, abstention, and exclusion' (Lutz & Hoffmann, 2017: 889). Hence, potential participants need to know about the existence of a designated DPP, preferably through information channels that are deeply rooted in their daily routines. Such channels may include 'offline' sources, ranging from local newspapers and leaflets to information stands, and word of mouth.

3.2 Sustaining user motivation

Just as with any other form of participation, digital participation requires 'action' from users, which can range from reading or listening or clicking points on a map to voicing comments, offering suggestions, participating in online debates, etc. Users need to be either intrinsically or extrinsically motivated, or both, to venture into participation. Shared interests and values are critical (De Filippi et al., 2019). Examples of intrinsic motivation are issues in citizens' direct living environment, such as reporting and solving maintenance issues (e.g. fixing potholes, broken street lighting, sidewalks, playgrounds) or contributing to regeneration of public squares, parks, or neighbourhood redevelopment plans. Extrinsic motivation refers to situations in which stakeholders are explicitly invited to participate in a specific setting, or when external events activate users to start participating. In both cases, keeping users motivated is crucial for the overall effectiveness of the participation scheme, as 'citizens will only continue to participate if they derive some value from doing so' (Webster & Leleux, 2018: 106).

DPPs may attract users out of curiosity for the medium. A potential advantage of 'early adopters' attracted by novelty is that they may convince other prospective users to join in. However, a disadvantage of 'early adopters' is that they may become bored quickly. This emphasises the importance of inviting, accessible, and careful design logics for DPPs, as well as adding incentives and gaming elements, to increase the 'fun factor' of digital participation (Baldwin-Philippi & Gordon, 2013; Lam et al., 2015; Thiel, 2017). However, the behaviour of users on the platform is also important. Researchers increasingly express their concerns in relation to harmful or destructive forms of online participation that frightens off other users, such as blasting, incivility, hate speech, bullying, and indignation (Lutz & Hoffmann, 2017: 889).

A key challenge to sparking and sustaining user motivation is the extent to which users feel that the act of participation is rewarded by platform owners recognising their input, responding to it, or highlighting links between user input and the chosen scenario(s) or outcome. Adoption of new

technology, such as DPPs, 'often comes bundled with the expectations that there will be a positive change or improvement in how citizens relate to governments' (Robinson & Johnson, 2016: 60). Users expect or require that their time and efforts pay off. The notion of *quid pro quo* is particularly important when prospective users are aware that it is not always possible to identify how the produced data are employed in the urban planning process (Hasler et al., 2017) and that the overall outcomes of the participation platform may be uncertain and located in the distant future.

A common cause for stagnating or declining user motivation is a lacking sense of ownership regarding the participation and site in general and the platform in particular. For DPPs to be 'responsive to the social and ethical needs of a specific community of interest, it is important to make a paradigm shift for policy design, from "borderless" technology to technology that is participatory and situated in a locale' (Bricout et al., 2020: 99). A possible mitigation strategy is creating a white-label version of the DPP, i.e. a local version of a generic platform, tailored to specific contextual needs and incorporating the *couleur* locale so that users can recognise their own situation.

3.3 Expectation management

The attraction of digital participation lies in the 'Internet's unique many-to-many interactivity and ubiquitous communications [that] promise to enable participation and coproduction between citizens and governments on an unprecedented scale' (Linders, 2012: 446). However, on a day-to-day basis, this promise meets a sobering reality. Despite a growing number of web-based and mobile-based platforms that enable information sharing and interaction between government and citizens, scholars have highlighted that the use of DPPs is not yet interactive and is not able to sustain two-way communication (Williams & Parolin, 2013; Ertiö, 2015). In fact, governments often stick to representation, applying 'push strategies' to provide one-way information (Mergel, 2013). Moreover, while citizens may expect a dialogue with the local government or other stakeholders, the actual engagement strategy invites co-production of content without necessarily engaging contributors in dialogue (Mossberger et al., 2013). In other words, citizens may have interaction expectations which are quite different from the intentions of the platform owners or the institutions using the platform to facilitate digital participation.

The above argument emphasises the need for expectation management, i.e. communicating by all possible means what platform users can expect in terms of interaction, frequency, nature, and impact of responses to inputs, impact of the platform inputs on the final outcome of the participation process, as well as the expected timeline and deliverables for each stage of the participation.

There are three reasons why civil servants and public officials are often hesitant or even outright against responding in real-time to digital participation inputs by citizens. First, making mistakes during the interaction, for example making promises which cannot be fulfilled, bears the risk of political consequences and creating distrust. Second, civil servants may refer to negative participation legacies. These refer to previous experiences with participation attempts that did not work out as expected, or simply failed to attract a sufficient critical mass of participants. Finally, civil servants face the daunting task of filtering information from the 'wisdom of the

crowd' towards a narrow selection of a few or even a single solution, strategy, or policy alternative in the context of scarce resources (Seltzer & Mahmoudi, 2013). This process of selection inherently involves 'disqualifying' inputs and alternatives suggested by users.

3.4 Re-establishing routines and practices

The intentions of government agencies and other actors to enlarge digital participation by 'the public' raise significant organisational challenges. In fact, digital participation often requires a fundamental revision of daily routines, practices, and protocols in public agencies. On a basis of a review of the literature and semi-structured interviews conducted over a number of years (Falco & Kleinhans, 2018a; Kleinhans, Falco & Babelon, 2021), we are able to draw five lessons learned. First, agencies need to meet regulations on privacy, data protection and security, and accessibility of media, for example for people with various disabilities or language minority groups (Bricout, 2020). Relatedly, agencies need to prepare clear strategy and policy guidelines on how to stimulate digital participation. Such guidelines should include demographics, target populations and stakeholders, feedback, monitoring, and measuring activities on platforms (Bryer & Zavattaro, 2011; Falco & Kleinhans, 2018b). Third, the revision should also include necessary changes in the 'back offices' of governments to adequately react on citizens' inputs on the selected platforms, and to establish meaningful interactions among citizens (Baldwin-Philippi & Gordon, 2013; Lam et al., 2015). Fourth, availability of expertise and trained personnel capable of 'managing' digital participation using DPPs also constitutes a challenge (Bryer & Zavattaro, 2011; Falco & Kleinhans, 2018b). As a prerequisite to this revision, overcoming an outdated organisational culture which underestimates the value of citizens' input constitutes a major challenge (Voorberg et al., 2015).

Finally, there are concerns that DPPs may actually thwart the improvement of government-citizen relationships and prevent the rise of new practices. While the related technologies make it easy to count people, to capture quick reactions (e.g. 'likes') and to use predefined answer categories, such shallow interactions generate large quantities of data from 'transactional citizens' without actually improving the two-way engagement and challenging deliberative processes underlying government and urban planning decisions (Johnson et al., 2020).

3.5 Offline follow-up and decision-making

A common misunderstanding is that digital participation embodies decision-making. However, urban planning scenarios or solutions co-created through DPPs usually need to be legitimised and approved in regular democratic decision-making bodies such as local authorities and local councils. Sometimes, additional resources need to be acquired and additional stakeholders need to be involved. As mentioned earlier, the collected data, carrying the 'wisdom of the crowd', needs to be filtered into a few or even a single solution, strategy, or policy alternative (Seltzer & Mahmoudi, 2013), which can be subject to political decision-making regarding the procurement and 'physical' imple-

mentation. The actual implementation of a chosen strategy or intervention also requires preparation and deployment time. As a result, there is often a significant time gap between the establishment of a range of options or specific choice through the DPP and the resulting changes in the built environment, physical infrastructures or community services (see e.g. Hasler et al., 2017). Such a time lag may be a source of misunderstanding incomprehension or frustration by citizens thinking 'why does it take so long?'.

4. Conclusions

In the wake of wider economic trends, welfare state retrenchment, new knowledge-sharing patterns, and the COVID-19 pandemic, there has been increasing interest in fostering digital forms of participation in public policy, and urban planning in particular. More specifically, the rise of Smart Cities and the pandemic's impact on public health and economics are considered as drivers of more pervasive technology and further development of digital planning applications, with attendant benefits and challenges (Bricout et al., 2020: 95). This chapter has focussed on a specific type of participatory ICTs, namely digital participatory platforms (DPPs).

Our premise is that availability and development of technology is not the main challenge to digital citizen engagement. In the process between crowdsourcing citizens' ideas and their selection and ultimate realisation, the technological element is modest in relation to the importance and extent of public decision-making and implementation, which requires a lot of time, energy, and expectation management. Moreover, any sincere governance culture puts citizens and their (tacit) knowledge and inputs at the centre, rather than the technology itself. As for crowdsourcing and digitally enabled exchange, the tools are already widely available, but their effectiveness and inclusiveness are contingent upon the extent to which the following five fundamental challenges can be addressed: 1) access and awareness, 2) sustaining user motivation, 3) expectation management, 4) re-establishing routines and practices, and 5) offline follow-up and decision-making. Meeting these challenges requires strategies by initiators, often government agencies, to ensure that citizens from all backgrounds and societal positions have (the economic means and technical capacity to) access, are aware of the options, continue to be motivated, and are aware of what they can expect from their input. In turn, governments must adapt their procedures and daily practices to ensure that they can adequately respond to, incorporate, and decide upon citizens' online inputs and 'materialise' these in the decision-making and subsequent interventions in the real world.

While technology often dominates the discourse on digital participation, these requirements emphasise the position of DPPs as elements in a wider, 'non-technological' process of carefully crafted citizen engagement. Not effectively addressing these requirements will render DPPs a technocratic obstacle rather than a promising tool. This is a key implication for planning education. Planning students should understand that citizen participation is 'a cornerstone of democracy' (Roberts, 2004: 315), in which democratic legitimacy strongly depends on the nature and quality of public decision-making.

Planning education should train students in facilitating the requirements discussed above, which extend to the full process of preparation, implementation, and follow-up of digitally support-

ed participation. However, the COVID-19 pandemic has taught us a lesson that needs to be passed on in education. Regardless of all available means of digital interaction, human beings crave face-to-face interaction, representation, recognition, and tangible consequences of our acts in the physical world. DPPs carry an imminent danger in this respect. 'As citizens become removed from the more challenging, involved, slower, traditional forms of citizen engagement, and funnelled towards transactional forms of engagement, supported by technology, opportunities for robust, high-quality civic discourse are lost, replaced with an emphasis on speed and quantity of connections' (Robinson & Johnson, 2016: 62). Meaningful and democratically viable citizen engagement requires planners and planning educators to ultimately think about people, not about heat maps, pins, geo-tagged comments, or sticky notes.

5. References

Arnstein, S.R. (1969). A ladder of citizen participation. *Journal of the American Institute of Planners,* 35(4), 216-224.

Adams, D. (2013). Volunteered geographic information: Potential implications for participatory planning. *Planning Practice & Research*, 28(4), 464-469.

Baldwin-Philippi, J., & Gordon, E. (2013). *Designing Citizen Relationship Management Systems to Cultivate Good Civic Habits*. Boston Area Initiative Policy Brief. https://www.academia.edu/4797458/Designing_Citizen_Relationship_Management_Systems_to_Cultivate_Good_Civic_Habits

Bertot, J.C., Jaeger, P.T., & Hansen, D. (2012). The impact of polices on government social media usage: Issues, challenges, and recommendations. *Government Information Quarterly,* 29(1), 30-40.

Bricout, J., Baker, P. M., Moon, N. W., & Sharma, B. (2020). Exploring the smart future of participation: Community, inclusivity, and people with disabilities. *International Journal of E-Planning Research* (IJEPR), 10(2), 94-108.

Boonstra, B., & Boelens, L. (2011). Self-organization in urban development: Towards a new perspective on spatial planning. *Urban Research & Practice*, 4(2), 99-122.

Brown, G., & Kytta, M. (2014). Key issues and research priorities for public participation GIS (PPGIS): A synthesis based on empirical research. *Applied Geography,* 46, 122–136.

Brownill, S., & Parker, G. (2010). Why bother with good works? The relevance of public participation(s) in planning in a post-collaborative era.

Planning Practice & Research, 25(3), 275-282.

Bryer, T. A., & Zavattaro, S. M. (2011). Social media and public administration. *Administrative Theory & Praxis*, 33(3), 325–340.

Coughlan, S. (2020), *Coronavirus lockdown: Laptops offered for online school lessons at home.* BBC News, 19 April 2020. https://www.bbc.com/news/education-52341596

De Filippi, F., Coscia, C., & Guido, R. (2019). From smart-cities to smart-communities: How can we evaluate the impacts of innovation and inclusive processes in urban context? *International Journal of E-Planning Research*, 8(2), 24–44.

Desouza, K. C., & Bhagwatwar, A. (2014). Technology-enabled participatory platforms for civic engagement: The case of U.S. cities. *Journal of Urban Technology*, 21(4), 25-50.

Ertiö, T. (2015). Participatory apps for urban planning: Space for improvement. *Planning Practice & Research*, 30(3), 301-320.

Falco, E. (2016). Digital community planning: The open source way to the top of Arnstein's ladder. *International Journal of E-Planning Research*, 5(2), 1-22.

Falco, E. & Kleinhans, R. (2018a). Digital participatory platforms for co-production in urban development: A systematic review. *International Journal of E-Planning Research*, 7(3), 52-79.

Falco, E., & Kleinhans, R. (2018b). Beyond technology: Identifying local government challenges for using digital platforms for citizen engagement. *International Journal of Information Management*, 40, 17-20.

Friedmann. J. (1973). R*etracking America: A theory of transactive planning*. Anchor Press.

Hasler, S., Chenal, J., & Soutter, M. (2017). Digital tools as a means to foster inclusive, data-informed urban planning. *Civil Engineering and Architecture*, 5(6), 230-239.

Healey, P. (1997). *Collaborative Planning: Shaping places in a fragmented society*. Macmillan.

IAP2 (2018). *IAP2 Spectrum of Public Participation.* International Association of Public Participation. https://www.iap2.org/page/pillars

Johnson, P. A., Robinson, P. J., & Philpot, S. (2020). Type, tweet, tap, and pass: How smart city technology is creating a transactional citizen. *Government Information Quarterly*, 37(1), 101414.

Kleinhans, R., Van Ham, M., & Evans-Cowley, J. (2015). Using social media and mobile technologies to foster engagement and self-organization in participatory urban planning and neighbourhood governance. *Planning Practice & Research*, 30(3), 237-247.

Kleinhans, R., Falco, E. & Babelon, I. (2021). Conditions for networked co-production through digital participatory platforms in urban planning. *European Planning Studies*, 30(4), 769-788. https://doi.org/10.1080/09654313.2021.1998387

Lam, B., Chen, Y., Whittle, J., Binner, J., & Lawlor-Wright, T. (2015). Better service design for greater civic engagement. *The Design Journal*, 18(1), 31-55.

Lutz, C, & Hoffmann, C.P. (2017). The dark side of online participation: Exploring non-, passive and negative participation. *Information, Communication & Society*, 20(6), 876-897.

Media Smarts, n.d. Digital Literacy Fundamentals. https://mediasmarts.ca/digital-media-literacy/general-information/digital-media-literacy-fundamentals/digital-literacy-fundamen-

tals

Mergel, I. (2013). A framework for interpreting social media interactions in the public sector. *Government Information Quarterly*, 30(4), 327-334.

Mossberger, K., Wu, Y., & Crawford, J. (2013). Connecting citizens and local governments? Social media and interactivity in major U.S. cities. *Government Information Quarterly*, 30(4), 351-358.

Norris, P. (2001). *Digital divide: Civic engagement, information poverty, and the Internet worldwide*. Cambridge University Press.

Picazo-Vela, S., Gutierrez-Martinez, I., & Luna-Reyes, L.F. (2012). Understanding risks, benefits, and strategic alternatives of social media applications in the public sector. *Government Information Quarterly,* 29(4), 504-511.

Roberts, N. (2004). Public deliberation in an age of direct citizen participation. *American Review of Public Administration*, 34(4), 315–353.

Robinson, P., & Johnson, P.A. (2020). Pandemic-driven technology adoption: Public decision makers need to tread cautiously. *International Journal of E-Planning Research* (IJEPR), 10(2), 59-65.

Rowe, G., & Frewer, L.J. (2004). Evaluating public-participation exercises: A research agenda. *Science, Technology & Human Values*, 29(4), 512-556.

Seltzer, E., & Mahmoudi, D. (2013). Citizen participation, open innovation, and crowdsourcing: Challenges and opportunities for planning. *Journal of Planning Literature*, 28(1), 3-18.

Shipley, R., & Utz, S. (2012). Making it count: A review of the value and techniques for public consultation. *Journal of Planning Literature*, 27(1), 22-42.

Thiel, S. (2017). Let's play urban planner: The use of game elements in public participation platforms. *plaNext – Next Generation Planning*, 4, 58-75.

Townsend, A. (2013) *Smart cities: Big data, civic hackers, and the quest for a new utopia*. WW Norton & Company.

Voorberg, W., Bekkers, V., & Tummers, L. (2015). A systematic review of co-creation and co-production: Embarking on the social innovation journey. *Public Management Review,* 17(9), 1333-1357.

Webster, C. W. R., & Leleux, C. (2018). Smart governance: Opportunities for technologically-mediated citizen co-production. *Information Polity*, 23(1), 95-110.

Williamson, W., & Parolin, B. (2013). Web 2.0 and social media growth in planning practice: A longitudinal study. *Planning Practice & Research*, 28(5), 544-562.