

Chapter 4

Towards a Linked Democracy Model



Abstract In this chapter we lay out the properties of participatory ecosystems as linked democracy ecosystems. The goal is to provide a conceptual roadmap that helps us to ground the theoretical foundations for a meso-level, institutional theory of democracy. The identification of the basic properties of a linked democracy eco-system draws from different empirical examples that, to some extent, exhibit some of these properties. We then correlate these properties with Ostrom’s design principles for the management of common-pool resources (as generalised to groups cooperating and coordinating to achieve shared goals) to open up the question of how linked democracy ecosystems can be governed.

Keywords Linked democracy · Common-Pool resources

4.1 Introduction

In previous chapters we have suggested that our model of linked democracy can be represented as a three-layered, overlapping structure of Linked Open Data (LOD), linked platforms, and linked ecosystems. A linked democracy model represents the distributed interplay between people, digital technologies, and data (see Fig. 4.1). We have also provided examples of digital platforms and ecosystems that exhibit a certain degree of connectedness by tapping on LOD, on open data, or on crowd-sourced data produced elsewhere.

Breaking silos down is a common, distinctive feature of the examples we have reviewed. But are there any other properties than we can distill from these examples? Moreover, is it possible to turn those properties into design principles that help to orchestrate a linked democracy model? Design principles should guide the implementation of a linked democracy model; they should also capture the institutional arrangements needed to produce aligned decision making in a given domain, either local or global. As we have seen with the Icelandic or Mexico City examples, a lack of institutional endorsement of carefully designed participatory

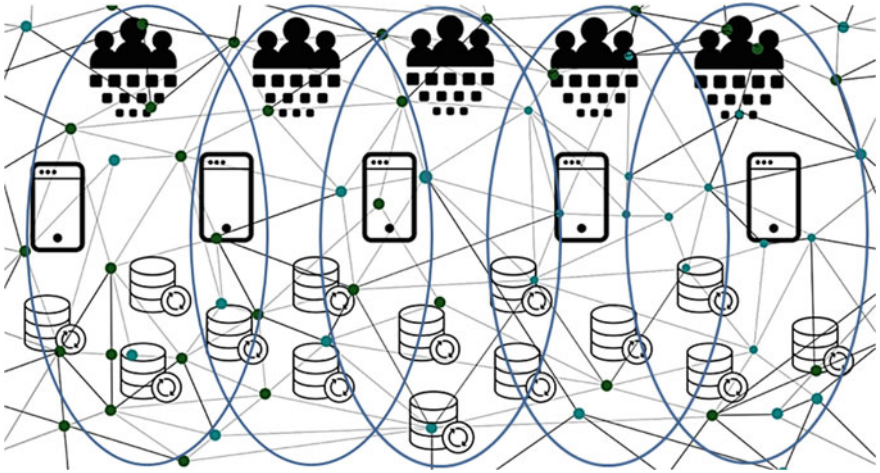


Fig. 4.1 A linked democracy model

outcomes can bring crowdsourced constitutional processes to a deadlock. Linked democracy is about finding ways out of locked democracy.

We are fully aware that generalizing specific design principles for the efficient functioning of a linked democracy would require an exhaustive, large-scale survey of case studies. We have examined some illustrative examples in the previous chapters, but this falls short of providing a comprehensive panorama. Therefore, in this chapter we will first identify some distinctive properties of a linked democracy model based on our previous examples. Second, we will map these properties onto the well-established set of design principles that Elinor Ostrom identified as enabling effective management of ‘common-pool resources’ (CPR) groups (Ostrom 1990, 90–102). Recently, David Wilson et al. reviewed Ostrom’s principles from an evolutionary perspective to argue that they ‘have a wider range of application than CPR groups and are relevant to nearly any situation where people must cooperate and coordinate to achieve shared goals’ (Wilson et al. 2013, 522). We consider linked democracy ecosystems to be one of those situations involving cooperation—in performing a wide range of tasks—and coordination—of large groups of individuals, so the principles can guide further empirical research in this area. An additional advantage of looking at linked democracy models through these lenses is that the notion of ‘politically relevant knowledge’ that we have been repeatedly borrowing from Josiah Ober in previous chapters of this book (Ober 2008; 2015) can be also seen as ‘knowledge commons’, that is, as a shared resource of ‘intelligible ideas, information, and data in whatever form in which it is expressed or obtained’ (Hess and Ostrom 2007, 7).

Ultimately, the linked democracy model that we propose is partially descriptive. It builds on properties underlined from real examples in politics, law, and policy making. Yet, none of the examples reviewed exhibit all the properties listed below.

Thus, we argue that our model has a prescriptive component, one that helps us to establish some theoretical foundations for what we consider to be a fully operational linked democracy.

4.2 Properties of a Linked Democracy Model

The properties we propose here are distilled from the different participatory scenarios examined throughout the pages of this book. We highlight here the properties that we consider most relevant for analysing participatory ecosystems from the perspective of a linked democracy model. These properties can be described as follows:

- (i) *Contextually-bound*. Interactions between people, technologies, and data always occur at specific settings. To borrow Simon's classical concepts, these interactions constitute the 'inner environment' (Simon 1969; 1988) that can be 'represented by a set of given alternatives of action' (Simon 1988, 70). At the same time, people are identifiable as individuals or groups coming together with a common purpose. Depending on the purpose, they may be geographically concentrated or, rather, dispersed across the globe (or both). Either way, people are connected online and the networks they form are traceable; technologies include specific devices and tools (social media platforms, deliberation platforms, participatory apps, distributed protocols, sensors, etc.); data comprises particular datasets with different formats (unstructured data, open data, linked open data, etc.) and licenses of use.
- (ii) *Open ended*. Even if contextually bound, participatory ecosystems are also highly dynamic: the interactions between people, technologies, and data evolve and adapt as the context changes, as if in a perpetual beta state. Interests and objectives of individuals, groups, and institutions are not necessarily stable either. A myriad of digital tools are continuously tested; some are adopted widely, some others become niche, and some others are quickly abandoned. As regards data, it is now commonplace to characterise data flows with the 4Vs (volume, velocity, variety, and veracity). The interactions between these three different dimensions are complex, in the sense that the behavior of the ecosystem as a whole cannot be predicted by the behavior of the individual components. If any, a theory of linked democracy is a theory of complex adaptive systems (Holland and Miller 1991).
- (iii) *Blended*. Interactions between people take place seamlessly, both offline and online. Global initiatives, or local initiatives that become transnational, may set local chapters where people can meet offline, organise, and discuss (e.g. the European movement DIEM25 or #blacklivesmatter). For Bennet and Segerberg, this hybrid component is a distinctive trait of new models of

‘digitally networked action’ that leverage digital media as organizing agents (Bennet and Segerberg 2012; 2013). And this is true not just for political initiatives. Massive open online courses (MOOCs) attracting thousands of students across the world typically invite enrolled members to form local groups, organise meetups in physical places and engage in collective learning (Goldberg 2015).

- (iv) *Distributed*. Participatory ecosystems can be represented as distributed communication networks with multiple nodes (Baran 1964). The distinction between ‘decentralised’ and ‘distributed’ models is not always clear. While the two concepts are often used synonymously, distributed models can also be considered as a subset of decentralised systems (e.g. Eagar 2017). Ultimately, the use of one term or another depends on the choice of a combination of technical specifications—architectural and logical features—and governance models—decision-making processes, regulations, and politics. In our perspective, in distributed participatory ecosystems individuals, groups, and communities can be identified as horizontal nodes, although it is also possible to portray communities as clusters of edges or links. As de Reus et al. have noted, ‘link communities have been reported for several empirical networks, including metabolic networks, mobile phone networks and social networks, and have been shown to highlight different subsystems than node-based communities’ (de Reus et al. 2014). Such an ‘edge-centric perspective’ allows for the identification of both ‘community hot spots’ and redundancies: links from different communities may converge at a single node and a node may belong to more than one single community (idem). This is the perspective currently adopted to map the human ‘connectome’, a concept first coined by Olaf Sporns and colleagues to refer to ‘the comprehensive structural description of the network of elements and connections forming the human brain.’ (Sporns et al. 2005). If we extend the analogy to our participatory ecosystems, we can suggest that different participatory ecosystems will exhibit different connectivity maps—or participatory ‘connectomes’. Likewise, we will need to develop and refine an appropriate ‘connectomics’ (Seung 2013) to map and analyse their structural connections.
- (v) *Technologically agnostic*. Participatory ecosystems rely on tools and technologies that can be replaced at any time. Technologies can fail, become banned, or its supply be interrupted. Nevertheless, it is possible to use, adapt, or develop alternatives in the light of the new conditions. Much as successive bans on Napster and other services did not deter Internet users from sharing files in peer to peer networks, political and civic actors typically find alternative ways to connect and engage in new spaces. The Catalan referendum for independence of 1st October, 2017 offers another interesting example of activists’ use of distributed, encrypted technologies to circumvent censorship of pro-referendum websites and to avoid eavesdropping of communications (Poblet 2018).

- (vi) *Modular*. Participation and civic engagement are fluid concepts that take multiple forms. Digital tools now support a vast range of options for citizens and groups: data collection, fact checking, monitoring, signing petitions, crowdfunding, ideating, deliberating, drafting, voting, etc. (see Table 3.1 for a taxonomy of these tools). In a modular participatory ecosystem, these options are available to cater for different levels of interest and engagement. Some forms of engagement will likely attract large numbers of participants, while some others, requiring more time, cognitive effort, or dedication, will appeal to smaller crowds. Participation is therefore the combined outcome of modular engagement. The crowdsourcing of the constitution in Mexico City offers an example of designed modular engagement by combining different participatory tools (e.g. a survey tool, a crowdsourcing platform, Change.org, and social media) that target heterogeneous forms of engagement. Likewise, the vTaiwan initiative adopts a modular approach in its four-stage procedure of open consultation, with flexible use of digital tools along the process (Hsiao et al. 2018).
- (vii) *Scalable*. Participatory ecosystems should be able to accommodate increasing numbers of nodes (participants, technologies, data) and interactions between them without compromising connectivity and effectiveness. While scalability has many definitions and attributes, from a linked democracy perspective scalability implies an organizational dimension (adding more nodes to the pool of resources); a functional dimension (adding more functionalities); and a geographical dimension (adding more geographical and digital areas and communities).
- (viii) *Knowledge-reusing*. Participatory ecosystems tap into collective intelligence to produce new forms of collective, commons-based knowledge. This knowledge may adopt multiple formats: unstructured conversation threads in forums, websites, social media, portals; annotated documents and wiki-documents, crowdsourced legislation and policy drafts, proposals, manifestos, etc.; infographics, reports, case-study repositories, podcasts, videos, etc. Both deliberation and epistemic approaches to democracy assume the need to find and reuse knowledge in deliberation and decision-making processes. Josiah Ober adds to this necessity the dimension of problem solving, in the sense that untapped knowledge can only be ‘discovered’ in relation to a particular political issue by making a connection of relevance between that knowledge and the issue at hand (Ober 2008; 2015). From a linked democracy approach, we are interested in the potential application of principles and protocols of linked open data to make these connections relevant and possible.
- (ix) *Knowledge-archiving*. To reuse politically relevant knowledge, participatory ecosystems need to find ways to trace and reproduce such knowledge. Traceability, reproducibility, and accountability are essential components of collective, commons-based knowledge. This is not different from scientific knowledge. In the last few years, archivists and scientists have renewed their concerns about the importance of keeping provenance and granting

reproducibility of research data and research objects in general (not just data, but research protocols, pre-prints, articles, code, software, etc.) (e.g. Corcho et al. 2012). Provenance and reproducibility of scientific knowledge is now supported by the semantic web technologies and standards described in Chap. 1. Taking stock of advances in this area, the idea is that every valuable knowledge product of a participatory ecosystem should be stored along with provenance information, that is, complete metadata information on the authorship, creation date, etc. If a ‘research object’ now contains everything necessary to reproduce in silicon a scientific experiment, the ‘political knowledge object’ to be preserved should contain everything necessary to ground every political decision to be made (data about when a decision was made, argumentations, votations, documents produced, etc.). To date, there are only a few examples of knowledge-archiving systems in the space we are considering. Among them, the Manifesto Project, which provides policy positions from over 1000 political parties in 50 countries since 1945;¹ the database Parties and Elections in Europe,² which collects data about legislative elections in Europe since 1945; the Constitute Project, a database of nearly 200 constitutions across the world;³ or ParlGov.org⁴ (a database for parties, elections and cabinets for EU and OECD countries). Nevertheless, these initiatives, while providing highly valuable data points, still fall short of elaborating the ‘political knowledge object’ we are suggesting to be traced, reproduced, reused, and accounted for.

- (x) *Aligned.* Participatory ecosystems may emerge bottom-up, as civic engagement initiatives, or top-down, from legislative or open government initiatives. In any case, only if institutional arrangements are in place there will be the consequential decision making and feedback loops that characterise aligned processes. The only example we found of bottom-up initiated, aligned participatory ecosystem is vTaiwan, stemming from the initiative of the Taiwanese civic-tech community (Hsiao et al. 2018). At the other end, there are two cases of top-down generated participatory ecosystems exhibiting alignment: the Irish Citizen’s Assembly, whose recommendation of the topic of marriage equality led to a national referendum, and the case of Utrecht’s citizens panels, where members are remunerated and the local council commits to incorporate the panels’ advice on the policy (Meijer et al. 2017). Perhaps if we had considered cases of participatory budgeting—an institutional innovation from the late 1980s—the results would have been different. Yet, participatory budgeting seems to offer contradictory results.

¹<http://manifesto-project.wzb.eu/>.

²<http://www.parties-and-elections.eu/>.

³<https://www.constituteproject.org/>.

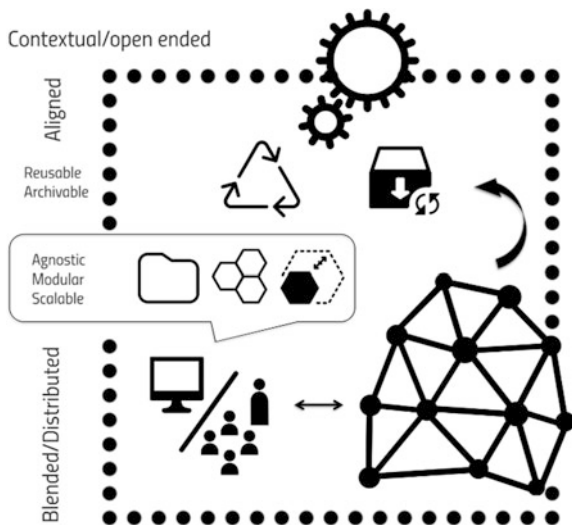
⁴<http://www.parlgov.org/>.

Sónia Gonçalves has identified a trend where Brazilian ‘municipalities using participatory budgeting favored an allocation of public expenditures that closely matched popular preferences’ (Gonçalves 2014). For Gianpaolo Baiocchi, instead, the relationship between different forms of participatory budgeting and the administration is rather ambiguous: ‘If citizens cannot debate and change the rules, if there is no plural inclusion of citizenry, or if decision-making procedures are not transparent, then participatory budgeting may conceal a new form of domination that has nothing to do with a new process of democratization’ (Baiocchi 2015, 10).

In Fig. 4.2 below we represent the properties of a linked democracy ecosystem with a graphic model that clusters them in several dimensions.

The linked democracy ecosystem is framed by its specific context, but its boundaries (dotted frame) are open ended and porous, as both the inner and the outer environment evolve dynamically [contextually-bound/open ended]. At the bottom, there is a layer of blended, distributed interactions between people, technologies, and data. On top of this layer, agnostic, scalable and modular technologies can be incorporated from the outer context. By leveraging these technologies, blended and distributed networks produce collective, commons-based knowledge that can be reused and archived with ongoing updates. When decisions are made based on this knowledge, the outcomes are consequential and extend their reach to the outer context, aligning with and informing external processes of decision making.

Fig. 4.2 A relational model of properties of a linked democracy ecosystem



4.3 Linked Democracy Ecosystems and Ostrom's Core Design Principles

The properties highlighted above are just conceptual artifacts to capture crucial developments in current participatory ecosystems. These properties do not translate into design principles or institutional rules: we have focused on participatory ecosystems capable of producing collective, politically relevant knowledge, not on how these systems are managed or could be managed. Yet, if we consider linked democracy ecosystems as entities capable of self-managing different forms of commons-based knowledge, we can then check how their properties relate with Ostrom's design principles for the effective management of common pool resource institutions or systems (CPRs). Ostrom's eight design principles have triggered a vast amount of research since they were formulated in 1990. In a nutshell, these principles are (Ostrom 1990, 90):

- Clearly defined boundaries
- Congruence between appropriation and provision rules and local conditions
- Collective-choice arrangements
- Monitoring
- Graduated sanctions
- Conflict-resolution mechanisms
- Minimal recognition of rights to organize
- For large social systems, nested enterprises (appropriation, provision, enforcement, conflict resolution, and governance activities are organized in multiple layers of nested enterprises).

In revisiting this work two decades later, Michael Cox and colleagues contended that 'although there has been substantial support for the principles, some scholars have criticized their theoretical grounding or argued that they are overly precise with respect to the range of conditions to which they might be applied' (Cox et al. 2010: 251). Following their review, Cox et al. proposed a modified version of the principles by splitting three of them in their basic components: in principle 1 they distinguish between 'user boundaries' and 'resource boundaries'; principle 2 is also divided into two basic conditions—'congruence between rules and local conditions' and 'congruence between appropriation and provision rules' and in principle 4 a similar distinction is made between 'monitoring users' and 'monitoring the resource') (idem, 274). A further revision of the principles, as we mentioned earlier, was done by Wilson, Ostrom and Cox, who used an evolutionary framework to extend them beyond CPRs, thus covering many of the situations that involve cooperation and coordination (Wilson et al. 2013, 522).

Both the principles and the analytical framework connected to them are appropriate in the domain we are exploring in this book. In Hess and Ostrom's words:

This framework seems well suited for analysis of resources where new technologies are developing at an extremely rapid pace. New information technologies

have redefined knowledge communities; have juggled the traditional world of information users and information providers; have made obsolete many of the existing norms, rules, and laws; and have led to unpredicted outcomes. Institutional change is occurring at every level of the knowledge commons. (Hess and Ostrom 2007, 43).

Figure 4.3 puts the linked democracy (LD) properties next to CPR principles (Ostrom 1990; Cox et al. 2010). Even if they operate at different dimensions (LD properties are features drawn from participatory ecosystems, while CPR design principles are governance principles) there are some relevant connections to underline.

First, LD (i) and (ii) [contextually-bound and open-ended systems] are connected with CPR-P1: they imply boundaries, even if more fluid and porous than the ‘clearly defined’ ones that Ostrom initially posited. Yet, our LD (i) and (ii) are still congruent with the requirement of a group being able to ‘determine its own membership’ (Ostrom 2010, 223). Other studies have noted that boundaries are fuzzier rather than rigid in some CPRs (Cox et al. 2010). Ultimately, as Wilson et al. put it, in absence of seemingly clearly defined boundaries, ‘the important criterion is for the identity of the group and the parameters of the shared endeavor to be clearly delineated *within each context*’ (Wilson et al. 2013, 525).

Second, LD (iii) and (iv) [blended and distributed systems] align with all CRP principles as later work from Ostrom and Hess (2007) includes the online dimension. Moreover, CPR principles (and CPR8 in particular) apply to groups whose governance mechanisms are decentralized, even if the specific implementation may differ from group to group (e.g. polycentric governance, subsidiarity, etc.) (Wilson et al. 2013).

Third, technology-agnostic, scalable and modular properties (LD (v), (vi) and (vii)) are connected to CPR-P2 to P8 as enablers of large-scale coordination and cooperation activities in relation to those principles. In blended ecosystems, issues

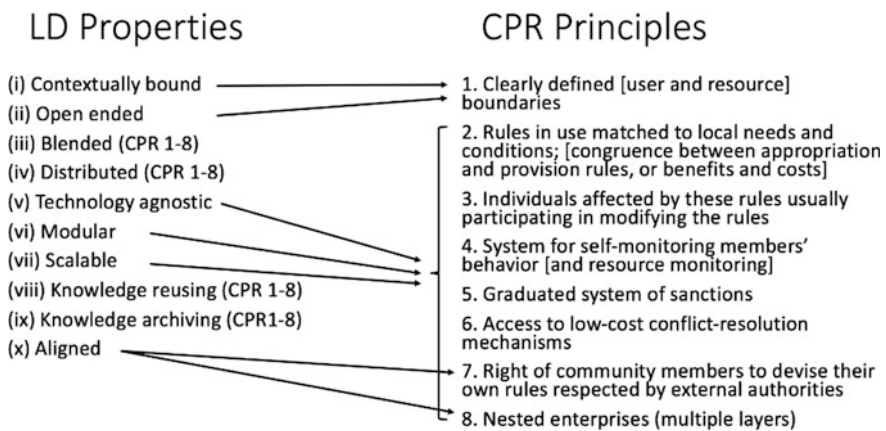


Fig. 4.3 Connections between LD Properties and CPR Principles

of large scale coordination and cooperation become even more complex: for example, how to coordinate a participatory online process to introduce new legislation involving tens or hundreds of thousands of participants?

Fourth, LD (viii) and (ix) properties [knowledge reusing and archiving] can be applied to adjust and fine-tune any of the CPR-Ps to the particular participatory ecosystem. As Wilson et al. note, ‘there is a striking correspondence between the principles derived by Ostrom for CPR groups and the conditions that caused us to evolve into such a cooperative species in the first place’ (Wilson et al. 2013, 526). Among those conditions, ‘our capacity to transmit learned information across generations’ (idem, 525). As we have seen in Chap. 1, reusing and archiving are among the core purposes of the Web of Data. For a linked democracy ecosystem, reusing and archiving properties augment our capacity to share and retrieve politically relevant knowledge across and from other ecosystems.

Finally, LD (x) is connected with CPRs P7 and P8. For linked democracy ecosystems to be aligned, it is critical to have internal rules acknowledged and respected in the outer environments (CPR-P7). Likewise, nesting local decision making into multiple layers of governance may help to render those decisions more efficient (CPR-P8). Mansbridge (2014) has shown that these two principles may lead to different interpretations of how Ostrom perceives the role of the state. Thus, Ostrom’s alleged ‘anti-state’ views could be inferred from her wording of CPR-7 [“The rights of appropriators to design their own institutions are not challenged by external government authorities” (1990, 101), cited in Mansbridge 2014, 8]. Yet, Mansbridge also concludes that Ostrom sees the role of the state in many occasions as ‘proactive’ and she further examines the different functions it accomplishes in managing CPRs (namely, threatening to impose solutions, providing relatively neutral information, offering an arena for negotiation, and helping with monitoring compliance) (Mansbridge 2014).

Our reading of these two principles, to be sure, is neither ‘anti-state’ nor ‘pro-state’. We rather read them with the lens of a linked democracy ecosystem and the collective knowledge it produces. If that knowledge is ignored or distorted, alignment with other layers of governance will not be achieved and the epistemic benefits of democratic participation and engagement will be lost.

4.4 Conclusion

Our goal in this chapter is to provide a conceptual roadmap that helps us to ground the theoretical foundations for a meso-level, institutional theory of democracy. We have mapped the basic properties of a linked democracy ecosystem drawing from different examples that, to some extent, exhibit some of these properties. We then correlate these properties with Ostrom’s design principles for the management of common-pool resources (as generalised to groups cooperating and coordinating to achieve shared goals). As Wilson et al. have argued, ‘[Ostrom] design principles cannot be implemented in a cookie cutter fashion but require a local adaptation to

find the best implementations' (Wilson et al. 2013, 527). This approach helps us to raise our next set of questions: how can linked ecosystems be governed? What role does law play? Is a new rule of law emerging from the interplay between people, technology, and data? If so, how does it look like? We try to address these questions in the next chapter.

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