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Decidim, a Technopolitical Network for Participatory Democracy

Philosophy, Practice and
Autonomy of a Collective
Platform in the Age of
Digital Intelligence



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Types of machines are easily matched with each type of society—not that machines are determining, but because they express those social forms capable of generating them and using them.

Gilles Deleuze.

Democracy never felt so real

Decidim.org motto

Preface

We have been busy building Decidim; now it is time to think it through. The goal of this book is to present in detail the nature of the Decidim project. The book comes to fill a long-lasting gap and outlines what the project is really about, why it is relevant and how we (as members of the Metadecidim community) have made it possible and developed it so far. It presents the Decidim platform and its features and design principles, but also other dimensions of the project, from the political to the technical. It also outlines the theoretical and political vision, as well as the practical and organisational work behind the project. This document also situates Decidim in a historical context defined by (techno)political struggle. Furthermore, it discusses some of the sociopolitical problems it tries to address and the possibilities it opens up ahead. Authorship of this document entails not more, not less, than putting together, making explicit and elaborating a set of theoretical and practical principles and guidelines that have been developed by a multitude of participants in our community. This book is only a thread in a thick web.

How to read this book and make it yours. Readers might be interested in different dimensions of the project, and we encourage you to find the chapter or section that best matches your interests. The introduction, however, is worth reading for any of you. We start with a brief explanation of what is Decidim, a definition of the project, how the platform works, the social contract that binds the project together, a description of the community and ecosystem behind it, the model of democracy that it embodies and the three dimensions of the project: the political, the technopolitical and the technical. We next move into the context in which Decidim has been developed to explain why we thought it was necessary to initiate or join this project, why it is relevant today in the context of a crisis of democracy as we knew it and an increasing control of social digital infrastructures by a few corporations. The rest of the book is structured along planes or dimensions of the project: the political plane involves the model of democracy that Decidim enables, contrasting it with different limitations and models of contemporary democracy, and highlighting how Decidim makes it possible to strengthen new and old forms of participatory democracy, collective intelligence and collective action in public institutions and social

organisations alike. The technopolitical plane¹ explains how this is made possible through the platform, its design principles, its architecture and its community, the Metadecidim community. Finally, we dig into the details of the technical articulation of the project: how the software is produced, its architectural details, organising protocols, legal licences, research laboratories and practices, training and education programmes, etc.

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¹In short, by technopolitics we mean the mutual, bidirectional influence, co-constitution and hybridisation of technology and politics. This involves a conception of politics that focuses on its embodiment, in the technical articulation of power, its structure and exercise, highlighting and intervening on devices, interfaces, codes, protocols, networks and methods in contrast with conceptions of politics that focus on ideas, discourses, symbols and reasons. It also implies a conception of technology that focuses on its political dimensions and impacts, its mutability and its construction, highlighting and intervening in the power relationships, ideologies and logics resulting from it, in contrast to views that understand technology as a value neutral and objective matter.

Acknowledgements

Acknowledgement of the project as necessary but insufficient for Democracy.

We deeply believe that genuine democracy shall never be conquered without economic and social democracy, without equality and collective control over the productive and reproductive networks that shape our lives. Democracy is about the autonomy of the social, and there is no democracy when society and nature are dominated by a financial or economic system that becomes progressively autonomous from democratic intervention. Neither is democracy possible when some parts of the population dominate others as a naturalised result of socio-cultural structures (e.g. patriarchy, racism and ableism). There is nothing magical about digital platforms that is going to solve these problems by itself. Decidim, as every other technology, is what history and struggle make of it. However, we are dedicated (and will continue to be dedicated) to improving the digital infrastructures for social collaboration, collective intelligence and participatory democracy. Why? A simple way to put it is that even though digital infrastructures for participatory democracy are not going to solve the problem of democracy in complex, (partly) digitalised societies, we believe this problem is not going to be properly articulated and addressed *without* appropriate (and appropriated) digital infrastructures. If we don't invest social energy into this quest, following the principles that guide our project, democracy will become increasingly harder to realise. The fundamental problem we are trying to address (and this is a key "backend" of democracy) is that of building an infrastructure for large-scale human coordination that combines the autonomy of each agent with equality in participation and collective action. That wages in favour of the many (the *hoi polloi* of the Greeks) in the struggles that underlie our societies, today as always.

Acknowledgement of the many. This project would have never been possible without all the people that contributed to the rise of Barcelona en Comú to the government of the Barcelona City Council. The people of Barcelona with their faith on the potential to change government, with their desire to stop oligarchic governance, corruption and lobbying in the city and with their commitment to create, support and trust a political movement of the many made this project conceivable,

possible and sustainable. Hundreds of citizens also participated in the design of the platform. Their contributions, conflicts, complaints and proposals made this project better. Finally, the free software community at large, with its hundreds of tools, infrastructure and knowledge, has made it possible for Decidim to stand fully free to use, copy and adapt. We finally have to acknowledge the people of Brazil for truly appropriating Decidim to re-invent democracy, with over 3.5 million participants registered the month before the submission of this manuscript.

Acknowledgement of the few. All the members of the Decidim Team (Gemma, Joana, Inma, Toñi, Joan, Mariola, Mónica, Carles, Pau, Pablo, Nuria, María, Ángela, Andrés, Juanli, Antonio, Josan, Guillem, Juanjo, Alicia, Nil and Bru) have worked intensely to push this project forward. The Decidim ecosystem and the Metadecidim community are composed of far too many people to name here individually, but they nurture and contribute to the project with passion and commitment. They are all direct or indirect contributors to this document; their interaction in hundreds of meetings, on GitHub, on meta.decidim.org and elsewhere is captured in different passages. This book, and the whole project, owes much to Andrés Pereira de Lucena. He has been too busy taking care of the code (and his two children) to write this book down. But, in a sense, he is also an author of this book: he wrote the book through us. Gala Pin also deserves a special mention. She had blind trust on us and opened the windows of the City Council to let the phantom of this project enter the castle. And Tati Pindado, from whom we have learned so much. Special thanks also to Eloy Caloca Lafont, Pablo Aragón, Guillem Marpons, and Bru Aguiló for their valuable contributions; and to María Haberer, Ramón Feenstra, Marta Pérez-Verdugo, and Andrés Lucena de Pereira for their careful revision of different versions of this book.

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Antonio Calleja-López is a sociologist, political scientist and philosopher studying the intersections of science, technology and society. Calleja-López holds a research position at the Communication Networks and Social Change group of the Internet Interdisciplinary Institute (Universitat Oberta de Catalunya, Catalonia's Open University), where he coordinates the Technopolitics research unit. He has been a Fulbright fellow, researched at different universities in the USA and Europe, and collaborated with public institutions and grassroots organisations in various local, national and international projects, including the birth of Decidim, being currently part of its coordination committee.

Carolina Romero is a technologist with two decades of experience in information technology projects, specialising in digital transformation, open government and networked interaction between administration and citizens. She began her career in the telecommunications sector and later worked as a freelance web developer and digital communication strategist. Romero holds degrees in Social Education from the Universitat de Barcelona and Urban Planning Projects and Topographical Operations from Escola del Treball, as well as a postgraduate degree in Digital Strategic

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Arnau Monterde is an academic who holds a PhD in Information and Knowledge Society from the Universitat Oberta de Catalunya (UOC). Since 2018, he has served as the Director of Democratic Innovation at the Barcelona City Council, where he oversees projects such as the decidim.barcelona participatory platform. Additionally, he is responsible for Canodrom, the Center for Digital and Democratic Innovation in Barcelona, which is a public laboratory for innovation and research that focuses on the intersection between technology, democracy and society. Previously, he coordinated the tecnopolitica.net project at the Internet Interdisciplinary Institute (IN3-UOC). He is actively involved in several programmes and projects related to digital rights, technological sovereignty, open-source software and the democratisation of network society.

Chapter 1

Decidim: A Brief Overview



1.1 What Is Decidim

Decidim in a nutshell Decidim [<http://decidim.org>], from the Catalan “let’s decide” or “we decide”, is a digital infrastructure for participatory democracy, a digital platform, built entirely and collaboratively as free software.¹ More specifically, Decidim is a web environment (a *framework*) produced in *Ruby on Rails* (a programming language) that allows anybody to create and configure a web platform to be used as a political network for democratic participation. The platform allows any organisation (local city council, state, association, university, NGO, neighbourhood or cooperative) to create multitudinous processes for strategic planning, participatory budgeting, public consultation, collaborative design for regulations, elections, etc. In addition, Decidim enables the structuring of government bodies or assemblies (councils, boards, working groups), the convening of consultations and referendums and the channelling of citizen or member initiatives to trigger different decision-making processes. It also makes it possible to connect traditional in-person democratic meetings (assemblies, council meetings, etc.) with the digital world: sending meeting invites, managing registrations, facilitating the publication of minutes, etc. But the Decidim project is much more than that.

Definition *Decidim is a public-common, free and open, digital infrastructure for participatory democracy.* It is convenient to explain the terms of this definition in reverse order. In a first approach, by “participatory democracy” we mean that form of “government of the people, for the people, by the people” where people strongly take part as equals or peers (from the Latin *pars*, which we translate as both “part” and “peer”, and *capere*, “to take”). By taking part, we mean that people take the part of the power (*potestas*) that belongs to them as equal members of a political

¹https://en.wikipedia.org/wiki/Free_software

community. And this should be an equal part for each. Moreover, we also mean to take part *in* the autonomy of social and political life, in the solidary construction of collective potency (*potentia*): the capacity to generate, coordinate and commit to flourishing collective life.

The term “digital infrastructure” makes reference to a set of resources, datasets, documents, codes (computational, legal, etc.), interfaces and services that are digitalised or made accessible by digital means. This infrastructure is primarily a platform for participatory democracy built on a specific software. Through it participants can generate a wide variety of collective processes based on actions such as creating proposals, signing and supporting them, commenting, receiving notifications, attending public meetings or receiving the minutes of a session. Administrators can design participatory processes, define the structure of democratic organs (like councils or committees), configure types of initiatives or set up consultations. The infrastructure also includes documentation, design (icons, images, logos, etc.), legal documents, datasets or training resources. All these can nurture a participatory democratic system in any organisation (be it a municipality, a cooperative, an association, a union or a community).

By “free and open” we mean that the project’s goods (the assets of the infrastructure) do not fall under the form of private property that excludes others from accessing, using, copying, modifying and re-publishing or reusing these resources but, instead, display all the legal, technical and social means necessary to share them and open them to collaboration.

Finally, the term “public-common” indicates that the project is mostly financed and made possible by public institutions but is designed and governed by an open community constituted by public servants, members of different associations and foundations, university researchers and students, activists, workers from different companies or simply volunteers that commit to the principles of the project. For this infrastructure to be a commons it is important that these partners democratically self-organise and control the software and the project more broadly. Furthermore, Decidim is a recursively democratic infrastructure that is both used and democratised by its community, the Metadecidim community.

A brief history of Decidim Decidim has grown out of many long-term trends and conflicts, from struggles around democracy and the crisis of representation to fights for free technology and against the rise of digital capitalism (see Sect. 1.2). However, one of its key roots lies in the convergence of earlier hacktivist, autonomous and democratic activism in Spain, around the 15M/Indignados movement, and the (techno)political cycle that opened after it. Born on 15 May 2011, 15M/Indignados was a networked social movement connecting digital spaces and squares (both state and worldwide) which called for and experimented with alternative forms of democracy.

From the perspective of Decidim’s history, 15M provided a direct experience of the possibilities and limits of digital technologies for trying to reassemble democracy beyond its neoliberal, representative form; it also showed some of the possibilities

and limits of democratising digital technologies beyond its closed, consumerist, capitalist form. More broadly, 15M generated or stirred technopolitical visions, practices, projects and alliances that blended in the political cycle open in Spanish politics in the following years. The post-15M cycle moved from experiments like the X Party (launched in 2013), passing through Podemos up to municipalist initiatives such as Barcelona en Comú and Ahora Madrid (all launched in 2014). With the municipalist victory in dozens of cities in the local elections of May 2015, many of those ideas, practices and alliances reached the institutional arena. Teams of activists coalesced around the Participation councils of cities like Madrid and Barcelona. One of their key goals was to promote public, digital infrastructures for participatory democracy (also as a potential strategic core to democratise technology itself), a remnant of 15M's vision.

The Madrid City Council launched its participation platform decide.madrid.es (based on open-source software later called Consul), only a few months after the success of Ahora Madrid. In Barcelona, in early 2016, a fork of Consul was used to power up the site decidim.barcelona, the new digital venue for participatory processes in the city council. Technopolitical differences in vision and practice between the city council democratic innovation teams brought about a split between the two cities; as a result, Decidim was launched in early 2017 as a brand-new software with a more modular and co-developable architecture (see Sect. 4.4.1²). Its functionalities have risen with the years, from 2 main components (meetings and proposals) to 12 components (debates, surveys, blog, etc.), 6 participatory spaces and dozens of transversal features and actions (comments, tags, follow, messages, etc.) and keeps continuous improving its main features. Already in 2016, beyond the digital platform, there was an active promotion of a technopolitical community around Decidim: the Metadecidim community, charged with co-governing the project (see Sect. 3.4).

Through the years, both the Decidim software and its community have spread internationally. Dozens of institutions have come to use (and, to a lesser extent, fund) Decidim, and more and more people and organisations have joined the community. We mention some of the key steps in the use of Decidim later in this section. When it comes to the development of the community, two key, formal steps took place in 2019: the first was the constitution of the Decidim Association; the second was the signature of an agreement with the Barcelona City Council that gives the association the control of the Decidim trademark and the code base (see Sect. 3.4.3). This makes Decidim a public-common project: public (and, incipiently, private) institutions fund the development of the software, but the association and its general assembly are the ultimate decision-makers on the orientation of the project. In this way, Decidim pushes forward the call for a real democracy both in “politics” and in “technology”.

²This break, as well as a much more detailed analysis of the technopolitical cycle from 15M till the early days of Decidim, can be found in Calleja-López (2017).

Platform Features and Functional Architecture Users of the platform (participants) interact through mechanisms known as *components* within different *spaces* that articulate and orient their action towards specific results. Participatory spaces are the frameworks that define how participation will take place, the *channels* or medium in which or through which people, citizens or members of an organisation operate in relation to the platform. There are a variety of them, differentiated by their structural specificities, such as *Assemblies, Processes, Initiatives, Votings* and *Consultations*. Specific examples of each of these spaces include: a general assembly or workers' council (*Assembly*); a participatory budgeting, strategic planning or electoral process (*Processes*); a citizen initiative for establishing a regulation (*Initiative*); and a referendum or call to vote "Yes" or "No" to change the rules of an organisation (*Consultation*). Then components are combined with spaces to flesh out participatory mechanisms; some of those components are *meetings, proposals, blogs, debates, static information pages, surveys, results* and *comments*.

So, for example, the various phases of a participatory budgeting process (where participants are called to decide how to spend a budget) can combine components in the following way: at an early phase, public *meetings* can be convened for citizens to analyse different needs classified by city district or policy topics. In turn, these meetings can lead to the design of a *survey*. The survey results can next be used to define a set of categories for projects to be proposed. The proposal *component* might then be activated for participants to create and publish their projects as solutions to the identified needs or problems. These proposals can be commented on online and offline. After a period of deliberation, the *voting* component can be activated to select among the projects using a budget-expenditure system. Participants can then be called to a public *meeting* to evaluate the results, and an assessment survey can be launched for those who could not attend the meeting. Finally, the *accountability* component can be activated to monitor the degree of execution of the selected projects and people can comment on it. This is but one example of how components are combined in a participatory space, but there are many other combinatorial possibilities. What makes Decidim particularly powerful is this combination of components within spaces, which provides an organisation with a complete matrix or toolkit to easily design and deploy a participatory system adapted to its needs.

The social contract All members and partners of the Decidim project must endorse and follow a "social contract"³ that defines a set of guiding principles. The social contract can be summarised as follows: 1. *Free software and open content*: Decidim will always remain free and open to collaboration, without legal or technical obstacles for the use, copy and modification. To ensure this we use a set of licences: Affero GPLv3⁴ for code, Creative Commons By-SA⁵ for content (text, images,

³<https://decidim.org/contract>

⁴<https://www.gnu.org/licenses/agpl-3.0.html>

⁵<https://creativecommons.org/licenses/by-sa/4.0/>

design, etc.) and Open Access Database Licence⁶ for data. This means that Decidim will always remain auditable, appropriable, collaborable, transparent and trustworthy, all of which is fundamental for a democratic infrastructure. 2. *Transparency, traceability and integrity*: the content of participation will always be transparent, traceable and integral. This implies that all the content must be accessible and downloadable; it should always be known what happens with each and every proposal, its origin, where it was incorporated or why it was rejected, while its content must be free from manipulations whatsoever; any modification must be registered and be accessible and auditable. 3. *Equal opportunities, democratic quality and inclusiveness*: the platform must guarantee the democratic quality, the non-discrimination and equal opportunities for all participants and proposals, including objective indicators. The platform must comply with accessibility standards, its use must favour the integration of online and offline participation and organisations must deploy the means for training and mediating with participants. 4. *Privacy with verification*: participants must retain privacy of their personal data combined with verification. Personal data should never be displayed nor sold or transferred to third parties while, at the same time, the unicity (one individual with democratic rights, one verified user in the platform) and exercise of democratic rights of participants must be preserved. 5. *Democratic commitment, responsibility and collaboration*: institutions using Decidim must commit to respond on time, to be accountable for decisions taken through the platform and to openly collaborate on its improvement.

The use of Decidim The best known and intensively used deployment of Decidim is www.decidim.barcelona,⁷ with (as of June 15, 2023) more than 120,000 registered participants, 126 participatory processes and 4492 public meetings channelled through the platform. 31,261 proposals have been made with an overall of 258,866 support votes. A total of 14,425 such proposals have already become public policies grouped into 5688 resulting projects whose implementation level can be monitored by anyone. The deployment that actively explores more functionalities is Metadecidim.org,⁸ the community site that helps to support and collectively govern the project. There is also a demo site with the latest version available for exploration, and a training instance open to anybody to learn how to configure, administrate and use the platform. There are currently more than 450 deployments of Decidim in 30 countries used by organisations of different sorts ranging from municipalities such as Helsinki⁹ or Mexico City,¹⁰ to regional governments like Quebec¹¹ or the Generalitat de Catalunya,¹² national governments like the Belgium Federal

⁶<https://opendatacommons.org/licenses/odbl/1-0/>

⁷<https://decidim.barcelona>

⁸<https://meta.decidim.org>

⁹<https://osallistu.hel.fi/>

¹⁰<https://plazapublica.cdmx.gob.mx/>

¹¹<https://consultation.quebec.ca/>

¹²<https://participa.gencat.cat/>

State¹³ or Brazil,¹⁴ NGO networks such as Fundacion¹⁵ or Greenpeace, cooperatives like Som Energia,¹⁶ the National Commission for Public Debate¹⁷ (*Commission Nationale du Débat Public*) in France or the Conference on the Future of Europe¹⁸ driven by the European Commission.

A sustainable ecosystem Originally hosted at Barcelona’s Laboratory for Democratic Innovation and now at Canòdrom (Center for Digital and Democratic Innovation),¹⁹ Decidim is the result of the joint effort of a network of collaborating entities and participants led first by the Barcelona City Council and later on by the Decidim association, created in 2019. Apart from the organisations that use the platform and whose participants and administrators report bugs and suggest improvements, there is a network of 30 different collaborating entities, from software companies to institutional consortia, from research institutions to civil associations, that contribute to develop and improve the software. The Metadecidim²⁰ community uses an instance of the Decidim platform to govern the different dimensions of the project: meta.decidim.org. With more than 5000 registered participants, hosting almost 300 meetings, a dozen working groups and several participatory processes, the platform is a living example of how to use Decidim for the self-governance of a diverse international community and for the participatory democratic design of a software infrastructure. The official documentation and code are developed on GitHub²¹ where the project hosts more than 20 repositories with over 130 contributors. All combined, these actors and factors generate a sustainable ecosystem that governs, produces and provides services around the software (deployment, adaptation, configuration, training, consultancy, administration and more).

Democracy and social empowerment Decidim was born in a political cycle and institutional environment: that of the Barcelona City Council during *Barcelona en Comú*’s first mandate 2015–2019, under the impulse of Gala Pin, councillor for participatory democracy. In that context, Decidim aimed at improving and boosting the political and administrative impact of participatory democracy in the sphere of the state (primarily, but not only, at the level of municipalities, local governments, etc.). It also aimed at empowering social processes as *a platform for massive social coordination and collective action*, independently of public administrations. Anybody can copy, modify and install Decidim for its own needs, so Decidim is by no

¹³<https://monopinion.belgium.be>

¹⁴<https://brasilparticipativo.presidencia.gov.br/>

¹⁵<https://assembly.fundacion.eu>

¹⁶<https://participa.somenergia.coop/>

¹⁷<https://participons.debatpublic.fr/>

¹⁸<https://futureu.europa.eu/>

¹⁹<https://Canòdrom.barcelona/en/el-Canòdrom>

²⁰<https://meta.decidim.org/>

²¹<https://GitHub.com/decidim>

Table 1.1 Systematisation of various aspects of the Decidim project in the political, technopolitical and technical planes with the city of Barcelona as a reference

Level	Relation	Platform	Mode	Scale
Political	Superstructure	decidim.barcelona	Co-decision	City
Technopolitical	Structure	meta.decidim.org	Co-design	Community
Technical	Infrastructure	github.com/decidim	Co-production	Laboratory

means reduced to public institutions. There are different ways in which participatory democracy infrastructures can boost social, economic and political self-organisation beyond the state. Decidim is starting to be used for these purposes: for the internal organisation of producer and consumer cooperatives and for helping movements organise and design strategic planning, and it might soon also be used to coordinate massive strikes or other forms of social action. The free and modular nature of its architecture is also enabling these organisations to develop their own components and improvements (such as crowdfunding or membership management) and to plug them back into Decidim, expanding its potential. Decidim comes to fill the lack or limits of public and common platforms, providing an alternative to the way in which private platforms coordinate social action (driven by profit-seeking, data extraction and market-oriented goals). Ultimately, Decidim aims to present an alternative to the existing models of digital social coordination platforms sponsored by corporations (such as Twitter, Facebook, Amazon, Airbnb, Uber, etc.).

The political, the technical and the technopolitical As we have repeatedly stressed, Decidim is more than a technological platform. It has involved assembling a variety of codes, realities and dimensions that go beyond computer code. For this reason we define it as a “technopolitical project” where legal, political, institutional, practical, social, educational, communicative, economic and epistemic codes are generated, mobilised and merged together. Ultimately, Decidim is a sort of crossroad of the various dimensions of digital democracy and society, a detailed practical map of their complexities and conflicts. Analytically, we distinguish three general levels or dimensions of the project (see Table 1.1): the *political* (focused on the democratic model that Decidim promotes, on its impacts on public policies and organisations and on society more broadly), the *technopolitical* (focused on how the platform is designed, the politics it embodies and the way in which it is itself democratically governed) and the *technical* (focused on the conditions of production, operation and success of the project—the digital factory, collaborative mechanisms, licences, training, etc.).

The *political* plane is best illustrated by the use of Decidim in a city or organisation and the type of democratic processes and decisions that are made through it. In other words, it covers what kind of politics (in the usual, institutional, sense of the term) can be done using Decidim. A prototypical instance working at the political plane is the decidim.barcelona²² platform. The second plane, the *technopolitical*,

²²<https://decidim.barcelona>

includes matters concerning the architectural and political design of Decidim: its interfaces, features, design principles, data policies, user experience, etc. It is primarily a reflexive, decision-making and operative space on how technologies structure political processes and vice versa. It is embodied in the Metadecidim platform and the community that surrounds it. Finally, the *technical* plane encompasses issues concerning the programming and legal codes (information and legal infrastructures), but it also includes issues of education and knowledge (epistemic infrastructures) or spatial and working organisation. All three dimensions are part of the project, and they can be distinguished only analytically. All of them are, if you want, technopolitical in the sense of connecting politics and technology, but the first puts politics in the foreground and technology in the background, and the third does it the other way around. It is in the second plane or dimension where much of the reflexivity is clearly articulated and takes place, where the realm of “established” politics and of technology (the first and the third plane) is turned *political*, that is, explicitly opened to contestation, deliberation and intervention, and *technical*, that is, translated into materiality (via codes, laws, practices and the like).²³ This book is specially rooted in this middle plane.

1.2 Why Decidim?

The context that has given birth to Decidim is defined by two key interconnected tendencies, each of which, as we will see, brings with it a counter-tendency. On the one hand, the last decades have witnessed a crisis of representative democracy in Western societies (distrust of politicians, representative institutions and politics more broadly, weakening of the Welfare State and subordination to market forces, inability to deal with problems such as rising inequality or climate change, rise of post-truth dynamics, etc.) as well as the experimentation with some alternatives, such as grassroots organisations, new parties and institutional forms. On the other hand, the rise of digital capitalism (a generic name we take to include the informational, cognitive and platform capitalism labels), a system where the mobilisation and exploitation of information, knowledge, affects and social relations, increasingly via digital platforms, has become core to the generation of economic value, which has been timidly opposed by the emergence of free software, knowledge and culture. Both phenomena (crisis of representative democracy and rise of digital capitalism)

²³The classical distinction between politics (a constituted reality like the established institutionality of politics, from parties and public to governments and administrations) and the political (a constituent process, where such realities are built or demolished), first formulated by Carl Schmitt, has been connected by Barry (2001) with the question of technology. He differentiates politics as “a way of codifying particular institutional and technical practices” (p. 201) from the political as “the ways in which artefacts, activities or practices become objects of contestation” (p. 6). We believe that the task of questioning both politics and technology can take forms beyond contestation (e.g. deliberation).

are deeply intertwined, and Decidim is born right at their very intersection. It tries to respond to the many challenges and the not so many opportunities that these phenomena open for (or pose to) democracy and contemporary societies, more broadly. In this section, we briefly analyse these two phenomena, with a special focus on the way they impact politics today.

1.2.1 The Contemporary Crisis of Democracy and Its Alternatives

Rise and decline of liberal, representative democracies The basic structures of representative democracy have barely been updated in the last 150 years. The growth of the franchise to include all men first and women afterwards is a crucial shift that did not affect the centrality of representation and its institutional embodiments (the party, State bureaucracy, etc.). The last three decades saw both the success of liberal democracies (with the multiplication of liberal democratic states all over the world) and their decline (as diagnosed in a wide literature).²⁴ The decline has been expressed in various forms; we will mention two: practically, in the inability of contemporary democracies to deal with problems such as rising inequality (Piketty, 2013) or climate change (Klein, 2015), and politically, in the decline of participation and trust in political parties and political representatives, as well as other political institutions (Mair, 2006; Tormey, 2015). More recently, this has resulted in a reduction of the quantity and quality of the countries considered fully democratic and the rise of authoritarianism and autocracy (V-Dem, 2023).

Structural limits of representative democracy: the triple challenge of complexity²⁵ The structure of modern democracies is based on representation (and, more specifically, electoral representation, Manin, 1997; Van Reybrouck, 2018), that is, on a series of mechanisms by which a few actors (political and

²⁴The decline has been ongoing for the last two decades, or even much more (Pharr et al., 2000; Pharr & Putnam, 2000), and has been noticed across the “ideological and methodological spectrum” (Tormey, 2015, p. 15). So much so that the crisis of liberal representative democracy has been identified with the crisis of democracy itself (della Porta, 2013; Keane, 2009). Different authors have denounced the technocratic tendencies and the neoliberal hegemony in this same period as heralding a stage of post-democracy (Crouch, 2004) or post-politics (Rancière, 2001; Žizek, 1999), while others, in a more limited way, have used the term “post-representation” to refer to the emptying of power and meaning of representative institutions by dynamics ranging from globalisation and the dismantling of the Welfare State to dis-affection and dis-empowerment (Brito Vieira & Runciman, 2008; Keane, 2009; Rosanvallon, 2015; Tormey, 2015). The meanings of “post-representation” are multiple, though, connected with different political readings of the crisis and the potential ways out of it, from those that give conjunctural interpretations to those that tie it to the transformations of modernity, its subjectivities and modes of sociality (Tormey, 2015).

²⁵This section is a theoretical reconstruction of aspects that are historically embedded and power-laden.

administrative) are elected or selected to manage public issues in the name of the whole of the citizenry and are in principle accountable to it. Political representation is an oligarchic political and institutional form that has its roots in mediaeval institutions. It was born as a mechanism for nobles and knights to push their demands in exchange for consenting to taxation (Pitkin, 1967). But it has proven its limits in coping with complexity and conflict: the complexity and conflictuality of society, of reality and of organisation.

In social terms, representation had to face the progressive growth of the franchise, incorporating an ever more diverse constituency, and, in the last decades of the twentieth century, the rise in cultural diversity, consumerism and the ideology of consumer choice in Western democracies (Laclau & Mouffe, 1985; Sennett, 1977, 1998) that generated an ever-growing variety of desires and perspectives to be listened to and articulated in government action. Furthermore, representation has proven open to systemic practices of nepotism or corruption, usually by powerful economic interests (Buchanan & Tullock, 1962; Peltzman, 1976). In this context, representative mechanisms have ended up imposing the will of the few over the complex and conflictual wills of the people in public policy.

The second key challenge of complexity had to do with broader reality. As the technoscientific transformation of the world accelerated, the responsibility and complexity of the problems facing public policy (e.g. climate change) has only increased; and yet many of the systems for detecting social problems and mobilising social knowledge to address them have remained oligarchic, on the one hand, and badly coordinated, on the other. The attack Friedrich Hayek (1944, 1945) launched on socialist planning can be launched against representative democracy too: reality is too complex for a centralised governing system.

The third challenge of complexity fed back into the previous two: it is the challenge (or meta-challenge) of coordination and organisation. Mobilising, organising and articulating the knowledge, the will and the collective action of society into public policy faced numerous socio-technological limits: the millions of members composing a given social group could not express their will nor contribute their knowledge and effort to address their matters of concern.²⁶ Still in the twentieth century, the infrastructure required to bring the will or the knowledge of people distributed geographically, ideologically or socio-economically (e.g. laborally) to bear upon a common problem or decision seemed out of reach. Even if they wanted (which would require overcoming the atomisation nurtured by capitalism and modernity) people could not gather in assemblies or other political participatory processes: they were too many, lived far from each other, had their work schedules and no free time at all.

Representative democracy, where the many periodically elect a few as leaders (typically, every 4 years), became a raw and oversimplified articulation of the knowledge and wills (including the needs and desires) of the many, in terms of the

²⁶Organisation and knowledge are insufficient to solve the problems facing democracy today. However, they can crucially contribute to do so.

management by the few. So raw and simplified that it couldn't solve the problems of society and became one of them: the people's will was not represented or properly constructed, but captured; the real problems were not solved by public representatives, but externalised to the market to be solved; and the problems generated by the market too often remained unsolved.

Technological conditions for going beyond representative democracy: the informational opportunity As noted in a long and debated literature (Fuchs, 2008; Hacker & van Dijk, 2000) (two recent reviews are Berg and Hofmann (2021) and Congge et al. (2023)), the conditions for addressing these problems have changed in the last decades with the advance of information and communication technologies. As has been repeatedly stressed, these technologies may contribute to overcome many of the spatial and temporal barriers that have traditionally haunted democracy: direct participation may occur without people having to share physical space and time. This allows thinking about democracy in terms of new scales and forms. Information and communication technologies (from now on ICTs) and practices related to them redefine the cost and shape of the construction and circulation of information and knowledge (e.g. locating problems and ways to solve them), decision-making (e.g. deciding ways to address them) and mobilisation (e.g. organising for enacting those decisions) in society: ICTs and emerging practices around them may help to boost collective intelligence, will and action (Benkler, 2006; Earl & Kimport, 2011; Levy, 1997). In principle, new social, party and state forms seem possible. The challenges of complexity and conflictuality remain, but ICTs and practices associated with them may contribute to address (or transform) those challenges beyond representation. In Chap. 2, we make some suggestions on how Decidim could help in this regard.

Social limits of representative democracy: economic powers and the rise of neoliberalism The problems of representative democracy today are not of complexity only, though. They have as much to do with issues of social conflict and power. Many of the ailments of representative democracy in the last three decades have been rooted in three key shifts of power (della Porta, 2013, p. 23; Offe, 2011, p. 457): a shift of power from parties and parliaments to executive powers, reducing the meaning of parliamentary and party politics; a shift from State to Market, with processes ranging from externalisation and privatisation of public services to the introduction of corporate logics in public administration, hand in hand with the rise in power of global corporations first and Big Tech later; and a shift from nation-states to international governmental organisations such as the EU, the IMF or the World Bank, frequently aligned with such corporations, emptying both States and democracies of much of their legitimacy and power (Crouch, 2011; Laval & Dardot, 2017; Sánchez-Cuenca, 2014).

Political parties have suffered particularly: from the mid-nineteenth to the mid-twentieth century, the mass party model was guided by clear programs and rooted in a thick social structure connected to grassroots spaces and organisations, unions, media and so on. The catch-all party model rising in the 1980s, however, had

pragmatic, variable programs and supported itself primarily on mass media (in particular, TV, frequently under private control) and polls. Beyond the power shifts mentioned earlier, factors such as the fragmentation of the socioeconomic composition of classes and the surrounding discourses, no more easily divisible into “capitalists and proletarians” (Laclau & Mouffe, 1985), and the rise of a mass-mediated consumer society (Baudrillard, 1970) based on a hyperbolic and depoliticising individualism accompanied by a successful attack on collective forms of association and struggle (e.g. unions, strikes, etc.) went hand in hand with such party transformations. The traditional mass party saw a steady decline of its grassroots in Western democracies until today. This emptying out of a crucial element of representative democracy was tied to the rise of neoliberalism (Brown, 2015)²⁷ and has brought a crisis of legitimacy and meaning of democracy itself, frequently identified with representation (Crouch, 2004; Streeck, 2016). The Great Regression of 2008 (Eichengreen & O’Rourke, 2009) and the austerity politics that followed it (Blyth, 2013) seemed to confirm this shift and its implications, with States first going into debt to safeguard the financial sector and then applying (or being applied) austerity policies without or against citizen consultation, guaranteeing the sustenance of capital accumulation while losing more and more capacity for social provision (Jessop, 2015).

The alter-globalisation challenge to the shift of power away from democracy These processes haven’t gone unchallenged. The last two decades have been a period of democratic movements of resistance. At the turn of the century, the alter-globalisation movement called for an alternative to the rising neoliberal globalisation, an alternative globalisation tied to a radicalisation of democracy, social justice, human rights as well as economic and ecological

²⁷ As this concept will recur in the following pages, we introduce it here. By neoliberalism, we primarily refer to “(c)hanges in the nature and role of the state following the public-sector reforms of the 1980s and 1990s. Typically, these reforms are said to have led to a shift from a hierarchical bureaucracy toward a greater use of markets, quasi-markets, and networks, especially in the delivery of public services” (Bevir, 2007, p. 364). Neoliberal advocates of these reforms departed from a critique of the Keynesian Welfare State as unmanageable, unsustainable and ultimately contrary to economic development (in continuity with the early neoliberal critiques to socialist planification; Hayek, 1945). A core tenet was that “the state is inherently inefficient when compared with markets”, so that it should “concentrate on making policy decisions rather than on delivering them” (Bevir, 2007, p. 365). Differently, the model of an “entrepreneurial government”, reliant upon competition and markets, should call for government to “steer” rather than “row”; it should make policy to be implemented by markets (or institutions following similar logics): these are basic ideas of the so-called New Public Management and its model of governance. A first key to neoliberal New Public Management (NPM hereafter) has been marketisation: processes of outsourcing and privatisation of public services and bodies. Especially in countries such as the USA or the UK, this advanced a process of “hollowing out the State” (Rhodes, 1994) and made it reliant upon a variety of private actors for the implementation and success of public policies. A second strategy is that of “corporate management”, which implied the introduction of incentives and metrics coming from private management into public administration: focus upon and evaluation of results, higher quantification of performance, customer attention or resource optimisation tied to budget reduction.

sustainability (Della Porta & Tarrow, 2005; Klein, 1999; Stiglitz, 2002). This “movement of movements” had sociotechnical networks as a key part of its organisation. It generated a “cultural politics of networking” where networks operated not only as technologies but also as models for the definition of social norms and political forms (Juris, 2008): among its key features there were the promotion of free association and information, non-hierarchical and flexible organisations, globally distributed but synchronised and locally rooted action as well as grassroots networked media.

The crisis of legitimacy of the neoliberal democracy narrative More than the work of these movements, it was the 2008 Great Regression that brought about a crisis of legitimacy of the neoliberal narrative. It opened a period of crisis of neoliberalism (Duménil & Lévy, 2013), not so much in economics but, specially, in political and social terms²⁸: the discredit of narratives praising free trade, privatisation, international economic institutions and global markets; in other terms, the discredit of the ideological practice pre-eminent since the 1980s spread along with new social and political movements, which ranged from the progressive to the reactionary. This crisis of neoliberalism fed into the crisis of representation mentioned earlier, with a peak of distrust towards official institutions, from politicians and governments to banks. The result has been a crisis of the existing model of neoliberal representative democracy (Castells, 2017; della Porta, 2013; Gerbaudo, 2017). However, the limits of political imagination and culture in the midst of a time of neoliberal, capitalist realism (Fisher, 2009) have undermined the exploration of systemic alternatives.

The 2011 wave of networked movements of the squares 2011 is a key year in political terms. Progressive social movements swept the world, from the Arab Uprisings in the North of Africa to Occupy Wall Street in North America, and from Brazil to Turkey: they challenged the political and economic status quo and the rising inequality, while reclaiming a more radical democracy (della Porta, 2013; Gerbaudo, 2012; Postill, 2017). The 15M/Indignados movement was among the key referents of this wave of networked movements of the squares, which intensively used digital networks. In Spain, 15M was the upshot of a political cycle that saw the emergence of new forms of collective organisation (from the networked squares of 2011 to the direct action tactics of the Platform of People Affected by Mortgages, PAH in Spanish), new political parties (from Podemos to Barcelona en Comú) and the victories of citizen initiatives in dozens of cities during the May elections of 2015 (Cádiz, Barcelona, Madrid, A Coruña, among many others) (Calleja-López & Toret, 2019; Feenstra et al., 2017).

Practices and dynamics on digital platforms were crucial in all of these undertakings and were oriented to increase the depth of participation of anyone and everyone into the political field (Aragón et al., 2017; Calleja-López, 2017;

²⁸In economic terms, the crisis lasted less and was followed by a deepening of accumulation processes (Jessop, 2015).

Monterde, 2015; Toret et al., 2015). Digital networks seemed to provide spaces where the disaggregating forces of neoliberal society, to which their hegemonic uses have contributed, were partially and temporarily countered and redirected to nurture collective action both online and offline. The downward spiral of representative politics and the upward extractivism of global finance and corporations was tentatively answered with democratic, locally rooted and globally connected initiatives. In the case of Spain, the struggle around the city, from the squares of 2011 to city halls in 2015, became crucial in this political cycle, in the form of municipalism (Junqué & Shea, 2018; Roth et al., 2019; Rubio-Pueyo, 2017). That cycle brought into political parties and, crucially, city institutions the desire for “real democracy” of 15M. One of its crystallisations was a number of experiments with participation and technopolitics at the city scale (Barandiaran, 2019).

The rise of right-wing movements, the brief return of the State and the horizons ahead But these achievements showed limits and perils, too. At the international scale, the wave of movements tended to fizzle out. In countries such as Spain and Tunisia, the movements left new parties or constitutions, even though the general political and economic landscape remained gloomy (Castells, 2017); and countries such as the USA, Brazil or Egypt saw the advent of authoritarian governments not long after these movements. Some announced the end of the neoliberal era and the advent of a populist moment (Gerbaudo, 2017; Rodrik, 2017), in which the basis of the *status quo* was losing its compelling power and was challenged by actors invoking the common people, from left and right, with successes for the latter such as the Brexit or the rise of Donald Trump to the presidency of the USA, Bolsonaro in Brazil, Modi in India, Orban in Hungary, more recently Meloni in Italy, etc. In the paradigmatic US case, this fed back with the activity in platforms such as 4chan, Omegle, Reddit and Tumblr, where Trump’s followers formed an irregular community, self-appointed as *Alt-Right* (Nagle, 2017a, b), which showed clear manifestations of sexism, xenophobia, islamophobia, anti-feminism, intolerance and white supremacy, openly or in the form of satirical jokes and memes. The deleterious effects of neoliberalism on democracy, accelerated after the Great Regression, generated a suspicion towards the *status quo* in which specially ultra-right-wing and nationalist positions have gained ground.

During and right after the Covid-19 pandemics, there was a doubtful return of the State, connected to frequently preceding appeals to sovereignty, social protection and collective control (e.g. in economic terms), differently conceived on left and right quarters (Gerbaudo, 2021). But those tendencies seem to have lost centrality in a landscape of growingly polarised globalisation, marked by the war in Ukraine, in which many countries (frequently for reasons preceding the conflict) publicly situate themselves in two blocks, one pivoting around the USA, the other, around China. Militarisation and, as noted earlier, autocratisation seem a transversal trend of the day. In this situation, new left governments in places like Latin America (e.g. Chile, Brazil, Colombia) cast a small light on the horizon. The other comes from movements such as ecologism and feminism (and LGTBI, anti-racism, anti-ableism, etc.),

which in cases such as that of Extinction Rebellion call for radically democratic forms of steering societies into a future marked by climate and biodiversity crises.

In sum, in the political plane, the last decades have witnessed the tension between processes undermining democracy (frequently, in an authoritarian direction) and others (much less powerful) trying either to stop such undermining or, more interestingly, calling to radicalise democracy. Decidim is firmly rooted in this last trend.

1.2.2 The Rise of the Network Society, Digital Capitalism and Knowledge Commons

First-generation digital networks: informational networks A similar opposition between reactionary tendencies and progressive ones can be found in the moving field of digitalisation. The 1990s saw the rise of the Internet and the WWW to the status of a phenomenon of global proportions. The initial hopes for cyberspace envisioned by figures such as John Perry Barlow in his 1996 Declaration of Independence of Cyberspace anticipated a new dawn of human creativity and freedom from old governments and social constraints (bodies, sexes, races, etc.). At its origin, the construction of the Internet resulted from the conflicting interests, visions and practices of various actors (Abbate, 1999; Rasmussen, 2007), especially, military and university actors. The idea of a distributed (and thereby resilient) information network was in part a response to the threat of possible high scale attacks to US information centres by the Soviet Union (Baran, 1964), but also to practices and narratives of information and knowledge freedom and sharing among university researchers (Leiner et al., 1997). Already in the 1990s, a first generation of worldwide digital networks, informational networks, paradigmatically built upon the World Wide Web, focused on enabling the free flow of information and users between websites.

Old and new communication powers: from mass communication to mass self-communication This seemed to be the dawn of a “networked public sphere” (Benkler, 2006), where earlier mediators of social communication receded from view. The twentieth-century protagonism of capital-intensive media such as radio, newspapers or TV, with their hierarchical structures and their editorial teams, seemed to give way to an explosion of unfiltered digital media such as websites and blogs. Social communication was said to be in its way to de-intermediation, its power to be more equally distributed (Rushkoff, 2002; Shirky, 2009). This change came as a paradigm shift in communication after many others. Early modern communication ecologies were built upon one-to-one interactions, either face to face or via letters (which still generated complex systems such as the Republic of Letters in the seventeenth and eighteenth centuries). They grew thanks to the limited forms of printing, books and newspapers of the time, which along spaces like salons allegedly contributed to nurture a central feature of deliberative democracy models: public spheres (Habermas, 1962) later on exposed as limited and requiring

transformation (Fraser, 1990). These ecologies were shaken in the nineteenth and twentieth centuries by technologies that afforded a much broader and faster one-to-many circulation of information, such as nationwide newspapers, radio or TV. This was the model of broadcasting, which potentiated a centralisation of social communication and mass communication, where the majority of the public played a reactive (even if not passive) role.

The Internet and social media afforded new versions of these earlier communication models, and combined it with a new model, that of many-to-many communication, in which many senders were able to generate (and react to) messages potentially reaching many others, without having to pass through any filtering centre (Kellner, 1999). This was giving way to “mass self-communication”, a model in which mass communication is “self-communication because the production of the message is self-generated, the definition of the potential receiver(s) is self-directed, and the retrieval of specific messages or content from the World Wide Web and electronic communication networks is self-selected” (Castells, 2009, p. 55). This did not imply an equal redistribution of communication power in society but rather its re-structuration, with new actors, including networked social movements, having an opportunity to play a role in a media sphere earlier controlled by big corporations or governments. 15M was a paradigmatic case of multitudinous self-communication and self-organisation (Barandiaran et al., 2020; Monterde et al., 2015; Toret et al., 2015). The fourth power of mass media journalism gave way to a fifth power, digital networks, or perhaps to a complex, more decentralised form of the fourth, a “hybrid media system” (Chadwick, 2013).

The rise of informational and cognitive capitalism The Internet and digital networks did not only affect the public sphere in a potentially democratising tendency. They also greatly contributed to push globalisation forward as a historical process, beginning with the acceleration of global finance. Differently from industrial capitalism, where the transformation of material resources into commodities was at the core of the process of capital accumulation, now it was information, knowledge, affects and social relations that became key in the generation of economic value. The result was a new form of capitalism: informational and cognitive capitalism (Castells, 1996; Fumagalli, 2007; Moulrier-Boutang, 2007; Vercellone, 2006).

Intellectual property became a key legal mechanism under this new paradigm, used to privately appropriate social knowledge and natural information. From strong copyrights on books and music, and patents on technoscientific innovations, traditional medicines and techniques, animal and vegetal DNA, etc. (Fumagalli, 2007). This in spite of the fact that information and knowledge are non-rival goods, meaning that they can be reproduced with zero or near-zero marginal cost and be used without depletion. Furthermore, in most cases their value increases with use: the bigger the spread of a trademark, the higher its value; the more a song is listened to, the higher its value. While digital networks provide the means to freely reproduce and re-distribute this kind of goods, artificial scarcity is generated through legal and

technological mechanisms. This appropriation is in many cases a blatant form of theft, but, more broadly, it is based on structures and processes (from education to entrepreneurship policies) that orient, transform and produce new personal and collective practices, desires, affects and relations sustaining a capitalist, neoliberal system (Brown, 2015).

From cognitive capitalism to platform and surveillance capitalism In time, the digital element in these processes has only gained prominence. The so-called Web 1.0 (O'Reilly, 2005) exhibited various limits to the interactions of users with both digital contents and other users. Differently, Web 2.0 was all about interaction, the social network and the platform. This exponentially increased the quantity and quality of information that could be extracted and used. Combined with the development of new techniques of big data analysis and the ever-increasing rate of computing power, the infrastructural conditions were ready for a socioeconomic mutation. Corporations such as Google or Facebook were heralding a specific form of informational and cognitive capitalism, which has been variously qualified as “platform”, “data” or “surveillance” capitalism. In a re-edition of the struggles around the general intellect noted by Marx, various forms of collective intelligence potentially enabled by digital networks (Levy, 1997), which had been prevented, curtailed, co-opted or exploited (depending on the case) under cognitive capitalism, became much more so in this new stage. By the early 2010s the emancipatory hopes tied to social networks were heavily in dispute (Morozov, 2011), and by the early 2020s the situation seems to be rather the opposite of the anticipated. From Amazon to Tinder, technological platforms are a way for a few corporations to extract data (going from activity, to opinions, to metadata), while leaving users with a little to say on what is gathered, how it is used or how the resulting benefits are distributed; this institutes a regime of “data extractivism” (Morozov et al., 2016). These corporations have access to more details of the lives of millions of people than any State or corporation to date.

Digital platforms have become the basic means of production, management, exploitation and use of valuable resources such as data or human activity online, as well as social coordination, more broadly, bringing about what has been called platform capitalism (Srnicek, 2016). Data, frequently considered as a new form of “oil” (The Economist, 2017), is first processed using data science methods and business intelligence, from modern statistics to artificial intelligence. Then, it can be put to work in various ways in social processes of data-driven politics, science and economics (Lohr, 2015). This process of extraction, processing and use is radically oligarchic. Thanks to it, corporations such as Alphabet (which includes Google), Microsoft, Amazon or Facebook have earned a nearly monopolistic position.²⁹

²⁹ Apple, Microsoft (two giants from the early days of cognitive capitalism), Alphabet and Amazon occupy four of the five top positions of the global rankings by market capitalisation as of May 2023. At this time, Meta occupies the ninth place, but it holds the third, fifth and tenth most visited sites on

A few actors have become the controllers of both platforms and data and can thereby make legible (to put it in Scott's 1999 terms) and surveil social life in order to experiment with it. Surveilling thereby appears as a first step to a much more challenging and diffuse (if possible at all) "surwilling", the willing and influencing of the will of others from above. Platform corporations move from unveiling social life to trying to orient (or "will") it from above. If surveillance intrudes into privacy, into people's negative freedom (to use Isaiah Berlin's terminology), into their freedom-from, surwilling is aimed at their positive freedom, their freedom-for. Platforms crucially influence the information people get about others and about the world, be it from friends, social actors, mass media, advertising corporations or beyond. They also get users hooked through engagement techniques, addictive triggers or access to a stream of people and content (Griziotti, 2016). The result is the emergence of new forms of knowing and potentially influencing (certainly, not in any determinist nor univocal way) the actions of millions of people, a new technopolitical power in the hands of States, corporations or political actors. This surveillance (Zuboff, 2015) and surwilling capitalism evokes a crossover between a Big Brother and a Brave New World dystopia.

Towards technopolitical heteronomy? From mass self-communication to mass capture Social networks such as Facebook, YouTube or Twitter have grown to user bases in the hundreds of millions, even billions, in only a decade. This has turned them into new intermediaries of social communication. As a result, mass self-communication has risen hand in hand with mass capture, the capture of masses of data, human communications and interactions. Platforms feed from, and feed on, some dynamics already diagnosed by Guy Débord (1967) around the society of the spectacle, which heralded a society of hypervisibility and exhibition. This was no mere imposition, but rather a form of social recomposition tied to capitalism. Socially rewarded exhibition and self-exhibition (from the intimate everyday life to political opinions and actions, passed through a variety of fiction filters) are stimulated and situated at the centre of the functioning of these platforms, which are in turn at the centre of an attention economy (Crogan & Kinsley, 2012).

In digital social networks, surveillance and control are not only top-down but also bottom-bottom. There are two axes of surveillance, vertical and horizontal. While the first tends to be unidirectional, the second is frequently (though not always, as platform privacy settings are variable) horizontal and multidirectional: users want, can and do surveil each other, with playful or predatory purposes (Albrechtslund, 2008; Tokunaga, 2011).

As noted, social network corporations aim to move from selling advertisements (a concrete type of content) to a deeper shaping of social attention and affects (Griziotti, 2016) and thereby behaviour. Key rules of social relations are not produced in and defined by processes, actors or conflicts spread in space and time,

the Internet (Facebook, Instagram and WhatsApp, respectively), with Google and YouTube (both owned by Alphabet) being the first and the second, according to SimilarWeb.

but rather are increasingly decided and designed by a reduced number of people and specific interests (economic, political, geopolitical, etc.). The social anomie resulting from several decades of neoliberalism has given way to a landscape in which the autonomy of new forms of multitudinous self-organisation in networked social movements was underlain by and exposed to new forms of corporate intermediation and influence through technologies, that is to say, technopolitical heteronomy.

A paradigmatic case was that of London consulting company Cambridge Analytica, which extracted personal data from 87 million Facebook profiles between 2014 and 2016 to analyse the political preferences of their owners, using a Facebook application disguised as a “personality test”, and tried to influence the US 2016 election with operations based on those data (Cadwalladr, 2018; The Guardian, 2018). This is not exceptional, though. Cambridge Analytica intervened in presidential campaigns in Argentina, Mexico, Brazil, Sri Lanka, Malaysia, China, Australia and South Africa, as well as the referendum that caused the separation of Britain from the European Union, known as *Brexit* (The Guardian, 2018). The effects of such interventions or the marketing interests behind some of Cambridge Analytica claims, as well as the public and intellectual narratives around them, are debated (Laterza, 2021; Vinsel, 2021) but all of them seem a symptom of the times.

Free software, knowledge, culture and Internet In continuous struggle and contact with these dynamics, there has also been a proliferation of actors, movements, practices and projects oriented by principles of democracy, freedom, social justice and commonality. For instance, as an alternative to commercial social networks, already in the second half of the 2000s, there emerged alternative platforms that went from Diaspora (with more than one million users) to $n - 1$.³⁰ They followed the steps of a tradition dating back, at least, to the 1980s and 1990s: since those days, the WWW and free software, such as the GNU/Linux operating system, have provided free digital services to millions of people all over the world. Free as in “freedom” and not only as in “free beer”, as Richard Stallman put it (Free Software Foundation, 2022).³¹ The GNU licence was a legal tool to produce and reproduce such free digital infrastructures. The Creative Commons licence expanded its possibilities to cultural works. As the principles and practices of free software spread to other fields (Kelty, 2008), first, free software licences and, later, Creative Commons licences helped to outline an alternative paradigm of collective appropriation of informational and cognitive wealth. Projects such as Wikipedia brought the free software culture into knowledge. This neatly fitted with the discourse of scientific knowledge (Merton, 1942): its traditionally self-proclaimed universalism, communalism and disinterestedness oriented towards the growth of knowledge and human

³⁰N-1 was a platform widely used during the 15M movement, together with a self-managed network of blogs (WordPress), voice-call rooms (Mumble) and collaborative real-time writing pads (Etherpad).

³¹The four basic freedoms are the freedom to run the program for any purpose; to access its source code, study how it works and change it; to redistribute copies; and to distribute copies of modified versions. They can be retrieved at <https://www.gnu.org/philosophy/free-sw.en.html>.

progress. By putting the classic Encyclopedia Britannica and Microsoft's Encarta out of business, Wikipedia became an example of an alternative "open knowledge" regime, from its production to its appropriation. Softer and problematic forms of this regime, such as "open access", have gained ground in time.

Under this alternative paradigm, platforms for digital collaboration became key in the collective production of information and knowledge out of the proprietary logics of informational and cognitive capitalism. Forms of collective intelligence have resisted and even flourished around these projects. The broad category of "digital commons" has served to encompass a variety of free software, knowledge and culture products. More broadly, the term FLOK (Free/Libre Open Knowledge) includes also non-digital forms of knowledge tied to common practices and democratic communities out of the proprietary form: from education to hardware, from engineering to culture, from biology to software (Vila-Viñas & Barandiaran, 2015). More recently, struggles around Net Neutrality (the non-discrimination of specific types of data traffic on the network by service providers and governments) have brought to the front the relevance of the control of concrete aspects and layers of the Internet for the flourishing of other basic rights such as freedom of speech or equality in the network society.³²

Hacker culture, digital communities and knowledge commons Free/Libre and Open Knowledge does not stand simply as a commodity or a good that is accessible by means of legal and technical devices. It is followed and often preceded by certain forms of social relation, modes of production and the collaborative culture that is necessary to produce and sustain it (Benkler, 2006; Hess & Ostrom, 2016). The hacker culture, often associated with an ethics of fun, openness and sharing (Himanen, 2001), is even more so with concrete practices (Kelty, 2008) and forms of politics (Barandiaran, 2003; Maxigas, 2012); crucially, it involves the disposition to transform the way artefacts (in its broader sense: from institutions to modems) are given to us in order to open them up to new possibilities. It is a practical belief on the capacity (both individual and collective) to challenge existing limits and to collaboratively explore how to break, re-assemble and build upon what is available. In doing so, communities are created around technical challenges, common infrastructures, collective resources and technopolitical struggles. In turn, these communities are faced with a myriad of governing problems and these are solved by a combination of recursive tools and democratic/collaborative procedures: from the mechanisms to solve disputes on Wikipedia, to the voting procedures of the Debian community, from forks³³ to version control systems in software development.

³²Various reports and a history of the battle around Net Neutrality can be found at https://www.laquadrature.net/en/Net_neutrality.

³³The duplication of the content and resources of a project (especially, its software code) to create a new one, something that is made possible by the non-proprietary form of knowledge and technologies involved

Added to the reproducibility³⁴ of digital goods, all this provides the sphere of Free/Libre Open Knowledge with a productive power and collective management capacity resulting in knowledge commons whose performance often parallels that of profit-driven corporations and has been the object of extensive study (Benkler, 2006; Hess & Ostrom, 2016).

Collective responses to platform capitalism: platform cooperativism and unionism More recently, with the transition from cognitive to platform capitalism, new forms of cooperativism and unionism have emerged. Platform cooperativism is characterised by principles such as collective ownership of the platform upon which the cooperative carries on its activities, work democracy, decent and safe income and protections against surveillance, among others (Scholz, 2016). On its side, forms of platform worker organisation and unionism are also actualising strategies of struggle (on the basis of associational rather than structural power, using legal tactics rather than collective bargaining and relying on geographical rather than workplace organisation and action) to face the new landscape of the platform economy, which resembles more that of nineteenth century than the one of twentieth century in advanced economies (Joyce et al., 2023). Beyond those noted, a variety of initiatives related to digital technologies and oriented to guarantee human rights have emerged in the last 20 years worldwide, from feminist AI and design justice to permacomputing projects (Calleja-López et al., 2022). Here again, against the hegemonic forms of digital capitalism, Decidim situates itself along counter-hegemonic axes that point towards forms of commonalisation, democratisation and human rights. The conflict is open.

Decidim in context As we have shown, contemporary societies face the double challenge of the crisis of representative democracy and the rise of new forms of capitalism. Figure 1.1 illustrates the role of Decidim in this context.

Under platform capitalism, tech corporations have a growing influence on people's hybrid lives (on-offline). If access and control to data and online activity are key assets, algorithms turn them into wealth and power over people and institutions, challenging democracy as we know it. This is what, in Fig. 1.1, we call "algorithmic governance": a growing form of technologically mediated technocratic governance of social and economic life, frequently with a neoliberal purview. New forms of allegedly distributed platform capitalism (Airbnb, Uber, Deliveroo, etc.) call for individualised forms of exploitation of the wealth and power emerging under the new capitalist regime, but they are ultimately dependent on big corporations, finance and tech and go hand in hand with precarity for many users and social harms for many more people affected by their operations.

However, although a minority, there are non-corporate, collaborative forms of digital production, and they make it possible to create alternatives. Decidim is one

³⁴This is not without costs. Digital objects and systems are not immaterial. They are built upon technical and material stacks that consume resources, from electricity to minerals and from physical spaces to workers' time.

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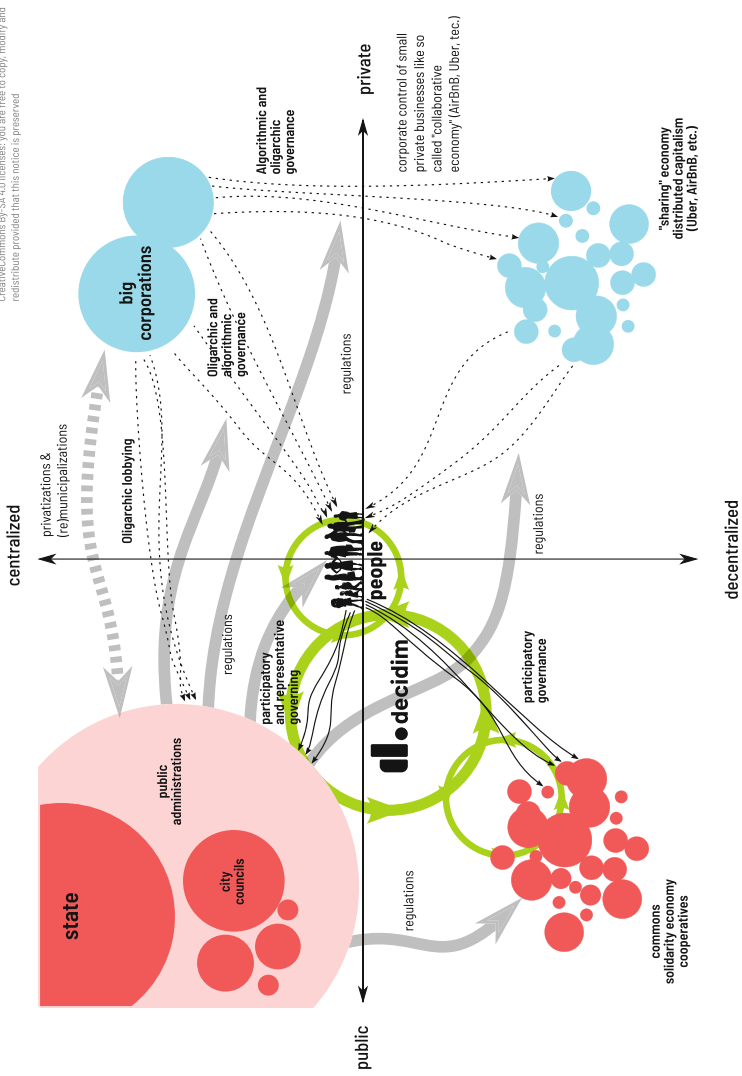


Fig. 1.1 Decidim model for a democratic society

such alternative. It is conceived as a commons' digital infrastructure for participatory democracy that is publicly supported and democratically designed, using itself for such purpose. The value of Decidim stands out in a context where common collective intelligence, democracy and participatory governance face the challenge of corporate artificial intelligence, oligarchy and algorithmic governance. A context where the democratic power of networked social movements, from the alter-globalisation and the Occupy/15M waves up to feminism and ecologism more recently, faces reactions by market, State and right-wing forces. A context where public and common institutions require democratic innovative infrastructures to overtake market-driven innovation in solving the complex challenges of our times.

Whereas a dominant trend pushes the governing of infrastructures and services to the top right of Fig. 1.1, towards increasing privatisation and centralisation in the hands of big corporations, the sociotechnical potential exists to shift this trend towards the mid-left and the bottom-left corner: towards decentralised, common and public-common ecosystems of services, infrastructures and goods. Decidim aims to contribute to this transition by boosting democratic participation into the governing of public bodies, social organisations, the cooperative economy as well as the joint circulation among the three. So far, much public debate has focused onto regulating markets, corporations and the wider economy as a means to tame privatising trends, capital accumulation and their negative consequences; meanwhile, corporate interests keep pushing such trends forward while exerting their lobbying influence on public institutions and allegedly decentralised markets or the sharing economy. Instead, Decidim contributes to the strengthening of innovative forms of commons-oriented economy, public-common partnerships and participatory democracy. The next section deals with “how” this strengthening operates. It explains how Decidim explores the potential of a radically democratic participation in various spheres and at various scales.

1.3 How to Decidim: Use, Extension and Practices

1.3.1 *General Data of Decidim Extension and Use*

By mid-2023, more than 7 years after the launch of the initial version of [decidim.barcelona](#) (in February 2016) and 6 after the public release of the unique architecture and code of Decidim (in February 2017³⁵), the software runs on more than 450 instances in more than 30 countries around the world (see Table 1.2 for more details). It has been used by local governments of some of the most important cities in the world (such as New York, Tokyo, Helsinki, Brussels, Zurich, Barcelona,

³⁵The first version of [decidim.barcelona](#), launched in February 2016, was a fork of Consul software, developed by the Madrid City Council (<https://GitHub.com/consul/consul>). A new code written from the ground up and launched in 2017. See Sect. 4.1.1 for details.

Table 1.2 Aggregate data of Decidim instances (July 2023)

Instances	454
Registered participants	3,221,051
Processes	2698
Assemblies	1386
Comments	172,938
Proposals	157,730
Meetings	21,506

Mexico City, Rosario, Monterrey and a long list), regional governments, and autonomous governments (like Catalonia, the Barcelona province, Quebec and Genoa Regione Puglia, among others), states and national governments (including the French National Assembly and the French Senate, Belgium, Italy or Brazil) and supranational institutions (such as the European Commission, UCLG or Metropolis). It has also enjoyed a warm reception among social and non-governmental organisations, foundations, parties, trade unions and cooperatives (Greenpeace, OIDP, FSMET, CNDP and many more) as well as code communities (code for France, code for Japan) or universities (Bordeaux, UOC, UNED, etc.) (Table 1.2).

Throughout these 7 years (2016–2023) Decidim has accumulated numerous experiences of participation in all kinds of processes: participatory budgeting, strategic planning, collaborative legislation, deliberative assemblies, citizen initiatives and many other processes involving the generation of ideas and proposals, debates, votings, meetings and informed decision-making. Decidim has worked as an open and flexible model, adaptable to multiple needs and contexts, contributing to a standard in citizen participation and technology.

In February 2022, the international organisation People Powered³⁶ made an evaluation of the main digital platforms of citizen participation existing in the world. They concluded that Decidim was the platform with the highest score within the category of complex platforms out of the 30 evaluated.

1.3.2 *Citizen Participation in Strategic Planning, a Case Study in Barcelona*

The initial participatory process associated with Decidim was the strategic planning initiative launched by the Barcelona City Council in 2016.³⁷ In a sense Decidim was born through that process, and it is, to date, one of the most radical, overarching and complete of the participatory processes ever done with Decidim. The process aimed to engage citizens in a 2-month co-production process, where they could evaluate, discuss and contribute their own proposals to the city's Strategic Plan for a 4-year

³⁶<https://www.peoplepowered.org/platform-ratings>

³⁷<https://www.decidim.barcelona/processes/pam>

mandate. Decidim.barcelona, the platform used for this process, facilitated registration, interaction with institutional and citizen proposals, digital debates and physical meetings.

The process involved 39,049 citizens,³⁸ 24,028 of which participated through the decidim.barcelona, and 15,021³⁹ face to face. 1741 organisations participated in the process (339 through the web and 1.494 via physical meetings). Participants in the process were involved in different ways: offline through 548 meetings, which gathered 13,614 interventions, and online on the decidim.barcelona platform, where 10,860 proposals, 5 debates, 18,191 comments (with 13,210 votes on comments) and 165,121 supports were collected. The site decidim.barcelona received more than 261,000 visits (157,000 unique visitors and 780,000 page visits) during 2 months.⁴⁰

The organisation of the process involved several steps. It began in November 2015 with the diagnosis and initial proposal stage; the government defined territorial areas and thematic axes and published 1300 official proposals for the city. The next phase was open to citizens and social agents. Everybody could discuss and support official proposals or create new ones, equally visible and open to support and deliberation. Proposals were also created and discussed in hundreds of public meetings (some of which also involved the presence of city officials). With almost 11,000 proposals overall, the next phase involved their systematic study by City Council, taking into account the amount of support received by each proposal, the comments, deliberation in face-to-face meetings and other factors. Similar proposals were grouped together, all proposals got a direct answer of acceptance or rejection and reason for it, and the first full version of the strategic plan was drafted. Following this, a month-long period allowed for amendments and the gathering of further proposals. 8160 proposals (75% of the total) were accepted and incorporated into action plans and projects for the final strategic plan. The detailed execution of all the proposals was monitored using Decidim's accountability module during the next 4 years. Overall, the execution of the strategic plan allocated almost 90% of Barcelona's City Council budget during the period 2016–2019. As of May 2019 the 89.1% of the plan was executed.⁴¹

³⁸Participants in the platform (24,028) are unique. It is possible that participants in the platform participated in one or several face-to-face meetings.

³⁹Includes the participation in the meetings during step 2 (11,577) and the meetings in step 1 (3444).

⁴⁰The reader might find interesting to explore the whole interaction map of the participatory process here: https://www.decidim.barcelona/processes/pam/f/27/dataviz/total_interactions

⁴¹<https://www.decidim.barcelona/processes/pam/f/8/>

1.3.3 *Uses of Decidim in Public Administrations and Social Organisations*

There are many examples of the use of Decidim in public administrations. At the municipal level, the cities of Barcelona⁴² and Helsinki⁴³ stand out. The Finnish capital has a platform with more than 115,000 registered participants who have contributed during the last 4 years to 2 participatory budgeting experiences. They have a highly customised Decidim and a young and innovative team that has been able to squeeze the attractiveness and functionality of Decidim together with a binding and effective commitment from the public administration. In Barcelona, the use of Decidim is extraordinarily extensive. Practically all the city's participatory bodies (more than a hundred) and all the sectoral and district participation processes (more than 70 to date) have been articulated through the platform.

At the state level, the participatory strategic plan implemented by the Brazilian government in 2023⁴⁴ is noteworthy, currently boasting more than 375,000 registered participants and encompassing over 3500 proposals. Notable as well are the projects undertaken by the French Senate⁴⁵ and the French National Assembly,⁴⁶ using the platform to channel petitions to representatives, engage in debates and collect signatures.

The Belgian government has also set up a participation portal based on Decidim, used to articulate debates with citizens.⁴⁷ The peculiarity of this Decidim instance is that it exploits the multitenant functionality of Decidim and offers specific sites to its different regions (e.g. the commune of Waterloo⁴⁸). Those of Mexico City⁴⁹ and the Italian government⁵⁰ are other relevant examples of large-scale deployment of Decidim in the sphere of the state.

The European Commission has also deployed Decidim to set up participatory processes oriented to debate public policies able to address five contemporary challenges of the European Union: fighting cancer, adapting to climate change, living in greener cities, ensuring soil health and protecting oceans.⁵¹ The use of Decidim for debating these missions served to test the system and set it up for the Conference on the Future of Europe,⁵² which ran from September 2021 till May

⁴²<https://decidim.barcelona>

⁴³<https://omastadi.hel.fi/>

⁴⁴<https://brasilparticipativo.presidencia.gov.br/>

⁴⁵<https://petitions.senat.fr/>

⁴⁶<https://petitions.assemblee-nationale.fr/>

⁴⁷<https://monopinion.belgium.be>

⁴⁸<https://waterloo.monopinion.belgium.be/>

⁴⁹<https://plazapublica.cdmx.gob.mx/>

⁵⁰<https://partecipa.gov.it>

⁵¹<https://missions-get-involved.ec.europa.eu/>

⁵²<https://futureu.europa.eu/>

2022 and was devoted to allow all Europeans citizens to have a say on what they expect from the European Union on nine topics: a stronger economy, social justice and jobs; education, culture, youth and sport; digital transformation; European democracy; values and rights, rule of law and security; climate change, environment; health; EU in the world; and migration. 53,608 participants participated through the platform and 721,487 in the 6661 physical meetings. The process has collected 18,842 Ideas, 22,242 comments and 72,853 endorsements, being the biggest participatory process ever promoted by the European Commission.

It is worth mentioning other relevant uses of Decidim among social organisations, innovation laboratories, educational institutions or the social economy. In these cases, Decidim has helped to improve and reinforce the democratic processes and internal governance of key organisations. General assemblies, strategic plans, voting processes, generation and prioritisation of ideas and the types of processes are manifold. Some relevant cases can be named:

- **Second-order (and higher-order) associations** (i.e. associations of associations), like *Fundaction*,⁵³ a European network of associations and NGOs, that used Decidim to collect, evaluate in a collaborative way and decide the fundings of their projects. Colombian indigenous communities⁵⁴ have used Decidim as a higher-order organisational platform to coordinate themselves. And the Federation of Neighbourhood Associations of Barcelona (FAVB)⁵⁵ has articulated its organisation through working commissions and by collecting and prioritising projects. In the case of the FAVB, they carried out a participatory process to identify, through geolocated proposals, bars that did not comply with the city legislation and that caused nuisance to neighbours, collecting more than 700 proposals.
- **Experimental and learning communities**, or communities of practice like the Barcelona Digital and Democratic Innovation Lab at Canòdrom,⁵⁶ have deployed it to support the co-governance of a public space. In this case, Decidim has been used to generate locations for internal debate within the laboratory, to document the different spaces of governance of the project (assemblies and working groups), to generate processes for collecting proposals for the improvement of the space and to articulate a community process of recovery of the memory of the Canòdrom building itself.
- **Universities** like the Open University of Catalonia⁵⁷ (UOC) organising their own strategic plan for the period 2022–2025, the University of Bordeaux⁵⁸ or the

⁵³<https://assembly.fundaction.eu/>

⁵⁴<https://participa.onic.org.co/>

⁵⁵<https://participa.favb.cat/>

⁵⁶<https://comunitat.Canòdrom.barcelona/>

⁵⁷<https://tecnopolitica.net/es/projects/decidim-uoc>

⁵⁸<https://participation.u-bordeaux.fr/>

University of Caen Normandie,⁵⁹ with +2000 participants defining the site as “a tool for dialogue allowing the university community to be widely involved in the development of the institution’s actions”.

- **Cooperatives**, like the *Som Energia Cooperative*,⁶⁰ a 100,000 member non-profit, green energy consumption cooperative whose main activities are the production and commercialisation of renewable energy. Or *Som Connexió*, a non-profit telecommunications cooperative, aimed to promote the sovereignty of telecommunication infrastructures and services, based on social and cultural principles. They use Decidim to build a democratic space where members can stir the direction of the cooperative. This includes the organisation of their yearly general assemblies and local groups.
- Free software, knowledge and **programming communities** around the world like *Conocimiento Libre*⁶¹ in Ecuador use Decidim to organise working groups and conferences. Communities like *Code for France*⁶² use it to manage the activity of their own community and to support different open source projects or specific Decidim communities such as *Metadecidim Japan*.⁶³
- The Barcelona City Council’s Department of Democratic Innovation has launched a programme called Decidim **High Schools** to promote citizen participation in these educational spaces. The programme makes a Decidim instance available to the schools so that students can design and execute participatory processes. Four schools have already participated in this programme, with the involvement of more than 130 students. The initial step is to introduce participatory actions in the schools to engage families, teachers and students. The main participatory process run by the schools has been participatory budgeting at the class level, debates as well as the collection and prioritisation of proposals to be presented to the school council of the centre.

References

- Abbate, J. (1999). *Inventing the internet*. The MIT Press. <http://ieeexplore.ieee.org/lpdocs/epic03/wrapper.htm?arnumber=570802>
- Albrechtslund, A. (2008). Online social networking as participatory surveillance. *First Monday*, 13(3). doi:<https://doi.org/10.5210/fm.v13i3.2142>
- Aragón, P., Kaltenbrunner, A., Calleja-López, A., Pereira, A., Monterde, A., Barandiaran, X. E., & Gómez, V. (2017). Deliberative Platform Design: The Case Study of the Online Discussions in Decidim Barcelona. *Social Informatics*, 277–287. doi:https://doi.org/10.1007/978-3-319-67256-4_22

⁵⁹<https://jeparticipe.unicaen.fr/>

⁶⁰<https://participa.somenergia.coop/>

⁶¹<https://comunidad.conocimientolibre.ec/>

⁶²<https://codefor.fr/>

⁶³<https://meta.diycities.jp/>

- Baran, P. (1964). On Distributed Communications Networks. *IEEE Transactions on Communications Systems*, 12(1), 1–9. doi:<https://doi.org/10.1109/TCOM.1964.1088883>
- Barandiaran, X. E. (2003). *Activismo digital y telemático. Poder y contrapoder en el ciberespacio* (v. 1.1). Metabolik Biohacklab. <http://sindominio.net/char%20126elax%20xabier/textos/adt/adt.pdf>
- Barandiaran, X. E. (2019). Tecnopolítica, municipalismo y radicalización democrática. In L. Roth, A. Monterde, & A. Calleja-López (Eds.), *Ciudades Democráticas. La revuelta municipalista en el ciclo post-15M* (pp. 173–207). Icaria. <http://ciudadesdemocraticas.tecnopolitica.net/>
- Barandiaran, X. E., Calleja-López, A., & Cozzo, E. (2020). Defining Collective Identities in Technopolitical Interaction Networks. *Frontiers in Psychology*, 11. doi:<https://doi.org/10.3389/fpsyg.2020.01549>
- Barry, A. (2001). *Political Machines: Governing a Technological Society*. Athlone Press.
- Baudrillard, J. (1970). *The consumer society: Myths and structures*. SAGE.
- Benkler, Y. (2006). *The Wealth of Networks: How Social Production Transforms Markets and Freedom*. Yale University Press.
- Berg, S., & Hofmann, J. (2021). Digital democracy. *Internet Policy Review*, 10(4). <https://policyreview.info/articles/analysis/digital-democracy>
- Bevir, M. (2007). *Encyclopedia of Governance (Vol. 1)*. SAGE Publications.
- Blyth, M. (2013). *Austerity: The History of a Dangerous Idea*. Oxford University Press.
- Brito Vieira, M., & Runciman, D. (2008). *Representation*. Polity.
- Brown, W. (2015). *Undoing the Demos: Neoliberalism's Stealth Revolution*. MIT Press. doi:<https://doi.org/10.2307/j.ctt17kk9p8>
- Buchanan, J. M., & Tullock, G. (1962). *The calculus of consent (Vol. 3)*. University of Michigan Press.
- Cadwalladr, C. (2018, March 18). 'I made Steve Bannon's psychological warfare tool': Meet the data war whistleblower. *The Guardian*. <https://www.theguardian.com/news/2018/mar/17/data-war-whistleblower-christopher-wylie-faceook-nix-bannon-trump>
- Calleja-López, A. (2017). *Since 15M: The technopolitical reassembling of democracy in Spain*. [PhD Thesis, University of Exeter]. <https://ore.exeter.ac.uk/repository/handle/10871/29295>
- Calleja-López, A., Cancela, E., & Cambroner, M. (2022). *Desplazar los ejes: Alternativas tecnológicas, derechos humanos y sociedad civil a principios del siglo XXI*. (Working Paper 1; Tecnopolítica Working Papers). UOC. <https://tecnopolitica.net/content/desplazar-los-ejes-alternativas-tecnologicas-derechos-humanos-y-sociedad-civil-principios>
- Calleja-López, A., & Toret, J. (2019). El ciclo 15M: Cinco años de democracia y tecnopolítica. In L. Roth, A. Monterde, & A. Calleja-López, *Ciudades democráticas. La Revuelta Municipalista en el Ciclo post-15M*. Icaria Editorial. <https://tecnopolitica.net/content/el-ciclo-15m-cinco-anos-de-democracia-y-tecnopolitica>
- Castells, M. (1996). *The rise of the network society: The Information Age: Economy, Society, and Culture. Volume I*. Blackwell Publishers.
- Castells, M. (2009). *Communication Power*. Oxford University Press.
- Castells, M. (2017). *Ruptura: La crisis de la democracia liberal*. Alianza Editorial.
- Chadwick, A. (2013). *The Hybrid Media System: Politics and Power*. Oxford University Press.
- Congge, U., Guillamón, M.-D., Nurmandi, A., Salahudin, & Sihidi, I. T. (2023). Digital democracy: A systematic literature review. *Frontiers in Political Science*, 5. <https://www.frontiersin.org/articles/10.3389/fpos.2023.972802>
- Crogan, P., & Kinsley, S. (2012). Paying attention: Toward a critique of the attention economy. *Culture Machine*, 13. <https://uwe-repository.worktribe.com/output/945724/paying-attention-toward-a-critique-of-the-attention-economy>
- Crouch, C. (2004). *Post-democracy*. Polity Press.
- Crouch, C. (2011). *The Strange Non-death of Neo-liberalism*. Polity.
- Debord, G. (1967). *La Société du spectacle*. Buchet/Chastel.
- della Porta, D. (2013). *Can Democracy Be Saved?: Participation, Deliberation and Social Movements*. John Wiley & Sons.

- Della Porta, D., & Tarrow, S. G. (Eds.). (2005). *Transnational protest and global activism*. Rowman & Littlefield.
- Duménil, G., & Lévy, D. (2013). *The Crisis of Neoliberalism*: Harvard University Press.
- Earl, J., & Kimpfort, K. (2011). *Digitally Enabled Social Change: Activism in the Internet Age*. The MIT Press.
- Eichengreen, B., & O'Rourke, K. (2009, April 6). *A Tale of Two Depressions* [VoxEU]. <https://cepr.org/voxeu/columns/what-do-new-data-tell-us#apr609>
- Feenstra, R. A., Tormey, S., Casero-Ripollés, A., & Keane, J. (2017). *Refiguring Democracy: The Spanish Political Laboratory*. Routledge.
- Fisher, M. (2009). *Capitalist Realism: Is There No Alternative?* John Hunt Publishing.
- Fraser, N. (1990). Rethinking the Public Sphere: A Contribution to the Critique of Actually Existing Democracy. *Social Text*, 25/26, 56. doi:<https://doi.org/10.2307/466240>
- Free Software Foundation. (2022, June 25). What is Free Software? *GNU Operating System*. <https://www.gnu.org/philosophy/free-sw.en.html>
- Fuchs, C. (2008). *Internet and Society: Social Theory in the Information Age*. Routledge.
- Fumagalli, A. (2007). *Bioeconomia e capitalismo cognitivo: Verso un nuovo paradigma di accumulazione*. Carocci.
- Gerbaudo, P. (2012). *Tweets and the Streets: Social Media and Contemporary activism*. Pluto Press. <https://library.oapen.org/bitstream/handle/20.500.12657/30772/642730.pdf?sequence=1&isAllowed=y>
- Gerbaudo, P. (2017). *The Mask and the Flag: Populism, Citizenism, and Global Protest*. Oxford University Press.
- Gerbaudo, P. (2021). *The great recoil: Politics after populism and pandemic*. Verso Books.
- Griziotti, G. (2016). *Neurocapitalismo: Mediazioni tecnologiche e linee di fuga*. Mimesis.
- Habermas, J. (1962). *The Structural Transformation of the Public Sphere: An Inquiry Into a Category of Bourgeois Society*. MIT Press.
- Hacker, K., & van Dijk, J. (2000). *Digital Democracy: Issues of Theory and Practice*. SAGE. doi:<https://doi.org/10.4135/9781446218891>
- Hayek, F. A. V. (1944). *The Road to Serfdom*. University of Chicago Press.
- Hayek, F. A. V. (1945). The Use of Knowledge in Society. *American Economic Review*, 35(4), 519–530.
- Hess, C., & Ostrom, E. (2016). *Los Bienes Comunes del Conocimiento*.
- Himanen, P. (2001). *The Hacker Ethic and the Spirit of the Information Age*. Random House. <http://archive.org/details/TheHackerEthicAndTheSpiritOfTheInformationAge>
- Jessop, B. (2015). Neoliberalism, finance-dominated accumulation and enduring austerity: A cultural political economy perspective. In K. Farnsworth & Z. Irving (Eds.), *Social Policy In Times of Austerity* (pp. 87–112). Policy Press. doi:<https://doi.org/10.1332/policypress/9781447319115.003.0005>
- Joyce, S., Stuart, M., & Forde, C. (2023). Theorising labour unrest and trade unionism in the platform economy. *New Technology, Work and Employment*, 38(1), 21–40. doi:<https://doi.org/10.1111/ntwe.12252>
- Junqué, M., & Shea, K. (2018). *Ciutats sense por*. Icaria Editorial.
- Juris, J. S. (2008). *Networking futures: The movements against corporate globalization*. Duke University Press.
- Keane, J. (2009). *The Life and Death of Democracy*. Simon and Schuster.
- Kellner, D. (1999). Globalisation from below? Toward a radical democratic technopolitics. *Angelaki*, 4(2), 101–113. doi:<https://doi.org/10.1080/09697259908572039>
- Kelty, C. M. (2008). *Two Bits. The Cultural Significance of Free Software*. Duke University Press. <https://twobits.net/pub/Kelty-TwoBits.pdf>
- Klein, N. (1999). *No Logo: Taking Aim at the Brand Bullies*. Kopf Canada.
- Klein, N. (2015). *This Changes Everything: Capitalism Vs. The Climate*. Simon and Schuster.
- Laclau, E., & Mouffe, C. (1985). *Hegemony and Socialist Strategy: Towards a Radical Democratic Politics*. Verso.

- Laterza, V. (2021). Could Cambridge Analytica Have Delivered Donald Trump's 2016 Presidential Victory? An Anthropologist's Look at Big Data and Political Campaigning. *Public Anthropologist*, 3(1), 119–147. doi:<https://doi.org/10.1163/25891715-03010007>
- Laval, C., & Dardot, P. (2017). *La pesadilla que no acaba nunca. El neoliberalismo contra la democracia*. Gedisa.
- Leiner, B., Cerf, V., Clark, D., Kahn, R., Kleinrock, L., Lynch, D., Postel, J., Roberts, L., & Wolff, S. (1997). The Past and Future History of the Internet. *Communications of the ACM*, 40, 102–108. doi:<https://doi.org/10.1145/253671.253741>
- Levy, P. (1997). *Collective Intelligence*. Basic Books.
- Lohr, S. (2015). *Data-ism: Inside the Big Data Revolution*. Oneworld.
- Mair, P. (2006). Ruling the Void. *New Left Review*, 42, 25–51.
- Manin, B. (1997). *The Principles of Representative Government*. Cambridge University Press. doi:<https://doi.org/10.1017/CBO9780511659935>
- Maxigas, P. (2012). Hacklabs and hackerspaces: Tracing two genealogies. *Journal of Peer Production*, 2, Article 2. <https://eprints.lancs.ac.uk/id/eprint/88024/>
- Merton, R. K. (1942). Science and Technology in a Democratic Order. *Journal of Legal and Political Sociology*, 1, 115–126.
- Monterde, A. (2015). Emergencia, evolución y efectos del movimiento-red 15M (2011-2015). Una aproximación tecnopolítica [Ph.D. Thesis, Universitat Oberta de Catalunya]. In *TDX (Tesis Doctorals en Xarxa)*. <https://www.tdx.cat/handle/10803/327599>
- Monterde, A., Calleja-López, A., Aguilera, M., Barandiaran, X. E., & Postill, J. (2015). Multitudinouse identities: A qualitative and network analysis of the 15M collective identity. *Information, Communication & Society*, 18(8), 930–950. doi:<https://doi.org/10.1080/1369118X.2015.1043315>
- Morozov, E. (2011). *The Net Delusion: The Dark Side of Internet Freedom*. PublicAffairs.
- Morozov, E., Babrook, R., & Bria, F. (2016). *Digital democracy and technological sovereignty*. Unboxing: Algorithms, Data and Democracy, Berlin. <https://www.opendemocracy.net/en/digitaliberties/digital-democracy-and-technological-sovereignty/>
- Moulier-Boutang, Y. (2007). *Le capitalisme cognitif*. Éditions Amsterdam.
- Nagle, A. (2017a). *Kill All Normies: Online Culture Wars from 4chan and Tumblr to Trump and the Alt-Right*. Zero Books.
- Nagle, A. (2017b, November 14). The Lost Boys. *The Atlantic*. <https://www.theatlantic.com/magazine/archive/2017/12/brotherhood-of-losers/544158/>
- Offe, C. (2011). Crisis and Innovation of Liberal Democracy: Can Deliberation Be Institutionalised? *Czech Sociological Review*, 47(3), 447–472. <https://doi.org/10.13060/00380288.2011.47.3.01>
- O'Reilly, T. (2005, September 30). What Is Web 2.0? Design Patterns and Business Models for the Next Generation of Software. *Www.Oreilly.Com*. <https://www.oreilly.com/pub/a/web2/archive/what-is-web-20.html>
- Peltzman, S. (1976). Toward a more general theory of regulation. *The Journal of Law and Economics*, 19(2), 211–240.
- Pharr, S. J., & Putnam, R. D. (2000). *Disaffected Democracies*.
- Pharr, S. J., Putnam, R. D., & Dalton, R. J. (2000). A Quarter-Century of Declining Confidence. *Journal of Democracy*, 11(2), 5–25. doi:<https://doi.org/10.1353/jod.2000.0043>
- Piketty, T. (2013). *Capital in the Twenty-First Century*. Harvard University Press.
- Pitkin, H. F. (1967). *The Concept of Representation*. University of California Press.
- Postill, J. (2017). Field theory, media change and the new citizen movements: Spain's 'real democracy' turn as a series of fields and spaces. *RECERCA. Revista de Pensament i Anàlisi*, 21, Article 21. doi:<https://doi.org/10.6035/Recerca.2017.21.2>
- Rancière, J. (2001). Ten Theses on Politics. *Theory & Event*, 5(3). doi:<https://doi.org/10.1353/tae.2001.0028>
- Rasmussen, T. (2007). *Techno-politics and Some Structural Challenges Facing the Internet: A Critical Comment*. VDM Verlag Dr. Muller.

- Rhodes, R. A. W. (1994). The Hollowing Out of the State: The Changing Nature of the Public Service in Britain. *The Political Quarterly*, 65(2), 138–151. doi:<https://doi.org/10.1111/j.1467-923X.1994.tb00441.x>
- Rodrik, D. (2017). *Populism and the Economics of Globalization* (Working Paper 23559). National Bureau of Economic Research. doi:<https://doi.org/10.3386/w23559>
- Rosanvallón, P. (2015). *Le Bon Gouvernement*. Média Diffusion.
- Roth, L., Monterde, A., & Calleja-López, A. (Eds.). (2019). *Ciudades Democráticas. La revuelta municipalista en el ciclo post-15M*. Icaria. <http://ciudadesdemocraticas.tecnopolitica.net/>
- Rubio-Pueyo, V. (2017). *Municipalism in Spain: From Barcelona to Madrid, and Beyond*. Rosa Luxemburg Stiftung. <https://rosalux.nyc/municipalism-in-spain/>
- Rushkoff, D. (2002). Renaissance Now! Media Ecology and the New Global Narrative. *Explorations in Media Ecology*, 1, 41–57. doi:https://doi.org/10.1386/eme.1.1.41_1
- Sánchez-Cuenca, I. (2014). *La impotencia democrática. Sobre la crisis política de España*. Los libros de la Catarata.
- Scholz, T. (2016). *Platform Cooperativism: Challenging the Corporate Sharing Economy*. Rosa Luxemburg Stiftung. https://rosalux.nyc/wp-content/uploads/2020/11/RLS-NYC_platformcoop.pdf
- Sennett, R. (1977). *The Fall of Public Man*. Cambridge University Press.
- Sennett, R. (1998). *The Corrosion of Character: The Personal Consequences of Work in the New Capitalism*. W. W. Norton & Company.
- Shirky, C. (2009, June). *How social media can make history* [Talk in video]. TED Talk. https://www.ted.com/talks/clay_shirky_how_social_media_can_make_history
- Srnicek, N. (2016). *Platform Capitalism*. Polity Press.
- Stiglitz, J. E. (2002). *Globalization and Its Discontents*. W. W. Norton & Company.
- Streeck, W. (2016). *How Will Capitalism End?: Essays on a Failing System*. Verso Books.
- The Economist. (2017, May 6). The world's most valuable resource is no longer oil, but data. *The Economist*. <https://www.economist.com/leaders/2017/05/06/the-worlds-most-valuable-resource-is-no-longer-oil-but-data>
- The Guardian. (2018). The Cambridge Analytica Files. *The Guardian*. <https://www.theguardian.com/news/series/cambridge-analytica-files>
- Tokunaga, R. (2011). Social Networking Site or Social Surveillance Site? Understanding the Use of Interpersonal Electronic Surveillance in Romantic Relationships. *Computers in Human Behavior*, 27, 705–713. doi:<https://doi.org/10.1016/j.chb.2010.08.014>
- Toret, J., Calleja-López, A., Miró, Ó. M., Aragón, P., Aguilera, M., Barandiaran, X. E., Lumbreras, A., & Monterde, A. (2015). *Tecnopolítica y 15M: La potencia de las multitudes conectadas*. Editorial UOC.
- Torney, S. (2015). *The End of Representative Politics*. Polity.
- Van Reybrouck, D. (2018). *Against Elections*. Seven Stories Press.
- V-Dem. (2023). *Defiance in the Face of Autocratization* [Democracy Report 2023]. V-Dem Institute, University of Gothenburg. https://www.v-dem.net/documents/29/V-dem_democracyreport2023_lowres.pdf
- Vercellone, C. (2006). *Capitalismo cognitivo. Conoscenza e finanza nell'epoca postfordista*. Manifestolibri.
- Vila-Viñas, D., & Barandiaran, X. E. (Eds.). (2015). *Buen conocer/FLOK Society: Modelos sostenibles y políticas públicas para una economía social del conocimiento común y abierto en Ecuador*. IAEN-CIESPAL. <http://book.floksociety.org/ec/>
- Vinsel, L. (2021, February 1). *You're Doing It Wrong: Notes on Criticism and Technology Hype* [Medium]. <https://sts-news.medium.com/youre-doing-it-wrong-notes-on-criticism-and-technology-hype-18b08b4307e5>
- Zizek, S. (1999). *The Ticklish Subject: The Absent Centre of Political Ontology*. Verso.
- Zuboff, S. (2015). Big other: Surveillance Capitalism and the Prospects of an Information Civilization. *Journal of Information Technology*, 30(1), 75–89. doi:<https://doi.org/10.1057/jit.2015.5>

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Chapter 2

The Political Plane: Decidim and the Vision of a Radically Democratic Society



Decidim is an infrastructure for participatory democracy and technopolitical democratisation, not a tool for digital democracy nor a civic tech In the last decades we have witnessed an explosion of “tools” and literature on electronic democracy, e-democracy, cyberdemocracy or, more recently, digital democracy (Deseriis, 2023; Fuchs, 2008; Hacker & van Dijk, 2000). Many of such technologies remain at a rather superficial vision and practice of democracy as a form of channelling “ideas”, “petitions” or “requests” to authorities without further deepening into the nature of democracy.¹ Decidim is not a mere tool but an infrastructure, a complex matrix, technopolitical project, a vision and much more. Moreover, just as there is no electronic health (health is biological and social), there is no electronic or digital democracy. Democracy involves social and political power, and Decidim is a project that aims at transforming them. The digital in Decidim is never meant to substitute other arenas of politics, like public meetings or councils, demonstrations or strikes, but to connect them and to restructure them, to systematise their outcomes and participatory opportunities. Hopefully, to “augment” them too. If, as a platform, Decidim does not transform political and social power relationships beyond the digital, it will not be fulfilling its goal.

As we also show in this book, Decidim is much more than a civic technology understood (as it usually is) “as technology (mainly information technology) that facilitates democratic governance among citizens” (Saldivar et al., 2019). Beyond governance, we dig into Decidim’s potentialities at the broader political plane (government, governance and governmentality), as well as at the technopolitical and the technical ones. One of the names for the type of transformation we are

¹ This reduction has taken place, especially, at the institutional level. Nevertheless, different authors have shown that, in principle, there are as many models of digital democracy as models of democracy (Dahlberg, 2011): representative, direct, deliberative, participatory, antagonistic, autonomist, etc..

speaking of is “technopolitical democratisation” (Calleja-López, 2017), historically inspired by the 15M movement on the field of politics and by the free software movement on the field of technology. It aims to politicise and democratise both politics (as the 15M movement aimed) and technology (possibly beyond what the free software movement did) in order to democratise a broader array of social fields, from the economic to the cultural. Decidim operates as a mediator and model of such democratisation, whose political meaning is discussed in more detail in the following sections.

2.1 Decidim, Models of Democracy and Its Discontents

Democracy is a complex concept and reality: it “can be separately, concurrently, or simultaneously a civic activity, a regime, a form of society, and a mode of government. Furthermore, each of these four dimensions can be perceived in several different ways” (Rosanvallon, 2011, p. 225). Against the usual synecdoche that reduces democracy to representative democracy, it is worth stressing that there are different models of democracy (Held, 2006), and each of them shapes differently the four dimensions noted by Rosanvallon. The Four classical models are as follows: the direct, the representative, the deliberative and the participatory. These models often overlap. Deliberative democracy can accompany different modes of direct or representative democracy, and it is possible to interpret direct democracy as a subclass of participatory democracy (e.g. as a digital infrastructure for participatory democracy, Decidim includes mechanisms of direct democracy as a central mechanism).

Direct Democracy Following the Athenian example, direct democracy was for many centuries the model of democracy as such in Europe and places under its influence. Its basic principle is that citizens can participate in and decide upon public matters directly. In Athens, delegates existed, but they were rotatory in character and sortition played a role in the selection, guaranteeing a form of radical equality among citizens. The primary institutions were the following: the assembly, composed by all adult males qualifying for citizenship (a qualification that generally took into account factors such as gender, wealth or origin) and deciding upon relevant matters (e.g. declaring war, passing legislation or choosing and recalling military magistrates); the *boulê*, a council of 500 citizens chosen by lot (renewed periodically, such as once per year) and charged with running the daily issues of the city; and the law courts, which included hundreds of jurors chosen by lot.

Today, direct democracy means are combined with or subsumed under representative democracy; its three main mechanisms are the referendum, the citizen initiative and the recall. The key mechanism is probably the referendum,² by which the

²For reasons of space we will not get into the various types of referendums, its relations and differences with the plebiscite or the popular consultation, as those are not essential for the purpose of our brief review.

entire electorate of a given jurisdiction is called to decide upon a public matter. The initiative is a petition formulated by citizens that must gather a sufficient amount of support (e.g. a number of signatures over a given threshold) in order to be considered either by representatives or by the whole electorate in a referendum. Finally, recall is a direct vote through which the electorate can remove a representative at any time. In general, direct democracy forms frequently imply the direct making of executive decisions and lawmaking. The paradigm of modern direct democracy is Switzerland, which includes these mechanisms at the local, regional and state level, and a tradition of frequently using them. Out of the 117 countries that self-define as democratic, 113 of them include some of these mechanisms, and 80% of them have held at least a nationwide referendum on legislative or constitutional matters.³

Representative Democracy Representative democracy⁴ was only constituted as such in the nineteenth century. Originally, representation was a way for the King to ensure resources and allegiance from nobles and knights by recognising some of their demands (thereof the slogan “no taxation without representation” Pitkin, 1967). It had little to do with democracy, which was still seen as an unstable system by the time of the American and French Revolutions: the USA and France were born or reborn as republics. Only in the mid-nineteenth century, through social struggle, the franchise became big enough (universal male suffrage, still excluding women) for “democracy” and representation to converge in public discourse (Costopoulos & Rosanvallon, 1995; Graeber, 2013). Oligarchic structures were maintained in the process of extending the franchise, reinforced by the size of the social bodies thereby emerging, in a time when people were excluded from education and from the possibility of directly intervening in politics by reasons ranging from the lack of economic resources to the precariousness of communication systems. It was a way of electing people that could consider matters in the light of expert knowledge and calm judgement, in search of the general good, while being sensitive to the views and wills of the people (thanks to elections) (Pitkin, 1967).

In this model, citizens are periodically (usually, every few years) called to select representatives that pass legislation and define public policy. In most cases, these representatives are divided into two key institutional powers: the executive (which primarily sets public policy) and the legislative (which primarily develops legislation). The third institutional power of the State, the judiciary, is composed by selective bureaucratic procedures (from internal promotion and peer selection to appointment by representatives) and is charged (among other things) with guaranteeing that the other two powers abide by the framework of laws that anchors the system. Beyond these three powers, there are different State bodies as well as State systems of administration and services, from the police to healthcare.

Deliberative Democracy This third model, which gained momentum in the 1990s as a response to calls for participation in previous decades, stresses “the need to

³See data at <https://www.idea.int/data-tools/question-view/482>.

⁴For some, an oxymoron, given the oligarchic character of representation (Manin, 1997).

justify decisions made by citizens and their representatives” (Gutmann & Thompson, 2004, p. 4). The key element is the “reason-giving requirement”. It is also important for this notion of democracy that people have room to change their preferences during deliberation. What legitimates political decisions and laws is not the fixed will or interests of the individuals or their representatives, but rather “the process of its formation, that is, deliberation itself” (Manin, 1987, p. 351). The deliberative approach aims to inform opinions, to reveal and test interests and to shift those opinions and even interests by “no force except that of the better argument” (Habermas, 1976, p. 108). It is compatible with both direct and representative democracy. However, it does not only focus on State institutions, it “works instead with the higher-level inter-subjectivity of communication processes that flow through both the parliamentary bodies and the informal networks of the public sphere” (Habermas, 1994, p. 8). In this way, civil society turns into the basis of “autonomous public spheres”, independent of both the market and the State administration. Although, according to Habermas, public opinion “cannot rule by itself”, it orients the exercise of State administrative power.

Beyond these general theorisations, concrete processes and mechanisms of deliberation have been designed. For instance, mini publics (such as deliberative polls or citizen assemblies) are small samples of the sovereign body (the *populus*), selected by lot and provided with the necessary resources to deliberate and reach consensus or broad agreements on specific subjects (Ganuza & Mendiharat, 2020). Deliberative polls are focused in outlining what people may think if fully informed: practically, it consists in a process involving a representative sample of citizens that discuss public issues or policies, calling competing experts to provide information, with opinion polls run among participants both before and after the discussions for registering any changes in positions, followed by a dissemination of the results and insights of the process. Citizen assemblies are used to deliver recommendations for policymaking after a considerable period of information and deliberation.

Although deliberative democracy has been fostered and facilitated within the circumscribed, sociologically representative and protected groups just mentioned, the model can encompass any decision process that involves multiple agents that do not impose or negotiate their interests but rather are open to transform their preferences and commit to joint decisions as a result of processes or information, argumentation and debate, sometimes oriented to consensus. Assemblies, committees, online forums or public debates of different types can embody and contribute to deliberative democracy to different degrees.

Participatory Democracy as a Model of Society The notion of “participation” is core to Decidim: it ties together a set of principles, conceptions and motivations of the project. The term comes from the Latin “pars capere”. We translate “pars” in a twofold way as “part” (as in “this part of the country”) but also as “peer”; “pars” has a connotation of reciprocity and a very ancient Indo-European root. A peer is not so much something that one is in advance, but something one becomes in interaction. On the other hand, “capere” means “to take”, “to grasp”; it is an action, not

something given or passively held by law or by nature,⁵ but a performance. Participatory democracy is a political model that involves concrete forms of civic activity, political regime, sociality and government in which people can *take part as peers* (*pars capere*), in which they actively *take* and exercise their power as reciprocating equals, and where the conditions for this to happen are present and taken care of. It frequently points to collective processes where control can be exercised by all the members of a group.

Participatory democracy is different from the representative model, where people primarily (even if not only) take part in choosing those that govern them and (hopefully) for them. Beyond allegedly representative, established social and political taxonomies, the irruption of the uncounted (Rancière, 1999) is one of the biggest potentials of participatory democracy.⁶ It is different from liberal representative democracy, where democracy stops at the gates of the factory or the market: in such a system people participate unequally in the economic sphere, depending on their access to wealth. Participatory democracy is a model that aims to extend peer participation (and its requisites) to an increasing number of spaces and processes of society, starting with politics and the economy (Pateman, 1970). It is, in a sense, a deeper form of democracy than what is usually implied by modern formal politics.

Crucially, a participatory model incorporates and remakes earlier models. In relation to representation, it includes forms of fluid delegation (a classic in systems of nested assemblies and groups). In terms of deliberation, the provision (especially, reciprocal provision) of rational and reasonable arguments for one's own positions (Habermas, 1981) has also been a relevant element in classic participatory democracy models (Barber, 1984). Differently from liberal representative democracy or some versions of direct democracy, participatory democracy shares with deliberative traditions a belief in the transformation of people and positions through political practice. People's selfish interests and selves can be transformed in the process of collective decision and action: participation is the best school of citizenry. Differently from mere deliberative democracy, though, it believes discussion in the public sphere or among representatives is not enough: the many must have agency and control (Arnstein, 1969) over collective endeavours, resources and life more broadly. Ultimately, the vision of participatory democracy is that of a radically participatory society. In this sense participation involves the deep acknowledgement of our continuous involvement in the production and reproduction of life and the

⁵In some interpretations (DeBrunner, 1947), the gesture of the "taking" is crucial for the original meaning of the term "democracy" in ancient Greek. Democracy speaks of the "kratos" (power) of the "demos" (the people) and can be counterposed to monarchy and oligarchy, in which the "arkhé" (the ground or origin) is "one" (mónos) or "a few" (oligoi). The arché is something fixed, something that precedes and underlies the reality that it grounds or gives origin to; differently, kratos is something variable, something that must be constructed or taken. By extension, democracy is, normatively and historically, not something given, but something achieved through struggle.

⁶A good example tied to Decidim is the successful appropriation of the decidim.barcelona platform by Barcelona's migrant communities for specific projects. A case can be found at <https://www.decidim.barcelona/processes/PressupostosParticipatiu/f/4517/budgets/13/projects/11>.

manner in which being human is first and foremost an exercise of participatory sense-making (a deeply embodied and interactive construction of coordination practices that sustain society, culture and meaning, see Di Paolo et al., 2018).

2.2 Decidim and Participatory Government

2.2.1 *The Difference Between Government, Governance and Governmentality*

Participatory democracy has at its centre the question of governing, a concept derived from the ancient Greek “kybernao”, meaning to pilot, steer or guide a ship. We divide the following sections into three aspects or elements of governing, which range from formal State institutions to diffuse activities and practices in society. We move from government, through governance, to governmentality. As noted by Bevir (2007) the most traditional of these concepts, government, can be approached as a thing (an institution) and as a process (an action, the exercise of governing). Although word usage varies from country to country, “Government qua thing” is frequently associated with either the body of elected officials that hold office in a given country (the executive power), its representative political bodies (the executive and the legislative, sometimes including the judiciary) or its public administration as a whole (including the aforementioned powers). That means the term covers meanings that go from the State as a whole to the subset of it charged with politically orienting its action (e.g. in the form of public policy) and giving it a frame (e.g. in the form of legislation), as well as to represent it at the highest level (e.g. in internal and international relations). “Government qua process” is sometimes considered as an abstract term to label the “method, range, purpose, and degree of control of society by state” (Bevir, 2007, p. 387).

Governance has been repeatedly considered an ambiguous concept (Björk & Johansson, 2001; Hufty, 2011). In a broad definition (Hufty, 2011, p. 405) governance encompasses: “processes of interaction and decision-making among the actors involved in a collective problem that lead to the creation, reinforcement, or reproduction of social norms and institutions”. A key point is that “it focuses not only on the state and its institutions, but also on the creation of rule and order in social practices” (ibidem). When we move from government to governance, there are implications on the two axes noted in the previous paragraph. In the institutional axis, it implies that new actors collaborate with State bodies and intervene in the enactment of some of its traditional functions. In the processual axis, it implies that the hierarchical, rigid, top-down and centralised model of governing typical of government gives way to a less centralised, more flexible, sometimes less hierarchical and more bottom-up form of doing so. In some versions of governance, government is no more than a concrete institution enacting a concrete type of governance.

Finally, governmentality (Foucault, 2008) points to the concrete practices by which human conduct is conducted, that is, how forms of being, thinking and acting are generated, shaped or influenced by concrete practices, by the State and other social actors. The term results from the combination of the practice of governing with the rational form that defines it in modernity. Formal methods of calculation, measurement, registration, definition, taxonomy, etc., developed during modernity, are abstracted from, applied to and reinforced by social or personal practices. This approach detaches the State and governing: it looks at practices of governing in other institutions and, beyond, to the level of the individual and its self-conduct, as well as social counter-practices. Following Foucault, various authors (Miller & Rose, 2008; Rose, 1999) have shown how processes of knowledge/power⁷ have come to pervade the social field and underlie both traditional models of top-down State government as well as decentralised governance practices. In this sense, the concept of governmentality challenges views that suggest a direct link between governance's distributed forms of governing and emancipatory goals. Rather than a general calling for a dissolution of centralised government into distributed governance, a continuous task of critique, contention and just construction of modes of governing is required.

Decidim aims to contribute to such processes of critique, contention and, especially, alternative construction. It aims to permeate all three forms (government, governance and governmentality) in different forms. We analyse each of them in the sections below.

2.2.2 Decidim and the Political System: Reconstructing the Complexity of the Will

In Sect. 1.2.1 we noticed the crisis of trust in both political parties and institutions. Part of this problem has to do with their limits to address the complexity of the will,⁸ limits ranging from the difficulties of representation to corruption. Some of them result from the logic and structures of representation. Dissecting modern representative logic, we find three key elements: delegation, competition and bundling.

The delegation aspect is at the core of representation: there is delegation from citizens to representatives, there is delegation among party members (especially

⁷Modern human and social sciences rely upon these practices in order to generate knowledge. It is not that knowledge is power (to put it with Francis Bacon) or even that power is knowledge, but that this pair has to be thought of as a hybrid knowledge/power. Furthermore, Foucault was premonitory in his analyses of technologies and techniques as forms of assembling forms of knowledge/power. Probably the best example is his classical image of Jeremy Bentham's Panopticon as a material metaphor of surveillance.

⁸Collective will is an extremely contentious concept and reality. Here we leave out debates that range from affects (Massumi, 2015) to broader agency (List & Pettit, 2011). We only address (and very briefly at that) some key governmental practices by which the collective will is constructed in representative politics and how Decidim enables changes in such practices.

between rank and file and leaders) and there are some forms of delegation in government.⁹ Ultimately, the whole structure tends to take the form of (sometimes nested) pyramids of delegation.¹⁰ There are different reasons for the emergence or justification of such pyramids. The division of roles and hierarchisation is frequently tied to expertise, time availability, background, etc. and seems to follow the so-called “iron law of oligarchy” by which organisation equals oligarchy (Michels, 1911).

A second core element of representative logic is competition. Competition for the vote (rather than representatives immediately mirroring the electorate) is the way through which diverse and conflicting interests in society get their way into public policy, via political parties (Bourdieu, 1983). Competition takes place primarily among different people, different interests, different views and different proposals. It takes place both within parties and within the political field more broadly, a competition for power, for human support, for material resources, etc.

A third core element of the modern, political representation logic (especially of party logic) is bundling. Governments and parties can be partially understood as bundles of people, programs or policies; representatives can (also partially) be understood as bundles of opinions, choices or proposals; finally, political programs and public policies can be similarly understood as bundles of demands, proposals or strategies for action. For reasons such as coherence or prioritisation, this bundling effect is problematic because its rigidity precludes adaptive recombinations and flexible selection.

Decidim as infrastructure provides alternatives, sometimes opposed, sometimes complementary, to these three elements (delegation, competition and bundling), namely, participation, cooperation and granularity. Firstly, it opens the possibility of intervening directly, without delegation. This means that many decisions could be carried out directly by the people both in parties and in government: the whole (or, at least, all the parts), rather than only the party (in the electorate or in government), could act. This would break “the legislature’s monopoly on policymaking”, and citizens could always choose between “the legislative status quo and an alternative” (Matsusaka, 2005, p. 204). These mechanisms are likely to potentiate the approach of the legislature to the preferences of the majority (Matsusaka, 2005, 2008, 2018), be it by direct intervention or by indirect influence (by legislators’ consideration or fear of potential, direct citizen interventions), especially if combined with digitally enabled transparency.¹¹ Following a similar reasoning, Decidim may contribute to break the leadership’s monopoly of decision-making within parties by opening more spaces to intervention by members or, sometimes, citizens more broadly.

⁹Primarily, between elected representatives and party leaders in the legislative, especially when there is strong party discipline, and between cabinet members and the prime minister or president.

¹⁰The direction of such delegation is bidirectional, it can happen downwards (when party leaders delegate concrete tasks to their subordinates) or upwards (when the citizens delegate decision-making to their representatives). It is this second type of movement that interests us here.

¹¹Information asymmetries have proven to hinder such convergence processes (Gerber & Lupia, 1995; Matsusaka & McCarty, 2001); thereby digitally enabled traceability and publicity becomes key.

Secondly, inspired by social movement's (particularly the 15M's) experience of the potential of collaboration, Decidim tries to foster various forms of cooperation, as we show in Chapter 3. Decidim does not eliminate competition or conflict (a political feature of an unequal society), but the design of its interface is oriented to potentiate cooperative and deliberative elements in the mix. Through its smooth integration with other digital social networks, Decidim also builds and improves upon the existing dynamics of the networked public sphere.

Finally, Decidim challenges the bundling logic. People may be able to track and publicise (transparency), evaluate (evaluation) and act (direct participation) on a person-by-person and proposal-by-proposal basis. This increases accountability and allows people to cross lines across factions within parties or among parties in Parliament, in order to choose what they think is best. Citizens can know and act better on a case-by-case basis, rather than on complex bundles embodied in political representatives or programs (Matsusaka, 2005). Furthermore, for reasons such as accountability, representation seems to improve as the number of matters decided by representatives is reduced (Besley & Coate, 2000; Matsusaka, 2005). Moreover, the possibility of recombination resulting from unbundling and cooperation could also foster mechanisms of collective intelligence that could be either an alternative (when consensus across the social spectrum is searched) or a complement to competition (by improving the quality of the proposals of the social actors involved).

More than a "substitution" of delegation, competition and bundling, Decidim affords a variety of types of participatory mechanisms (Fung, 2006) which play with various aspects of the classic models of democracy and run through different levels in the ladder of participation (Arnstein, 1969). Ultimately, Decidim opens different venues for the interests in society to be transformed into public policy; it opens alternative forms to reconstruct the complexity and the conflictuality of the will.

2.2.3 Decidim and Paradigms of Government: From Open Government to Common Government

The notion of "open government" (Lathrop & Ruma, 2010) was oriented to nurture these types of advances, to foster ICT-enabled "transparency, participation and collaboration" between the State and citizens. It was a way to open the State to citizen intervention, contribution and scrutiny. Decidim connects with some of those goals. However, a majority of open government policies have focused on the first of those three vectors (transparency); open government has usually been reduced to open data policies (Yu & Robinson, 2012). Furthermore, the public often finds these datasets cryptic or hard to use, while corporate actors strategically benefit from those data by their epistemic, organisational and economic capacity to act upon them

(Gurstein, 2011a, b; Halonen, 2012). More broadly, this transition emerges as an opportunity for the private sector: the “massive business of government”.¹²

The open government paradigm, which imports practices from the world of open-source software development to the world of institutional politics, exhibits different shortcomings. As already seen in the debate between Richard Stallman and Eric S. Raymond on free software vs open software development paradigms (Tkacz, 2012), the open model¹³ is compatible with the neoliberal logic of production, management and appropriation of State infrastructure. A cooperative-driven or a State-driven project (or a mix between the two) strongly connected to the local free software ecosystem may not be necessarily prioritised over a freemium corporate project (privately owned and funded with speculative capital) as long as they all follow open-source principles (e.g. openly releasing the code) during development, although corporate projects rarely adhere to them strictly. This may not only mean million-euro outlays for the public sector in the long term (sometimes covered under the cloak of short-term costs reductions) but a lost opportunity to nurture publicly minded economic circuits, technological sovereignty, free technologies and social autonomy. Differently, the Decidim project advocates a public-common model of infrastructure for democracy.

Far from the transformative implications of this aspiration, the open government paradigm is compatible with a more efficient, sustainable and refined neoliberal system, but just as inequitable and atomising in terms of economics, politics, culture, etc. Differently, the notion of a common government underlying the Decidim project both in theory and practice is oriented to put the State institutions in the service of a democratic, public-common transformation of society.

2.3 Decidim and Participatory Governance

2.3.1 *Governance Beyond Government: Neoliberal vs Democratic Models*

The opening of government to participation and collective intelligence points to a model of governing beyond representative government. One notion that has been used since the 1980s for such opening is “governance”, which can be synthetically characterised as governing beyond or without the State.

As we have noted in Sect. 2.2.1, governance is a problematic concept and a complex phenomenon. From the very beginning, the term was key to a policy approach oriented to transform forms of governing as much as to describe them

¹²As defined in Forbes <http://www.forbes.com/sites/mikemontgomery/2015/06/24/why-civic-tech-is-the-next-big-thing/#1df2f6ce24b6>

¹³This reference to “openness” is connected to a recent liberal tradition, from Karl Popper’s thesis on the “Open Society” to George Soros and his Open Society Foundation (Tkacz, 2012).

(Bevir, 2007; Clarke, 2004). It was the concept with which the New Public Management School (Hood, 1991) tried to redefine the role and action of the State in society. Against the social-democratic model of a providing State constituting a sphere that is autonomous from and tight regulator of the operations and logics of markets, the neoliberal model (see note 25) tried to either impose the rule of such operations and logics in the sphere of the State (market logics in public administration) or reduce and marketise its functions (via privatisation, outsourcing, etc.): market logics were internalised; public functions were externalised. Governance became a name for the decentralisation of the tasks of the State, which should “steer” (orient public action) while letting other actors “row” (provide services) (Pollitt & Bouckaert, 2017).

Neoliberal governance, where the private sector takes upon and intervenes into the sphere previously reserved for the State, must be counterposed to our model of participatory governance. Under this model there is a recovery of a strong public function of the State, while the citizenry (organised or not, but with public support) does two key things: first, critically, contentiously and constructively intervenes upon State tasks of steering and rowing and, second, builds publicly oriented, autonomous spaces (e.g. commons).

From the Big Society to the Participation Society and Beyond This view is not to be confused with neoliberal visions such as the “Big Society” of British Tories (Bach, 2012) or, more recently, the “participation society”¹⁴ in Holland (Willem-Alexander, 2013). These models appeal to community empowerment, partial redistribution of power from the State to the citizenry, and to the culture of volunteering while omitting the key role of the State in aspects such as guaranteeing the necessary conditions for the active life of citizens and communities (beginning with the economic resources and the social justice that enable it), promoting critical and political capabilities and dispositions (against mere philanthropy or volunteering) and introducing the necessary process mediators (countering power asymmetries in processes, preventing the cooptation of discussions, etc.) in the debate, design and implementation of public policies (Goodley & Runswick-Cole, 2011; Kisby, 2010). All of it results in a new neoliberal formula that legitimates the hollowing out of the State without articulating real social counter-powers or autonomy.

2.3.2 *A Brief, Systemic View of Participatory Governance*

As noted in Sect. 2.2.1 governance happens not only around the State but also in any collectivity. A brief, systemic view on governance may conceptualise it as a process in which actors propose courses of action (variations) in view of a series of goals (constraints) and decide among them (selection), with the selected ones being

¹⁴This use of the term denaturalizes the concept of participation as we, following a long tradition, have approached it and defended it.

executed and then evaluated (sensing), an evaluation that helps to set new (or improved) proposals, goals or steps. This systemic view can map the traditional public policy cycle of agenda setting, policy formulation, decision-making, implementation and monitoring and evaluation. A systemic participatory version of governance implies intervention from below in all of those steps. Decidim helps to rethink the intervention of citizenry and social actors (e.g. associations, cooperatives) into the public policy cycle, from the inception of a given policy to the long-term monitoring of its results. The vision of “steering” and “rowing” established by the New Public Management paradigm becomes, thereby, problematised, as noted in the previous section.

Horizontal, Vertical and Diagonal Dynamics of Democratic Governance Through Decidim The three key general types of dynamics of governance enabled by Decidim are top-down, bottom-up and bottom-bottom. They attend to where the leading actors behind a given dynamic¹⁵ are situated within a given collective order. In top-down governance dynamics, a few (a set of political representatives, in the field of the State) open their action to the feedback of the many (their represented). Decidim aims to make these forms of feedback more democratic by opening them to scrutiny and accountability by everyone (transparency and accountability mechanisms), by allowing public deliberation (discussion mechanisms) and, more strongly, by allowing people to coordinate and intervene in response to governing action (recall or plebiscitary mechanisms)¹⁶ or to collaborate with it (co-creation of public policy). Here, a sort of back-and-forth, feedback or dialectic dynamic ensues. Even if transforming top-down dynamics is a minimalist form of participatory governance, the intervention of Decidim is oriented to prevent a fourth type of governance dynamic: top-top dynamics, in which a few decide solely on the basis of their interaction. This is paradigmatically exemplified in oligarchic forms of governance such as technocracy or lobbying in the sphere of public policy.

A second, more powerful, dynamic of decision-making afforded by Decidim is the bottom-up. In this case, people can directly lead the process of collective decision-making, from making proposals or debating them up to approving and executing them. A paradigmatic example of a bottom-up dynamic is the citizen initiative, which can be created by anyone and be approved by everyone after being processed by representative actors. Another is that of civic management of public infrastructures or resources, urban commons, where a substantial part, or all, of the actors are citizens. These dynamics overlap with the traditional ladder of participation (Arnstein, 1969): most forms of top-down dynamic fall within the information (e.g. circulation of data, documents), the consultation (e.g. surveys, open meetings) or placation (e.g. citizen juries) stages, which lack decision-making power and fall within the “tokenism” category, with partnership (the weakest form of citizen power)

¹⁵Leading actors are those initiating and shaping the dynamic.

¹⁶This implies that the top-down process (e.g. a given policy) is complemented with a second type of dynamic: the bottom-up dynamic (e.g. auditing, voting in a consultation, etc.).

as the best-case scenario (e.g. participatory strategic planning). Differently, bottom-up dynamics tend to fall within the citizen power area and display delegated power (e.g. citizen initiatives) or citizen control (e.g. urban commons). Where recognised participatory mechanisms exist, hybridity proliferates (e.g. consultations that accept citizen counterproposals, thereby combining top-down and bottom-up mechanisms). We synthesise some examples of processes in Fig. 2.1.

Beyond top-down and bottom-up dynamics, Decidim also affords and points towards bottom-bottom dynamics, where there is no reference to representative actors or even the public sector. These cases can go from networked social communication and deliberation to autonomous organisation (e.g. autonomous social centres, which are fully independent of any representative body). The bottom-bottom dynamic implies getting beyond the vertical axis typical of the State-oriented model of participation. It introduces a second horizontal axis, a second dimension. This allows us to think of diagonal processes, such as a social movement that grows to institute citizen panels (officially recognised or not) with decision power on a given issue, where a cross-section of society is displaced into a decision-making position while being connected to and transformed through struggle and deliberation (e.g. the climate assemblies proposed by the movement Extinction Rebellion).

One may finally imagine a third dimension in the geometry of governance, having to do not so much with the vertical or horizontal flows of power and decision-making but with the number of social fields or subsystems pervaded by Decidim dynamics—in other words, the “depth” of democratisation—which can go from formal politics up to economics, education, science or many other social fields.

Reassembling Power and Redistributing Capital Formal governance, the process of proposing, discussing, deciding upon, enacting, monitoring and evaluating collective courses of action, is a key form of constructing power in any human group. Power is both part and result of the process. Governance crucially shapes power “with” and power “over” others in society: it is a collective process of ruling people and things. Decidim aims to both formalise and redistribute the power “of” and the power “in” governance, the power that results from governance and the power that operates inside its processes. Ultimately, it aims to democratise it. According to Michael Mann (2012), the four key sources of power in contemporary societies are the military, the economic-productive, the political-bureaucratic and the ideological-cultural. Decidim is oriented to boost a participatory governance of the political, the economic and the ideological-cultural fields currently crucially shaped by elites and thereby exhibiting an oligarchic character. In this process, the (re)distribution of various forms of capital (economic, cultural, etc., Bourdieu, 1986) is an opportunity opened by such a transformation. In this sense, Decidim aims to contribute to a form of distributed democracy that redistributes power in various fields as well as in the various forms of capital in society, from the social to the economic.

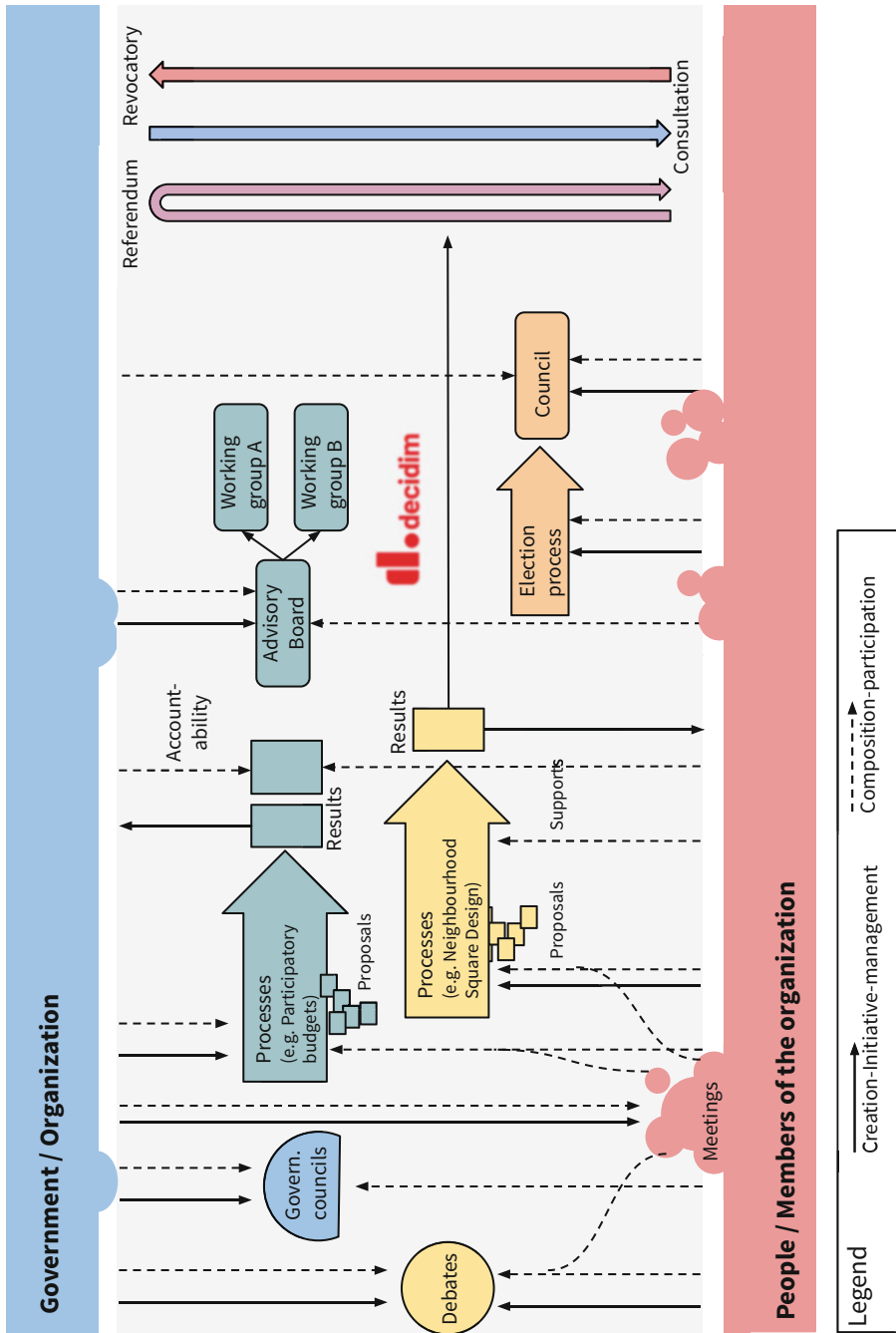


Fig. 2.1 Top-down, bottom-up and bottom-bottom dynamics with Decidim mediating between the people/citizenry or the members of an organisation (bottom) and the formal government or administration (top)

2.3.3 *Decidim in Public Administration and Labour Governance*

Decidim and Public Administration: From the Iron Cage and Its Hollowing Out to Technoacrcy and Its Democratic Reappropriation If public institutions are to play a leading role in the radicalisation, broadening and deepening of democracy, they must open themselves to different forms of democratisation and innovation processes. As noted by Max Weber, from the mid-nineteenth to mid-twentieth century, bureaucracies operated as modernising agents focused on rational calculation, control and efficiency. Alongside Fordian capitalism, they created new forms of material wealth but also “iron cages” that in many cases worked against personal and social autonomy, creativity and even democracy itself.

Opposed to these tendencies, which underlaid both the Soviet State economy and the bureaucratised Welfare State model, criticisms were raised both by the right (from Friedrich Hayek to the Chicago School) and the left (from movements such as the Students for a Democratic Society to publications such as *Socialism or Barbarism*). Already in the 1980s, the neoliberal view of the State as a slow-moving machine, incapable of innovation, got traction in public discourse and policy. The neoliberal model of governance was oriented to decentre the State on the basis of the privatisation and outsourcing of public services, often promoted by non-democratic institutions (such as the IMF and the World Bank), which sponsored policies and issued recommendations codifying political ideology as technical analysis. The calls to efficiency and innovation brought about new, flexible forms of exclusion and social control (Miller & Rose, 2008; Rose, 1999), when not increasingly brutal forms of material and symbolic accumulation, extraction and expropriation (Harvey, 2003).

If Weber characterised modern bureaucracy as a key element in a process of “disenchantment of the world”, the new forms of democratic innovation connected to the Decidim project point towards a reorientation (rather than a hollowing out) of public institutions and technologies, towards alternative modernities (Feenberg, 1995; Gaonkar, 2001; Hardt & Negri, 2009), guided by the idea of the commons, creativity and multitudinous reappropriation of social life. This would feed, inside the State, forms of institutional innovation (Mulgan, 2014) and, outside of it, forms of social transformation. The first aspect implies defining, implementing and innovating in concepts and criteria related to democratic quality and public service, countering the more traditional principles of public institutions, such as representation, hierarchy and efficiency (in the traditional Weberian model) or privatisation, competition and optimisation (in the New Public Management model), with the Decidim logic of bottom-up empowerment, radical democratisation and public value.

Public institutions must transform themselves to lead a democratic, public-common alliance, which follows multifaceted forms of rationality (not just technocratic or efficiency-centred), organised in more participatory and deliberative, agile

and autonomous practices, instead of slow, centralising and monolithic (let alone, externalised and privatised) ones, practices that are, at the same time, federated and interoperable, based on common codes. To the modern and, especially, neoliberal promotion of technocracy, the Decidim model opposes technoacrcy. We have defined technoacrcy as an active technopolitical work to subvert the hierarchies and forms of power operating in the political field, the technical field and, potentially, others, by producing and enacting new mediations and forms of participatory deliberation, decision and action (Calleja-López, 2017). Institutional arrangements should go beyond the triple helix model of the triad government-companies-university (Leydesdorff & Etzkowitz, 1996) towards open ecosystems and innovation networks with four or even five helices, including public institutions, citizens, university, companies and the environment (Carayannis et al., 2012), but with a central place for organised citizenry, a critical technopolitical view, promoting public-common partnerships and involving not just the political but also other social spheres (e.g. the economy). Section 3.4 includes an exposition of how the Decidim project has enacted this vision in practice.

Traditionally, the State is divided in a set of representative and a set of administrative layers, with the latter being much broader and charged with the task of executing the tasks of the State. The possibilities of a platform such as Decidim for participatory governance processes (organisation, decision-making, action) within administrative bodies or at the intersection between these and the citizenry remain to be explored. Some possibilities can be outlined, though.

Firstly, a platform such as Decidim can facilitate the formal and strong intervention of rank and file public servants into important internal decisions, equilibrating the hierarchical (or loosely networked) forms of decision-making today. The second possibility has to do with collective organisation: the organisation of workers of the administration in order to prevent and keep in check the various forms of oligarchic power. A third option (more relevant from our general viewpoint of a common government) is the possibility for the citizenry and social actors (neighbourhood assemblies, movements, NGOs) to crucially intervene into public service with public funding, especially at the proximity scale (neighbourhood, district, city), from decision-making to resource control and service providing in various forms of public urban commons. A fourth possible use has to do with an increase in transparency of bureaucracy and accountability by providing new forms of traceability of policies from their inception to their implementation, contributing to the previous three dynamics. A fifth, hypothetical, use may be internal communication. The informal use of corporate social networks and services (WhatsApp, Telegram, etc.) is today central for the coordination of the work among public servants. Providing public infrastructures for such practices is a task to be addressed in the coming years, and new versions of Decidim could be oriented in that direction. But others are much closer at hand, collective decision-making being a clear example.

Decidim and Labour Governance: Cooperatives (Self-Management) and Unions (Counter-Management) Decidim also holds democratic potential for the economic sector. It enables two core types of democratic practices: internal

self-organisation or self-management for cooperatives and unions and counter-management for the latter to intervene into corporate organisation. Cooperatives are economic actors that, at their bare minimum, are guided by two principles: economic sustainability and democratic management. Decidim can contribute to economic sustainability on at least two fronts. The first front is building collective intelligence: better ideas to address problems can be potentially generated, shared, filtered and chosen, thanks to it. The second has to do with its condition of free software, free in economic terms (it costs very little while providing, at the very least, a variety of services) and in its flexibility, which allows it to be adapted to new organisational needs (e.g. a digital currency or time bank could be added to the platform). In the field of democratic management, Decidim can contribute to the aspects we have mentioned in previous sections, from transparency to deliberative and participatory functionalities.

In the case of union work, Decidim can be an infrastructure for collective organisation as well as for intervening in and upon corporations. Many of the points made with regard to possible transformations of administrative bodies, internally and in their relations with the citizenry at the end of Sect. 2.3.3, can be adapted to the relations between company management and workers or to the connections between union leadership, its rank and file and the broader workforce.

If we closed Sect. 2.3.2 pointing to the idea of a distributed democracy, here we can talk of an augmented one, not so much in technological terms but in terms of the fields in which it takes place, as well as in terms of the actions and dimensions of collective agency that it enriches. In the following section, we address precisely this point. We move from the field of governance into that of governmentality.

2.4 Decidim and Participatory Governmentality

Decidim implies norms and forms of rationality and practice that are entangled with its software, its mode of production and operation, that is, forms of governmentality. Governmentality is a conceptual and practical interface between the political and the technopolitical planes of the Decidim project and of this book. Right beyond the layer of digital sociality defined by the functional architecture of the platform comes the actual performance of people and the construction of collective action and participation. The focus moves from how the platform operates, and even how it makes people operate, to the effects this has in broader practices, how these practices go beyond what the platform simply allows and how the platform reconstructs and is reconstructed (i.e. how it enacts and is exposed to various forms of governmentality) in various contexts.

All of these governmental aspects contribute to shaping how people think, act, affect and are affected. But against neoliberal forms of governmentality (Miller & Rose, 2008; Rose, 1999), through its design and operation and, more importantly, through its community, Metadecidim, the Decidim project is oriented to make

governmentality participatory, a form of self-governmentality. In this section we want to address three aspects of collective self-construction connected to governmentality that Decidim aims to affect: subjectivation, intelligence and action. In the following sections we pose some debates around those three topics, while in Chaps. 3 and 4 we will explore the specific forms, affordances, techniques, rules, norms, etc. by which they are rearticulated in practice, in and through Decidim.

2.4.1 Decidim and Collective Subjectivation

A first key issue for Decidim's governmentality is collective subjectivation. The forms of governmentality associated with the project are oriented to generate processes and subjects, both individual and collective, that take the form of "participation" and "participants", respectively. They point towards people as equal, cooperative and radical shapers of their collective lives rather than unequal and quantified competitors or isolated possessive individuals. In Decidim, first comes a political interpellation, in the sense of Althusser (1970), already inserted in the very name of the platform: Decidim means "we decide" in Catalan, we as citizenry—persons united in the exercise of political rights—and multitude, singularities united in the self-governing exercise of political life. Second comes a technopolitical interpellation: participants can redefine in a more direct way Decidim's governmentality practices and the (digital) structures and codes that support or embody them by intervening in the Metadecidim community (presented in detail in Sect. 3.5). This favours criticality and opens spaces for grassroots contention and alternative construction of social forms of rationality and practice (otherwise, of the forms of governmentality) both within and beyond the project.

Decidim's governmentality involves the subtle ways in which things like interfaces, algorithms, labels, metrics or interaction mechanics orient, amplify or preclude forms of performativity, habit, attention or desire. It is not only the way in which a voting system affects the democratic quality of a process, or the kind of explicit participatory actions available in Decidim (e.g. to support, comment or endorse a proposal), but the way in which more subtle dynamics alter or contribute to shape participants' political agency.¹⁷ In that sense, reclaiming a participatory governmentality points to new ways of articulating knowledge, desire and action.

Beyond the platform and its effects, Decidim as a technopolitical project is also crossed by forms of governmentality inherited from hacker culture, common's practices, community rituals and social movement dynamics, together with institutional and bureaucratic constraints and often also entrepreneurial aspirations and know-hows or other forms of rationality and practice that are brought into the project by its multitudinous participants. It is however a constant task of the project to try to

¹⁷For a detailed analysis of how platform interfaces shape habits, behaviour and individual autonomy, see Pérez-Verdugo & Barandiaran (2023).

make these explicit and work over them in a recursively and radically democratic way (e.g. taking forms of recurrent and multilinear sequences of proposition, deliberation/testing, decision/selection and action). This points towards critical forms of self-governmentality, new practices of self-care and self-governing of collective selves (a collective declination of Foucault's appeal to the care of the self).

Collective Self-Governmentality and Subjectivation Through Political Networks We consider Decidim an example of an emergent model of third-generation networks that we call "political networks". The differential characteristic of political networks lies in what can be done in them and with them. Digital networks such as Decidim have three fundamental characteristics: firstly, they reduce the centrality of the figure of the prosumer, someone who produces and consumes digital content (Toffler, 1980), and replace it with that of a political actor; secondly, they do so by articulating spaces that allow the construction of collective identities, wills and intelligences beyond the mere expression, aggregation or circulation of individual preferences; and, thirdly, they connect these with decisions that affect the collective plane as such. In this sense, the differences in naming are indicative: instead of a Facebook (a book of faces), Decidim ("we decide", in English) places the political bond at the centre of its construction. It doesn't appeal to individuals in a network but to a "we", a decisive "we" or decisive articulation of "wes". This applies to collective processes run by the State or by any other social organisation in fields ranging from the educational to the economic.

In summary, in informational networks, the key is information; in social networks, interaction; in the political ones, decisions, commitments and collectivity (i.e. collective intelligence, will, action, etc.). Each generation collects and modulates characteristics of the previous ones. In the same way that social networks built upon, and questioned, the model of informational networks (according to the usual reconstruction of the transition from Web 1.0 to Web 2.0), political networks build upon, connect with and diverge from, the logic of social networks, promoting a free multitudinous (no longer mass) self-communication, avoiding its capture at least on the level of participation and, potentially, much beyond. If various forms of vigilance and will from below, which we may dub as "subveillance" (or *sousveillance*, as proposed in the literature) and "subwilling" (or *souswilling*, a potentially useful neologism), are to pervade political and social organisation, infrastructures like Decidim are crucial. In this way, Decidim's governmentality can contribute to an ideal of social autonomy that is key for the health of the "twenty-first century democracy". Rather than traditional mass organisation via social movement organisations, mass media or mass parties, a possibility opens here for multitudinous self-organisation, communication and identification, as well as hybrid forms between the old and the new.

Fostering Citizens in Principle and in Practice Although there is debate in the literature, studies suggest that citizens who live in direct democracies such as Switzerland (Kern, 2017) are stronger or more competent citizens, that is, they are characterised by a higher sense of external efficacy. Compared to citizens in other

countries, they believe more strongly that the government is responsive to their demands (Bowler & Donovan, 2002; Hero & Tolbert, 2004; Mendelsohn & Cutler, 2000; Smith & Tolbert, 2004), their levels of political knowledge and interest are higher (Mendelsohn & Cutler, 2000; Smith, 2002) and they are more engaged in civic groups and associations (Smith & Tolbert, 2004; Tolbert et al., 2003). This, in turn, tends to nurture trust in institutions (Kern, 2017). Furthermore, participation has been shown to contribute to moving people's dispositions from selfish considerations into more public-oriented views (f.i. Abers, 1998; Baiocchi, 2003); in other words, specific forms of participation seem to nurture cooperation, deliberation and collective vision.

These data may be interpreted in light of the participatory democracy hypothesis around the citizen-forming character of participation. From Rousseau and Tocqueville to Pateman, Barber or Colombo, the idea that democracy is the best school of democracy has been a leitmotif of the tradition of participatory democracy. In that sense, we believe that, in the right settings, Decidim may (governmentally) contribute to articulate forms of strong citizenship subjectivation in the digital society. As seen in the previous paragraph, some aspects, such as individuals' sense of efficacy, political interest or engagement in civic groups, are mostly concerned with agency, will or self-perception within the political field. However, we think this can also affect forms of intelligence.

2.4.2 Decidim and Collective Intelligence

Beyond the Wisdom of the Few, the Wisdom of the Crowd and Corporate Intelligence In the Western tradition, one of the rationality-based attacks on democracy had to do with the question of knowledge: experts (or even just the few, as suggested by Plato in the Republic) are supposed to hit the truth and also the right course of action more often than the many, and thereby they are better rulers.

However, a growing literature in the last decades has suggested that this may not be the case. According to some such as Matsusaka (2005, p. 193) "direct democracy can be effective even when voters have no more or even worse information than legislators", since "if each person receives an informative signal about the right course of action, aggregating the opinions of a million voters can be highly accurate by the law of large numbers even if each person's chance of being right is small (this is a version of the Condorcet Jury Theorem; McLennan, 1998; Lupia, 2001)". In the right context (e.g. motivation matched with opportunities for deliberation), average citizens have proven able to become knowledgeable on a given topic (Colombo, 2016; Esterling et al., 2011; Warren & Gastil, 2015), which seems to be the crucial type of knowledge for direct democracy processes (Gilens, 2001; Krosnick, 1990; Price & Zaller, 1993; Shaker, 2012). In other cases, citizen initiatives are explicitly oriented to reveal preferences to the legislature as much as to be passed (Gerber,

1999, Chapter 5). In both cases, the participation of the many can improve upon the intelligence and decisions of the few.

Beyond the political, the wisdom of the crowd hypothesis suggests that mobilising a large crowd of participants potentially holding a variety of perspectives is a way to both mobilise their knowledge and neutralise their biases, which can improve not only upon politicians' but even over field experts' judgement in some contexts. However, this is the typically modern, governmental, statistical treatment of population (in this case, with regard to knowledge or intelligence). Outside that model, proposals of collective intelligence such as those of Pierre Lévy (1997) offer a much richer alternative in terms of their models of rationality, organisation and attention to digitalisation. On the rational and organisational side, it is important to notice that the wisdom of the crowd hypothesis tends to rely upon the external, statistical aggregation and analysis of opinions, while more advanced collective intelligence models point towards more granular, organic and even deliberative forms of defining, evaluating and organising knowledge, which includes connecting and circulating it between agents, with longer-lasting effects (e.g. between experts and non-experts, while this very distinction can be put to the test).

When it comes to digitalisation, the wisdom of the crowds is being governed and exploited by platforms ranging from Google to Amazon, from Facebook to Tripadvisor, in a process of privatisation of experiences, knowledge, opinions or argumentations for the sake of maximising profit and creating corporate intelligence. Recently, this process has included the use of consumer activity for training AI systems: the rise of what we may define as an incorporated artificial intelligence (IAI). In opposition to that model, Decidim is oriented to nurture the idea of collective intelligence as a commons (CIC) or common intelligence, differing both from the idea of the wisdom of crowds and from corporate or privatised intelligence, be it artificial or human. These are two key technopolitical paradigms in the age of the digitalisation of intelligence.

Collective Intelligence and Artificial Intelligence Artificial intelligence is attributed to machines, while collective intelligence is associated with human groups; both seem to stretch the usual notion of intelligence, associated with individual humans. Although probably in different grades (from more to less), all three (artificial, collective and individual intelligence) share a problematic character: intelligence is a contested phenomenon. We cannot address it here, but will approach AI and CI in a very preliminary fashion. As has been repeated frequently, AI is not a new notion, but rather dates back to the 1950s and the workshops organised by John McCarthy et al. (1955) with the goal of investigating ways in which machines may emulate human intelligence in tasks such as learning or decision-making.

On the other hand, collective intelligence was characterised by Pierre Lévy, one of its most outspoken and optimistic defendants, as a form of reading and “working together (*inter legere*), as a union point not only of ideas but also of people ‘constructing society’ [...] an intelligence distributed everywhere, constantly valorized, coordinated in real time, which leads to an effective mobilisation of competences” (Levy, 1997, p. 10). To this he added that “the ground and objective of

collective intelligence is the mutual acknowledgement and enrichment of people, not the cult of fetishized or hypostatized communities” (Levy, 1997, p. 13). Such definition of collective intelligence goes beyond the idea of the wisdom of the crowds (as external statistical treatment of the opinions of a group) and also forces us to think through its technological preconditions, involving non-humans into the equation (Toret & Calleja-López, 2014). At that point, artificial and collective intelligence begin to converge, as forms of digitalised intelligence, although in a differential manner.

Rather than focusing mostly on definitional problems and demarcating limits between human and non-human cognition, the key may reside in widening our theoretical and practical imagination about what is possible, for whom and how when it comes to intelligence. Under digital capitalism, artificial intelligence (as IAI) and collective intelligence (as CIC) are, in a sense, opposed or antagonistic projects in their preconditions and their possibilities, their production and their potential. As it exists today, in corporate Large Language Models* such as OpenAI, artificial intelligence is based on the exploitation of the accumulated collective knowledge of billions of human beings for profit. It can be understood as a form of digital enclosure, an expropriation of collective intelligence that partially halts its reproduction. Projects of AI reify and privatise past collective intelligence, with its virtues and biases, and then weaponise it through unjust deployments and menaces of future automation and human obsolescence. Incorporated artificial intelligence builds upon and contributes to renew cognitive capitalism and neoliberalism in both the State and society. In democratic politics there is no room for IAI, for artificial intelligence systems tied to a fixed function to be optimised. Democratic politics is about deciding what needs to be optimised, to set up the goals and even the procedures to set up those goals.

Crucially, the Decidim philosophy points to a key challenge on this front (whose shape and sense remains to be explored): the democratisation of the choice and benefits of the design and goals of AI systems. The Decidim philosophy points towards the deployment of collective intelligence, collective will and collective action for stirring AI as commons and for commons (AIC). Furthermore, Decidim may not only help to democratise AI and mobilise collectives towards such goals, but it may also point beyond intelligence, at least intelligence as an end in itself or a fetish. First, especially when it comes to humans, collective intelligence must be connected to dynamics of collective will, collective action and, more broadly, collective lives. Second, both artificial and collective intelligence must be understood as part of the constitution, performance and flourishing of hybrid collectives.

2.4.3 Decidim and Collective Action

The Problem of Collective Action: Catalysing Multitudinous Self-Organisation, Identities and Commons The possibilities just noted have to face many challenges: one is the fact that to get people to act together to produce and sustain

something in common is not easy. Two symmetric problems have traditionally been raised: the problem of collective action and the tragedy of the commons, the problem of creating collective goods and the problem of maintaining them.

The first poses the question of why an individual (understood as a utility maximiser, meaning someone trying to increase its wealth or power as much as possible) would contribute to produce a common good when it is possible to free ride and benefit from what others have produced (Olson, 1971). The second poses the question of how to avoid, if something “common” exists, that every individual uses the resource beyond its sustainable share, bringing about the eventual depletion of the resource and the so-called “tragedy of the commons” (Hardin, 1968).

Two traditional answers to the first question have been resource mobilisation (Jenkins, 1983) and collective identity (Melucci, 1995). The first answer suggests that people contribute because others mobilise resources, either their own or someone else’s (e.g. money). This reduces the costs of or compensates people’s effort. Meanwhile, those mobilising the resources get a better share of the result, be it in material or immaterial terms. The second answer suggests that people contribute because their own self-understanding is shaped by collective interaction, which orients their identity towards some form of duty or altruism towards others (at the very least, those composing the group). As a result, collective action seems to require strong organisations and identities. The ones mobilising resources and shaping collective identity (e.g. via the resources of the party, the social organisation or the mass media) become traditional leaders.

But digital networks are changing this conundrum by reducing some of the costs of collective action and by transforming it (Earl & Kimport, 2011): platforms such as Decidim enable less costly and more diverse forms of participation, thereby opening collective action to a greater base of contributors (even if, ultimately, the distribution of contribution follows a power law). This feeds the hope of benefiting from Metcalfe’s Law, whereby the value of a communication network is the square of the number of nodes: in other words, a network is more valuable if it has many people with whom to carry out activities (e.g. to communicate, mobilise resources, etc.). This situation challenges the need for always-strong organisations and collective identities. Even if they do not disappear, their shape can change towards more flexible, decentralised, temporally shifting and ad hoc forms (e.g. multitudinous identities, Barandiaran et al., 2020; Monterde et al., 2015) where solidarity can mix with various forms of fluidarity (McDonald, 2002). In any case, Decidim, through its reduction of the costs of participation (communication, coordination, contribution, etc.) and through its operations of collective subjectivation, noted in Sect. 2.4.1, seems to address two relevant conditions of collective action such as resource mobilisation and collective identity.

Digital networks like Decidim can also contribute to addressing the tragedy of the commons, in several forms. Basically, it consists in strengthening various dimensions of the governance and sustenance of commons, a type of institution for collective action thoroughly researched by Elinor Ostrom (1990) that Hardin completely missed in his analysis. We will focus on some aspects of hybrid,

online-offline commons (rather than purely digital commons) to which Decidim can contribute in various ways. The first is by facilitating coordination and cooperation. The second is by enabling better processes (e.g. more collectively intelligent) of decision-making on the commons. The third is by defining more clearly and transparently the ways of being in or out of the group. The fourth is a much more explicit and operational formulation of the rules and the forms of resolving conflicts. The fifth is by affording a more detailed tracking of common activity. The sixth is by allowing a more transparent and secure application of the rules, commitments and sanctions. Not all of these possibilities may be applicable, and it is worth noting that digital networks require specific conditions to perform in beneficial manners, from courses for socialising the skills necessary to use them (see Sect. 4.5) to forms of self-reflection not to fall into digital cages (see Sect. 3.5 on this point). It is also important to stress the factors they cannot change. However, under the right sociotechnical settings such as those noted in Chap. 1, from networked social movements to digital commons, digital networks are already helping to advance towards new forms of multitudinous self-organisation, identities and commons. In other words, towards successful forms of collective action.

Augmented Participation vs Digital Reductionism, Click Participation and Digital Divides A frequent objection to the hopes just formulated points to the rise of digital reductionism and digital divides. We may define “digital reductionism” as an approach that focuses mostly or exclusively on digital aspects and infrastructures of participation, without adequately attending to the necessary and plural innovations in terms of participatory practices, processes and culture potentially associated with the hybridisation of digital and analogical spaces for participation. From its inception, the Decidim approach is oriented to connect spaces and activities in the platform with face-to-face spaces and activities, thinking through the variants in which this may take place in order to catalyse collective action.

A second form of reductionism is click participation: in this case participation becomes a phenomenon defined, firstly, by being digital only and, secondly, by the superficiality and brevity of interaction with other actors and ideas. Regarding this, as noted in Chap. 3, Decidim is increasingly oriented to favour enriched forms of interaction among participants, as well as with platform contents, hybrid participatory processes and political events in a wider sense. This implies, on the one hand, to enrich participation in Decidim with features beyond the vote (deliberation features, social networking features, data visualisation, etc.) and, on the other, to design hybrid processes (e.g. face-to-face meetings connected to the platform) that enable an augmented, integral and multi-modal participation, instead of reduced and clicked.

Hybrid participation may help to further address the traditional digital divide, the gap in terms of Internet access. Furthermore, it may also help with the divides in information processing (e.g. in finding relevant content rather than getting lost or overwhelmed) and, more importantly, in digital-based action (i.e. using digital means for empowered action, such as calling for a demonstration, rather than mere consuming). Mobilising facilitators both online and offline, human and non-human

and combinations of those, with clear goals of empowerment, collective action and social transformation, is a key step in that direction. The success of the strategic planning in Barcelona, which we have presented in Sect. 1.3.2, is a good example and the possibility to improve way beyond it remains open. As we noted in the previous section, concerning collective intelligence, flourishing personal and collective lives, their collective definition, construction and sustainability at various scales, is one of the ultimate aims of (if not the ultimate aim of) collective action from the Decidim perspective.

With this we close a brief overview of some challenges, problems and practices around collective selves. We have attended to issues of collective subjectivation (and identity), intelligence and action. This review suggests there are reasons to believe collectives can be more than a phantom (to put it in Walter Lippmann's famous terms) or a fanatic public. For reasons of space we have left other collective dimensions unconsidered (collective imagination, will,¹⁸ etc.). In the following chapter, we begin to dig into questions of governmentality from an applied perspective. We dissect the mechanisms, practices, norms, rules, operations, techniques, metrics, etc. with which Decidim has been constructed and that may help to redefine governance, government and, beyond that, our collective selves and lives.¹⁹

References

- Abers, R. (1998). From Clientelism to Cooperation: Local Government, Participatory Policy, and Civic Organizing in Porto Alegre, Brazil. *Politics & Society*, 26(4), 511–537. <https://doi.org/10.1177/0032329298026004004>
- Althusser, L. (1970). Ideology and ideological state apparatuses (notes towards an investigation). In A. Sharma & A. Gupta, *The Anthropology of the State: A Reader* (pp. 86–98). John Wiley & Sons.
- Arnstein, S. R. (1969). A Ladder Of Citizen Participation. *Journal of the American Institute of Planners*, 35(4), 216–224. <https://doi.org/https://doi.org/10.1080/01944366908977225>
- Bach, S. (2012). Shrinking the state or the Big Society? Public service employment relations in an era of austerity. *Industrial Relations Journal*, 43(5), 399–415. <https://doi.org/https://doi.org/10.1111/j.1468-2338.2012.00693.x>
- Baiocchi, G. (2003). Emergent Public Spheres: Talking Politics in Participatory Governance. *American Sociological Review*, 68(1), 52. <https://doi.org/https://doi.org/10.2307/3088902>
- Barandiaran, X. E., Calleja-López, A., & Cozzo, E. (2020). Defining Collective Identities in Technopolitical Interaction Networks. *Frontiers in Psychology*, 11. <https://doi.org/https://doi.org/10.3389/fpsyg.2020.01549>
- Barber, B. R. (1984). *Strong democracy: Participatory politics for a new age*. University of California Press.
- Besley, T., & Coate, S. (2000). *Issue Unbundling via Citizens' Initiatives* (Working Paper 8036; NBER Working Paper Series). National Bureau of Economic Research.

¹⁸However, Sect. 2.2.2 may be taken as an extremely brief, first approach to issues of governmental construction of collective will.

¹⁹As Foucault's work shows, biopolitics and technopolitics are deeply intertwined, and the selves at stake are not merely or even primarily individual, but collective ones.

- Bevir, M. (2007). *Encyclopedia of Governance (Vol. 1)*. SAGE Publications.
- Björk, P., & Johansson, H. (2001). *Towards governance theory: In search for a common ground* (17; IPSA Papers). IPSA.
- Bourdieu, P. (1983). Political representation: Elements for a theory of the political field. In *Language and symbolic power* (pp. 171–202). Polity Press. https://monoskop.org/images/4/43/Bourdieu_Pierre_Language_and_Symbolic_Power_1991.pdf
- Bourdieu, P. (1986). The Forms of Capital. In *The sociology of economic life* (pp. 78–92). Routledge.
- Bowler, S., & Donovan, T. (2002). Democracy, Institutions and Attitudes about Citizen Influence on Government. *British Journal of Political Science*, 32(2), 371–390. <https://doi.org/https://doi.org/10.1017/S0007123402000157>
- Calleja-López, A. (2017). *Since 15 M: The technopolitical reassembling of democracy in Spain*. [PhD Thesis, University of Exeter]. <https://ore.exeter.ac.uk/repository/handle/10871/29295>
- Carayannis, E. G., Barth, T. D., & Campbell, D. F. (2012). The Quintuple Helix innovation model: Global warming as a challenge and driver for innovation. *Journal of Innovation and Entrepreneurship*, 1(1), 2. <https://doi.org/https://doi.org/10.1186/2192-5372-1-2>
- Clarke, J. (2004). Dissolving the Public Realm? The Logics and Limits of Neo-liberalism. *Journal of Social Policy*, 33(1), 27–48. <https://doi.org/https://doi.org/10.1017/S0047279403007244>
- Colombo, C. (2016). *Partisan, not ignorant: Citizens' use of arguments and justifications in direct democracy* [Thesis, European University Institute]. <https://doi.org/10.2870/72582>
- Costopoulos, P. J., & Rosanvallon, P. (1995). The History of the Word 'Democracy' in France. *Journal of Democracy*, 6(4), 140–154. <https://doi.org/https://doi.org/10.1353/jod.1995.0072>
- Dahlberg, L. (2011). Re-constructing digital democracy: An outline of four 'positions'. *New Media & Society*, 13(6), 855–872. <https://doi.org/https://doi.org/10.1177/1461444810389569>
- DeBrunner, A. (1947). Δημοκρατία. In *Festschrift für Edouard Tièche* (pp. 11–24). Verlag Herbert Lang & CIE.
- Deseriis, M. (2023). Reducing the Burden of Decision in Digital Democracy Applications: A Comparative Analysis of Six Decision-making Software. *Science, Technology, & Human Values*, 48(2), 401–427. <https://doi.org/https://doi.org/10.1177/01622439211054081>
- Di Paolo, E., Cuffari, E. C., & De Jaeger, H. (2018). *Linguistic bodies: The continuity between life and language*. The MIT Press.
- Earl, J., & Kimport, K. (2011). *Digitally Enabled Social Change: Activism in the Internet Age*. The MIT Press.
- Esterling, K. M., Neblo, M. A., & Lazer, D. M. J. (2011). Means, Motive, and Opportunity in Becoming Informed about Politics: A Deliberative Field Experiment with Members of Congress and Their Constituents. *Public Opinion Quarterly*, 75(3), 483–503. <https://doi.org/https://doi.org/10.1093/poq/nfr001>
- Feenberg, A. (1995). *Alternative Modernity: The Technical Turn in Philosophy and Social Theory*. University of California Press.
- Foucault, M. (2008). *The Birth of Biopolitics: Lectures at the Collège de France, 1978–1979* (M. Senellart, F. Ewald, & A. Fontana, Eds.). Palgrave Macmillan UK. <https://doi.org/10.1057/9780230594180>
- Fuchs, C. (2008). *Internet and Society: Social Theory in the Information Age*. Routledge.
- Fung, A. (2006). Varieties of Participation in Complex Governance. *Public Administration Review*, 66(1), 66–75. <https://doi.org/https://doi.org/10.1111/j.1540-6210.2006.00667.x>
- Ganuja, E., & Mendiharat, A. (2020). *La democracia es posible. Sorteo cívico y deliberación para rescatar el poder de la ciudadanía | consonni*. Consonni. <https://www.consonni.org/es/publicacion/la-democracia-es-posible>
- Gaonkar, D. P. (Ed.). (2001). *Alternative Modernities*. Duke University Press.
- Gerber, E. R. (1999). *The Populist Paradox: Interest Group Influence and the Promise of Direct Legislation*. Princeton University Press.
- Gerber, E. R., & Lupia, A. (1995). Campaign Competition and Policy Responsiveness in Direct Legislation Elections. *Political Behavior*, 17(3), 287–306.

- Gilens, M. (2001). Political Ignorance and Collective Policy Preferences. *American Political Science Review*, 95(2), 379–396. <https://doi.org/https://doi.org/10.1017/S0003055401002222>
- Goodley, D., & Runswick-Cole, K. (2011). Problematising policy: Conceptions of ‘child’, ‘disabled’ and ‘parents’ in social policy in England. *International Journal of Inclusive Education*, 15(1), 71–85. <https://doi.org/https://doi.org/10.1080/13603116.2010.496197>
- Graeber, D. (2013). *The Democracy Project: A History, a Crisis, a Movement*. Random House.
- Gurstein, M. B. (2011a). Open data: Empowering the empowered or effective data use for everyone? *First Monday*, 16(2). <https://doi.org/https://doi.org/10.5210/fm.v16i2.3316>
- Gurstein, M. B. (2011b, July 11). A Data Divide? Data “Haves” and “Have Nots” and Open (Government) Data. *Gurstein’s Community Informatics*. <https://gurstein.wordpress.com/2011/07/11/a-data-divide-data-%e2%80%9chaves%e2%80%9d-and-%e2%80%9chave-nots%e2%80%9d-and-open-government-data/>
- Gutmann, A., & Thompson, D. (2004). *Why Deliberative Democracy?* (STU-Student edition). Princeton University Press.
- Habermas, J. (1976). *Legitimation crisis*. Polity Press.
- Habermas, J. (1981). *The Theory of Communicative Action: Reason and the Rationalization of Society* (T. McCarthy, Trans.; Vol. 1). Polity Press.
- Habermas, J. (1994). Three Normative Models of Democracy. *Constellations*, 1(1).
- Hacker, K., & van Dijk, J. (2000). *Digital Democracy: Issues of Theory and Practice*. SAGE. <https://doi.org/https://doi.org/10.4135/9781446218891>
- Halonen, A. (2012). *Being Open about Data: Analysis of the UK open data policies and applicability of open data* (The Reports of the Finnish Institute in London). Finnish Institute in London. <http://archive.finninst.uk/media/W1siZiIsIjIwMTYvMDgvMjUvMDkvMzgvMjEvZGQyOGQ5MTUtY2Q4YS00N2U0LWEyZTAatM2FiOWUxN2M0Njc2L2JlYW5nIG9wZW4gYWJvdXQgZGF0YS5wZGYiXV0/being%20open%20about%20data-sha=cad600352a6ffb0b.pdf>
- Hardin, G. (1968). The Tragedy of the Commons. *Science*, 162(3859), 1243–1248.
- Hardt, M., & Negri, A. (2009). *Commonwealth*. Harvard University Press.
- Harvey, D. (2003). *The new imperialism*. Oxford University Press.
- Held, D. (2006). *Models of Democracy*. Polity Press.
- Hero, R. E., & Tolbert, C. J. (2004). Minority Voices and Citizen Attitudes about Government Responsiveness in the American States: Do Social and Institutional Context Matter? *British Journal of Political Science*, 34(1), 109–121. <https://doi.org/https://doi.org/10.1017/S0007123403000371>
- Hood, C. (1991). A public management for all seasons? *Public Administration Review*, 69(1), 3–19. <https://doi.org/https://doi.org/10.1111/j.1467-9299.1991.tb00779.x>
- Hufty, M. (2011). Investigating policy processes: The Governance Analytical Frame-work (GAF) [Application/pdf]. In U. M. Wiesmann & H. Hurni (Eds.), *Research for sustainable development: Foundations, experiences, and perspectives* (Vol. 6, pp. 403–424). Geographica Bernensia. <http://boris.unibe.ch/68343/>
- Jenkins, J. C. (1983). Resource Mobilization Theory and the Study of Social Movements. *Annual Review of Sociology*, 9(1), 527–553. <https://doi.org/https://doi.org/10.1146/annurev.so.09.080183.002523>
- Kern, A. (2017). The Effect of Direct Democratic Participation on Citizens’ Political Attitudes in Switzerland: The Difference between Availability and Use. *Politics and Governance*, 5(2), 16–26. <https://doi.org/10.17645/pag.v5i2.820>
- Kisby, B. (2010). The Big Society: Power to the People? *The Political Quarterly*, 81(4), 484–491. <https://doi.org/https://doi.org/10.1111/j.1467-923X.2010.02133.x>
- Krosnick, J. A. (1990). Government policy and citizen passion: A study of issue publics in contemporary America. *Political Behavior*, 12, 59–92. <https://doi.org/https://doi.org/10.1007/BF00992332>
- Lathrop, D., & Ruma, L. (2010). *Open Government: Collaboration, transparency, and participation in practice*. O’Reilly Media, Inc.

- Levy, P. (1997). *Collective Intelligence*. Basic Books.
- Leydesdorff, L., & Etzkowitz, H. (1996). Emergence of a Triple Helix of university—Industry—Government relations. *Science and Public Policy*, 23, 279–286. <https://doi.org/https://doi.org/10.1093/spp/23.5.279>
- List, C., & Pettit, P. (2011). *Group Agency: The Possibility, Design, and Status of Corporate Agents* (P. Pettit, Ed.). New York: Oxford University Press.
- Manin, B. (1987). On Legitimacy and Political Deliberation. *Political Theory*, 15(3), 338–368. <https://doi.org/https://doi.org/10.1177/0090591787015003005>
- Manin, B. (1997). *The Principles of Representative Government*. Cambridge University Press. <https://doi.org/https://doi.org/10.1017/CBO9780511659935>
- Mann, M. (2012). *The Sources of Social Power: Volume 1: A History of Power from the Beginning to AD 1760* (second ed., Vol. 1). Cambridge University Press. <https://doi.org/10.1017/CBO9781139381307>
- Massumi, B. (2015). *Politics of Affect*. John Wiley & Sons.
- Matsusaka, J. G. (2005). Direct Democracy Works. *Journal of Economic Perspectives*, 19(2), 185–206. <https://doi.org/https://doi.org/10.1257/0895330054048713>
- Matsusaka, J. G. (2008). *For the Many or the Few: The Initiative, Public Policy, and American Democracy*. University of Chicago Press.
- Matsusaka, J. G. (2018). Public policy and the initiative and referendum: A survey with some new evidence. *Public Choice*, 174(1), 107–143. <https://doi.org/https://doi.org/10.1007/s11127-017-0486-0>
- Matsusaka, J. G., & McCarty, N. M. (2001). Political Resource Allocation: Benefits and Costs of Voter Initiatives. *The Journal of Law, Economics, and Organization*, 17(2), 413–448. <https://doi.org/https://doi.org/10.1093/jleo/17.2.413>
- McCarthy, J., Minsky, M. L., Rochester, N., & Shannon, C. E. (1955). A Proposal for the Dartmouth Summer Research Project on Artificial Intelligence, August 31, 1955. *AI Magazine*, 27(4), Article 4. <https://doi.org/https://doi.org/10.1609/aimag.v27i4.1904>
- McDonald, K. (2002). From Solidarity to Fluidarity: Social movements beyond ‘collective identity’—the case of globalization conflicts. *Social Movement Studies*, 1(2), 109–128.
- Melucci, A. (1995). The process of collective identity. *Social Movements and Culture*, 4, 41–63.
- Mendelsohn, M., & Cutler, F. (2000). The Effect of Referendums on Democratic Citizens: Information, Politicization, Efficacy and Tolerance. *British Journal of Political Science*, 30(4), 669–698. <https://doi.org/https://doi.org/10.1017/S0007123400220292>
- Michels, R. (1911). *Political Parties: A Sociological Study of the Oligarchical Tendencies of Modern Democracy* (E. Paul & C. Paul, Trans.). Batoche Books.
- Miller, P., & Rose, N. (2008). *Governing the Present: Administering Economic, Social and Personal Life*. Polity.
- Monterde, A., Calleja-López, A., Aguilera, M., Barandiaran, X. E., & Postill, J. (2015). Multitudinous identities: A qualitative and network analysis of the 15 M collective identity. *Information, Communication & Society*, 18(8), 930–950. <https://doi.org/https://doi.org/10.1080/1369118X.2015.1043315>
- Mulgan, G. (2014). True Collective Intelligence? A Sketch of a Possible New Field. *Philosophy & Technology*, 27(1), 133–142. <https://doi.org/https://doi.org/10.1007/s13347-013-0146-3>
- Olson, M. (1971). *The Logic of Collective Action: Public Goods and the Theory of Groups, Second Printing with a New Preface and Appendix*. Harvard University Press. <https://doi.org/https://doi.org/10.2307/j.ctvjf3ts>
- Ostrom, E. (1990). *Governing the Commons: The Evolution of Institutions for Collective Action*. Cambridge University Press.
- Pateman, C. (1970). *Participation and Democratic Theory*. Cambridge University Press. doi:<https://doi.org/10.1017/CBO9780511720444>
- Pérez-Verdugo, M., & Barandiaran, X. E. (2023). Personal autonomy and (digital) technology. An enactive sensorimotor framework. *Submitted to Philosophy & Technology (under Review)*. Pre-Print Available at <https://psyarxiv.com/y8mga/>. <https://doi.org/10.31234/osf.io/y8mga>

- Pitkin, H. F. (1967). *The Concept of Representation*. University of California Press.
- Pollitt, C., & Bouckaert, G. (2017). *Public Management Reform: A Comparative Analysis - Into the Age of Austerity*. Oxford University Press.
- Price, V., & Zaller, J. (1993). Who Gets the News? Alternative Measures of News Reception and Their Implications for Research. *Public Opinion Quarterly*, 57(2), 133. <https://doi.org/https://doi.org/10.1086/269363>
- Ranci re, J. (1999). *Disagreement: Politics and Philosophy*. University of Minnesota Press.
- Rosanvallon, P. (2011). *Democratic Legitimacy: Impartiality, Reflexivity, Proximity* (A. Goldhammer, Trans.). Princeton University Press.
- Rose, N. (1999). *Powers of Freedom: Reframing Political Thought*. Cambridge University Press. <https://doi.org/https://doi.org/10.1017/CBO9780511488856>
- Saldivar, J., Parra, C., Alcaraz, M., Arteta, R., & Cernuzzi, L. (2019). Civic Technology for Social Innovation: A Systematic Literature Review. *Computer Supported Cooperative Work (CSCW)*, 28(1–2), 169–207. <https://doi.org/https://doi.org/10.1007/s10606-018-9311-7>
- Shaker, L. (2012). Local Political Knowledge and Assessments of Citizen Competence. *Public Opinion Quarterly*, 76(3), 525–537. <https://doi.org/https://doi.org/10.1093/poq/nfs018>
- Smith, D. A., & Tolbert, C. J. (2004). *Educated by Initiative: The Effects of Direct Democracy on Citizens and Political Organizations in the American States*. University of Michigan Press.
- Smith, M. A. (2002). Ballot Initiatives and the Democratic Citizen. *The Journal of Politics*, 64(3), 892–903.
- Tkacz, N. (2012). From open source to open government: A critique of open politics. *Ephemera: Theory and Politics in Organization*, 12(4), 386–405.
- Toffler, A. (1980). *The Third Wave*. Morrow.
- Tolbert, C. J., McNeal, R. S., & Smith, D. A. (2003). Enhancing the civic engagement: The effect of direct democracy on political participation and knowledge. *State Politics & Policy Quarterly*, 3(1), 23–41. <https://doi.org/https://doi.org/10.1177/153244000300300102>
- Toret, J., & Calleja, A. (2014). Collective intelligence framework (Deliverable D2.1; D-CENT. Decentralised Citizens ENGagement Technologies.). <https://dcentproject.eu/wpcontent/uploads/2014/04/D2.1-Collective-intelligence-framework.pdf>
- Warren, M. E., & Gastil, J. (2015). Can Deliberative Minipublics Address the Cognitive Challenges of Democratic Citizenship? *The Journal of Politics*, 77(2), 562–574. <https://doi.org/https://doi.org/10.1086/680078>
- Willem-Alexander. (2013, September 17). *Troonrede 2013* [Speech]. Troonrede 2013, Koninklijk Huis. Ministerie van Algemene Zaken. <https://www.koninklijkhuis.nl/documenten/toespraken/2013/09/17/troonrede-2013>
- Yu, H., & Robinson, D. G. (2012). The New Ambiguity of ‘Open Government’. *UCLA Law Review Discourse*, 59(178), 178–208. <https://doi.org/https://doi.org/10.2139/ssrn.2012489>

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Chapter 3

The Technopolitical Plane: Decidim as a Democratic Software Paradigm



The Technopolitical Plane We have explored the political plane that Decidim aims to operate upon and transform. The technopolitical plane operates as the more intensive surface of interaction and translation between the political plane just analysed and the technical plane analysed in Chap. 4 (which includes the technological, but also other dimensions such as the legal). It is the area of the project where social and political considerations shape technological design (a line from the political to the technical) and where this technological design first affects and shapes social behaviour (a line from the technical to the social). This is the level where law becomes code and code becomes law (Lessig, 2006), where it displays its social preconditions and effects and its capacity to produce habit(us). Otherwise, it is the key layer of production of (participatory) technopolitical governmentality.

Digitalising Democracy, an Opportunity to Democratise Power Whereas the new regulation for citizen participation in Barcelona¹ (see Sect. 4.3) has about 3500 lines of legal code, a Decidim instance involves over one million lines of programming code. Despite its feebleness, this comparison provides an approximation to the complexity of the project.² More generally, it also points to the extraordinary effort of concretisation and explicitness required by digitalisation. Theoretical language, juridical language and even administrative language have ambiguities and generalisations that have no room within the digital realm. Computers do not accept ambiguous messages: every button, every link, every message sent to or from a computer needs to be perfectly accurate to the ultimate level of binary code. Achieving it requires, to some extent, to translate and transform into formality

¹ https://media-edg.barcelona.cat/wp-content/uploads/2022/06/29075940/REGLAMENT_2022-web.pdf

² We are not advocating here to use lines of code as an appropriate measure of a software project's complexity, but it may serve as a rough approximation to the level of specification of software vis-à-vis legal code.

what are usually rather taken for granted, non-explicit or informal social practices and norms—an informality that nurtures a form of “tyranny of structurelessness” similar to the one denounced by Jo Freeman (1972). In a sense, the process of digitising democracy implies making democracy more technically explicit (sometimes maximally explicit), a moment for potentially uncovering ambiguities and implicit traditions, for defining and redefining power structures and social relations into new sociotechnical codes (Feenberg, 1999). It is also a process of fixation where many aspects of soft techniques (implicit habits, shaky protocols, routines) are made visible and open to definition. This extends to the mechanisms, categories, relations and structures of a given platform but also to its terminology and colour codes, or the very size of a button.

Power is often constructed and hidden in those details. By making it somehow more explicit, computer executable and re-designable, an opportunity is opened to advance in the democratisation of power. Legal code depends, to a varying degree, on the administrative actors and structures that execute it. For instance, even if Barcelona’s old participatory regulation made it possible, in principle, to register and promote citizen initiatives, there was not a single one registered in 20 years. This was due to a lack of administrative procedures. Surely someone could have reclaimed the right to promote an initiative and move the issue to a court that, in turn, could have upheld this right and decreed the opening of a bureaucratic procedure, but the costs of that are just too much for most people. Legal code needs to be enforced, whereas computer code is simply executed. The effect is clear: since the setting up of `decidim.barcelona`, in 2016, 16 citizen initiatives have been registered.

Analysing the technopolitical plane of Decidim requires making explicit the design of this executable code, its architecture and embedded participatory mechanisms, the possible configurations of that architecture and the community that takes care of it. For this reason, we divide this section into four main parts. We first detail the design principles of the platform, which have recognisable political implications (Sect. 3.1). Then we explain the functional architecture of the platform as a technopolitical infrastructure for participatory democracy (Sect. 3.2). Afterwards, we show how to configure Decidim to put its architecture to work in practice (Sect. 3.3). Finally, we present Metadecidim as a technopolitical community that democratically shapes its architecture, features, configuration possibilities and design principles and that makes use of the Decidim software for doing so (Sect. 3.4).

3.1 Design: Decidim and Its Technopolitical Design

Decidim Imposes a Very Special Challenge from the Point of View of Design What should the software do, and how? Many professionals from the world of design struggle with these questions. The usual step is to target a specific “market” or potential user base, to explore their motivations and to test different interfaces. But the goal of Decidim is not to target a specific customer base. The

success or failure in designing it is not something that can be tested simply from the perspective of individuals' user experience. The goal of Decidim is not to allow a citizen to propose something to the government. The goal is to redefine government. Decidim will be well-designed if it contributes to a radical democratisation of the existing forms of social coordination, organisation and action. This is an extremely challenging design goal, one that must operate within the fields of social forces, structures and struggles outlined in Chaps. 1 and 2.

Decidim Was Not, and Could Not Have Been, Designed Precisely for the reasons just mentioned, there was not, and there could not be, a creative design team that delivered Decidim as a ready-made product. Decidim has evolved and developed like an organism that has been collectively created, directly at times, delegated at others. It is the result of many influences, experiences, laws, traditions, creative exchanges, institutional needs, collective desires, popular demands, service restrictions, architectural constraints, social struggles, combinations of knowledge (programmers, researchers, activists, etc.), political negotiations and technological practices. This does not mean that there are no carefully planned, (re)designing efforts made continuously into Decidim, on the contrary. But such efforts are inevitably meshed with other forces that need to be accommodated on Decidim's open becoming.

Decidim Has No Users, It Has Participants A user is defined against that which she/he uses: an object, a tool, an interface. A participant is related to how she/he builds power with others; it is defined by a social practice that cannot be reduced to the relation with the tool or object. Surely, participants "use" Decidim, but they don't use it as users who post on a blog or as consumers who buy on Amazon. It is for this reason that we often avoid the expression *user experience* or UX and use the formula *participant experience* or PX. The experience generated by participating through Decidim must be that of empowerment, safe conflict expression and (sometimes) resolution, collective intelligence, care, will and action. Sometimes achieving this experience and building democratic processes does not match user-experience standards. It is (and it must be) sometimes hard, complicated, costly, slow or even boring to navigate complex conflictual situations to democratically transform a situation (see Pérez-Verdugo and Barandiaran, 2023, for a detailed account of how "easy" user experience is often transformed into a capture of personal autonomy in contemporary platforms).

Democracy-Centred Design Decidim does not ship a product. It is not a citizen-petition software, it is not a product platform; Decidim is more like a high-level programming "language" for democratic organisation. In this sense, it is closer to Drupal or an ERP³ software than to Tumblr or Medium. One of the main objectives

³Drupal is a content management system that makes it possible to create a variety of complex webs (a portal, a store, a university website, etc.). ERP stands for Enterprise Resource Planning, and it is generally used to refer to a type of business management software that can digitally organise most of the business flow (client management, sells, etc.) and be adapted to very different business

of Decidim, which is central to its design, is not the maximisation of active users and engagement oriented to the maximisation of economic profit, as happens in Big Tech platforms, where business models are built based on personal data and user behaviour. Instead, Decidim seeks to enable democratic procedures and practices, preserving a series of basic democratic principles (such as transparency, traceability, security, integrity, privacy, etc.) and goals (such as promoting common goods). The fact that this is an initiative promoted by the public sector together with a democratic community, its nature as a digital common, radically changes the sense of its design.

Organisations Matter for Design It is important to consider that this democracy-oriented design has not only focused on the emergent democratic quality of the interactions that the platform makes possible, but also on the balance between participant-centred design and what we have called “institution-centred design”. The democratic processes that the platform enables need to be sensitive to, compatible with and suspicious of the technical, legal, administrative and human constitution of the organisations that adopt it (particularly in the short history of Decidim, public administrations). The platform has to be friendly to the professional administrators that take legal responsibilities within the platform. It also has to be robust in the face of potential misuse, manipulation and coercion, as well as resistant to censorship by the organisation and the administrators that manage it. It also has to be compatible with standard administrative procedures like valid signatures or identification methods (public census, organisation membership lists, etc.).

Decidim Must Take into Account the Democratic Implications of Any Technical Decision All decisions made around the software have (techno)political implications. For example, it was a priority to have no dependencies with non-free software solutions, and this is why Decidim adopted OpenStreetMap (instead of Google Maps) to manage localisation or Matomo (instead of Google Analytics) to manage the analytics of the platform. Another relevant example is the sorting of the proposals in the proposals page list. Here, the default behaviour is random, giving all of them the same opportunities to be seen at the top of the list. It was also a robust technopolitical decision to forbid the editing or destruction of proposals by administrators: a decision against censorship or manipulation practices. We can find hundreds of examples like these, and all the discussions are documented in the Git repository of the project (github.com/decidim/decidim). The main principle behind them is to assume the political character and implications of any technical decision. The second is to preserve, defend and promote human rights and radically democratic principles in the process of design, development and use.

In this section, we explain the reasons behind some features of the platform. In other terms, we show how different mechanisms of the platform have been designed to ensure specific rights as well as specific forms of emergent sociopolitical dynamics.

structures. Tumblr and Medium on the other hand are user oriented; both sites make it easy for user to post content and to share it under strict and limited possibilities.

3.1.1 *The Social Contract as a Design Principle*

As we have previously mentioned, the Decidim community is bound, among others, by a social contract. Far from a mere statement, the social contract operates as a bundle of specific technopolitical design principles of profound political and technical impact.

1. *Free software and open content: Decidim will always remain open to collaboration, without legal or technical obstacles for its use, copy and modification. To ensure this we use a set of licences: Affero GPLv3 for code, Creative Commons By-SA for content (text, images, design, etc.) and Open Access Database License for data. This means that Decidim will always remain auditable, collaborable, transparent and trustworthy and that can be appropriated by its participants, all of which is fundamental for a democratic infrastructure.*

Free Software We need to stress here that “free” is used in the sense of “freedom”, not in the sense of “no-need-to-pay”.⁴ It is essential not only for the code of the platform, but also for the data and content (e.g. proposals’ text, titles, comments, images and information), to guarantee freedom of use, reuse, copy, modification and re-publication of modifications. This is a technopolitical decision encoded into the social contract and the EULA (End User Licence Agreement), the software repositories as well as the platform copyright notices; they translate into a set of affordances oriented to prevent certain actions and make others possible. The benefits and nature of Decidim’s software licences will be explained in detail as part of the technical plane (Sect. 4.5 of this document). Suffice to say here that the Affero GPLv3 licence legally binds the service providers to give direct access to any user to the computer code that runs in a given instance. This should be a precondition of all participatory democracy platforms because it is a key guarantee that numbers, comments, mechanisms and data are not being manipulated nor processed in ways that are not transparent and widely accessible.

Free Content It is important to stress here the technopolitical roles of the free licences for the contents of the platform, not only the code. We live in a world that is crossed by copyrighted materials that asymmetrically shape the expressive power of people: you cannot, for example, create your own Star Wars t-shirt or improve the last musical hit at school without costly and complicated copyright contracts that only big companies and institutions can afford. Under these conditions, collaboration between peers is almost impossible (Lessig, 2016). Decidim, and participatory democracy more broadly, is a quest for collaboration on the design of public policies, plans and responses to complex and conflictual problems (as noted in Chap. 1). The freedom to remix, copy, modify, reuse and improve proposals or initiatives (among other freedoms) is critical to participatory democracy. Moreover,

⁴A crucial principle of the free knowledge movement noted in Sect. 1.2.2. See <https://freedomdefined.org/> for a definition of freedom applicable to Cultural Works, or visit <https://www.gnu.org/philosophy/free-sw.html> for a definition of Free Software.

it is important to stress that copyright and intellectual property regulation is often instrumentalised for censorship and other means of blocking the development of certain ideas, even in the political arena (Tehrani, 2015). The only way to avoid such misuses and to guarantee collective, unrestricted creativity is to guarantee the rights identified above. This is the role of the Creative Commons By-SA licence that is used across all the documents of the project (including this book) and also the content of the Decidim instances. It guarantees the rights to use, copy, modify and redistribute cultural works (text, images, videos, etc.) provided that the authorship is acknowledged and that subsequent copies and derivative work respects the same licence.

Free Data The same applies to data. Today, the asymmetric access to or control over data generates inequalities in the capacity to analyse, understand and influence social processes in the digital domain and beyond (Gurstein, 2011a, 2011b; Halonen, 2012). Decidim follows the principle according to which all data that can be obtained by repeated visits to the web, or with more or less sophisticated techniques of data mining (usually in the hands of a few experts), must be accessible without barriers in the most systematic and accessible manner and, when possible, with visualisation tools that help understand and analyse the data for non-experts. In addition, open data interfaces (e.g. API) allow third parties to establish automatic transparency applications, systems of auditing and accountability (and more) over the platform.

2. Transparency, traceability and integrity: the content of participation will always remain transparent, traceable and integral. This means that all the content must be accessible and downloadable; it should always be known what happens with each proposal, where it originated, in which result or decision it was incorporated or why it was rejected or left behind. The content needs to be displayed without having been manipulated, and any modification (if required) must be registered and be accessible and auditable.

Content Moderation This point of the social contract imposes constraints on the platform's design. These range from code transparency to the way administrators can handle proposals and content or the form participants get notified and given guarantees of traceability and integrity of contributions. Avoiding the moderation of proposals before they are published has been highly relevant in political terms. Pressures have come from different governments due to fear of citizen opinions. But instead of prior content moderation (where content is first sent to the platform and only published once moderators or censors have accepted it for publication), Decidim is committed to guarantee that the content is published. If moderation needs to take place, it must be transparent and initiated by participants in an open and non-centralised manner. Moderators can intervene only after a petition has been submitted. Furthermore, moderation activities are registered in the platform (e.g. list of proposals or comments hidden). This point connects with the following one.

Transparency Transparency (or, perhaps more accurately, publicity) is a design principle that applies to various levels of the platform and that remains essential to democracy. Transparency goes from the possibility to access all the programming

code of the platform (including how it works and why it was designed as it is) up to access to all the content of the platform. The free licences explained above guarantee part of this transparency. Regarding the content, Decidim allows creating private participatory spaces, which is often important for democracy (e.g. to protect vulnerable groups or sensitive decisions), but, unlike the most famous platforms (like Twitter or Facebook), it is possible for participants to navigate the content in a hierarchical and systematic manner without algorithmic biases or blind spots. All data is downloadable, and the API is open and unrestricted. Features like the internal search engine also contribute to transparency. The most sensitive of all the activities of the platform is that of administrators, and Decidim includes an admin-activity log to make them accountable. But transparency is of no value if there are no mechanisms guaranteeing integrity, traceability and accountability.

Integrity Integrity refers to the non-alteration of the content generated by participants (e.g. administrators censoring or otherwise manipulating the content of a proposal that has gained support or endorsements). In order to guarantee the integrity of proposals, these get unique IDs and fingerprints that can be used by participants as integrity proofs. The fingerprint is obtained by hashing the title and content of the proposal. Hashing is a mathematical one-way operation that produces big changes on the output signature with small changes on the input text. Potential manipulation of the content leads to a different fingerprint, and changes on the database would produce visible traces. Sometimes it might be desirable to open proposals to modification. This might happen, for example, in a process where proposals will be improved with the feedback from other participants via comments, in preparatory phases before voting. For such cases, Decidim includes a version control system so that the evolution of the drafts of the proposals and the different evolved versions can be seen. All changes are tracked and registered following the transparency principle.

Traceability Traceability can be understood in different ways, but it may be defined in contrast to the way the digital (and often non-digital) part of participatory democracy was carried out in the Barcelona City Council at the time Decidim was born (and in most public institutions still today). In general, when digital or written contributions (proposals, comments, suggestions, complaints, etc.) were transmitted from citizens to the administration, participants were blind to: a) whether other citizens would have made similar contributions, b) whether the contribution was received, read or had any impact whatsoever on the public policies at stake, and c) where did it end, if accepted, stored or destroyed. Democratic participation should be traceable by default. Members of an organisation should be able to see what others have proposed; how such proposals are stored, organised and classified (either by the proponents or the administrators), what happens to the proposal (if it is being studied, accepted or rejected and why) as well as how different results of a participatory process are linked to the original proposals or the authors that made them. Decidim cannot guarantee that all proposals are properly treated in any democratic process within an organisation, but it can enforce some traceability by default and display the tools to explore and trace the origins and evolution of all proposals. And its technopolitical design is directed to do so.

Accountability Accountability is the final step in a transparent and traceable process: it involves the public evaluation of the actions and commitment that an agent (political, organisational, administrative) has taken to carry out a decision (action plan, public policy, etc.). Participation has no value if the decisions taken are not executed. A platform for participatory democracy must also include the means to make the executive body accountable. Not satisfying a political commitment must have a cost, there is no way a digital platform per se could enforce a decision, but it can offer the means to display the degree of completion, the relevant data and the space to publicly comment, judge and develop an informed public opinion on the matter.

3. *Equal opportunities*: “The platform will offer equal starting opportunities to all participatory objects (proposals, debates, etc.) for them to be viewed, discussed, commented, evaluated or treated without discrimination of any kind” (*direct quote from the contract*).

Equal Opportunities with Incremental Differentiation Two competing principles must be satisfied within a democratic process. On the one hand all participants and ideas/projects/proposals should be granted equal opportunities; on the other hand differentiations have to emerge. When resources are scarce, or proposals are incompatible with each other, or too numerous to be executed (e.g. because of time limitations), there must be a way to discard and select, and to either reach consensus or to make dissent and conflict visible. For this to happen Decidim randomly displays all proposals on the proposal page; this makes all of them (old or new, with many or few supports/votes, with or without comments, created by individuals or by an organisation) equally visible at first sight. It is then a matter of horizontal communication and active filtering by the participant to navigate the proposals and choose, campaign, promote or support them. We have discarded the use of similarity matching (a mechanism that highlights proposals similar to the one with which the user is dealing) to avoid filter bubbles (Flaxman et al., 2016). It is also important to note that the default option is to separate the proposal creation phase from the proposal voting or supporting phase, in order to avoid emerging “rich gets richer” effects resulting from temporal precedence; proposals cannot be supported until the proposal creation stage is closed (this configuration can however be changed). Although some of these measures play somewhat against engagement (participants feel more engaged if they can create and support proposals that have a livelier interaction experience), it is crucial to guarantee equal opportunities; otherwise, earlier proposals get the most attention and support, sometimes regardless of the display algorithm.

4. *Privacy with verification*: *participants must retain privacy of their personal data combined with verification. Personal data should never be displayed, nor sold or transferred to third parties while, at the same time, the unicity and democratic rights of participants must be preserved (meaning there cannot be two verified users corresponding to the same individual with democratic rights and that all participants with such rights must be verifiable).*

Identity, Anonymity and Verification It is a design principle of Decidim to protect the privacy of participants. This is not only a requirement of existing regulation, it is an ethical and political principle to protect participants from coercion, to avoid retaliation from the powerful, to prevent the purchasing of votes, to guarantee the expression of preferences or simply to guarantee a digital right. The default configuration of Decidim allows users to surf a given instance without an account and even to comment and make proposals while staying pseudo-anonymous; this is oriented to ensure the accessibility of activity in the platform and to nurture participation and collective intelligence (good ideas may come from anywhere) while preserving privacy.

But this right to privacy must also be combined with the verification of participants' rights for strong decision-making (citizenship, membership, etc. are usually needed for processes such as voting). In other words, participants must be able to remain pseudo-anonymous, as well as verified. Decidim is intentionally designed to make this possible. The way to do it is to keep the personal data that identifies a user as a right carrier separated from its username and database identifier on Decidim. After registration, where participants choose a username and provide an email for login, notifications and password change, a verification process is available. This process can be done in different ways, but all of them imply some form of key (often personal) information being transferred as a proof of identity. This information is compared to a census or membership database (e.g. the city census), and the participant's profile is verified. The personal information of the verification transaction is not stored, it is only used temporarily for verification purposes. However, unicity (that a member or citizen has a unique verified account) must be ensured, and the possibility of revoking verification (e.g. when an account has been compromised, credentials such as passwords lost or an identity stolen) must also be granted. In order to make this possible, Decidim stores a hash of a personal identifier together with a secret code that is only known to the server that stores the hashes. As noted earlier, a hash is a function of the type $X \rightarrow Y$ so that a small variation in X delivers very different results of Y , and the operation $X \rightarrow Y$ is easily done but the operation $Y \rightarrow X$ is very hard or impossible. Thus, by storing only Y it is very hard or impossible to deduce X (the real identifier of the participant), but having X it is possible to compute Y and check whether this person already had an account, or revoke it.

5. Democratic quality and guarantees: the platform must guarantee the democratic quality, the non-discrimination and equal opportunities for each participant and proposal.

Democratic Quality by Default Configuration Since not all organisations are equal and their demands and needs are different, Decidim allows configuring spaces and components with various options. However, the default configuration must boost democratic quality by providing a set of pre-established configurations that guarantees the best practices for most known use cases. Decidim ships with a set of default configuration options activated. These configurations have been carefully discussed to favour the best possible emergent democratic dynamics within the platform.

6. *Inclusiveness and multilayeredness: the platform must comply with accessibility standards, its use must favour the integration of online and offline participation, and the organisation must deploy the means of mediation and training for their members.*

Online, Offline and Hybrid Participation There are various aspects to be highlighted regarding offline and online participation. The first is the centrality of the meeting component for a genuine development of any democratic process, particularly if the scope of democracy is territorial and the political body is diverse (like a city or a complex organisation with a variety of agents). There is a forerunner reflection over the 15M and the *Indignados* movement that connects to this centrality: the notion of *augmented event* (Toret et al., 2015). This notion highlights the amplifying effect that digital technologies can have in connection with face-to-face encounters and events, the multi-layered dynamics that can take place between local sites and hybrid media systems. It stresses the capacity of digital mediations to re-connect, amplify, intensify and re-present (not in the sense of mirroring or standing by something that is represented, but in the sense of remaking the presence). To say it differently: if hackers always search for high bandwidth as a means to higher-quality connection, it is in physical encounters where we find the highest bandwidth, highest definition and best quality 3D experience. The digital then comes to convoke, connect, amplify, record and coordinate such events. Decidim has been designed with this idea of *augmented event* in mind, trying to foster face-to-face politics, to call for meetings, to hybridise and re-connect the digital and the face to face. From its very conception until today, a distinguishing feature of Decidim over other kinds of participatory democracy software (particularly the so-called digital democracy and civic-tech dispositives) was that of connecting digital processes directly with public meetings and vice versa.

Training and Mediation Against the Digital Divide The digital divide is still here, and it will never go away. Capitalism modulates accessibility to services and commodities. One such commodity has become connectivity itself: devices, access points, bandwidth quality, etc. In “developed” countries, connectivity has increased, even if it is still not universal; in less developed ones things look different. When it comes to computers, digital interfaces have become cheaper than ever imagined to the extent that the traditional market for exclusive, high-class commodities does not so much exist on the mobile or PC market, except for standard devices with golden covers with diamonds. In many countries the digital divide is not so much at the level of infrastructural accessibility but at the level of skills (capacities to navigate, find what is desired, etc.) and, more importantly, at the level of practices (putting accessibility and skills to work in ways that deeply contribute to personal and collective wellbeing and flourishing). Having the right skills, as well as desirable habits and personal networks that make us grow, that allow us to understand and inhabit digital worlds that do not impoverish us, is a deeper gap than that of accessibility. This is why Decidim is not simply a platform, but a technopolitical assemblage that includes educational and training projects (see Sect. 4.5).

3.1.2 Other Technopolitical Design Principles

Modularity and Configurability As a framework for democracy, Decidim must work as a combinatorial matrix rather than as a finished product. It must be modularly compositional and deeply configurable for different contexts, to be a flexible technology for facilitating its appropriation. This means it must allow designs based on the combination of components inside spaces, their selective activation as well as their contextual, temporal and content-driven configuration. The modularity of the platform responds to two additional demands: the first is the need to progressively develop the platform; the second is the goal to reduce the cognitive load on participants, since it suffices for them to be familiar with a space structure and a set of components to identify and use them in a different configuration.

Polymorphic Follow and Selective Notifications Polymorphic follow is the feature that allows participants and administrators to receive notifications about updates of specific components or spaces (and the components within them), as well as the events or actions generated by other participants. In short, a participant can selectively follow anything in the platform and receive notifications accordingly. This is an important design feature to ensure that access to the information within the platform can be managed by participants according to their own selection, bringing the “economy of attention” back to the hands of participants, perhaps affording a more virtuous ecology of attention.

Multiplicity of Agency Most platforms for participatory democracy reduce agency to individual citizens. This is often complemented with the absence or even impossibility of proposals being made by organisations. Such is the case of different “Petition” software programs that channel citizen petitions, as if supplicating for a favour from the sovereign body. Decidim, on the contrary, differentiates between four different types of proposal creators: individual participants, participant groups, meetings and the organisation in control of the specific process or instance (the admin organisation). Participants can identify and filter proposals by type of origin or creator. This fourfold nature of proposal creation has some implications: (a) following reflections on deliberative democracy and collective intelligence noted in previous chapters, meetings are considered subjects of proposal creation on their own right; they are not conceived as the raw sum of the individuals attending the meeting; instead, the platform acknowledges the sort of collective intentionality that emerges from a meeting and the intrinsic collective dynamics (e.g. deliberative) that are generated within it; (b) the admin organisation can create proposals (standing at the same level as individual participants, groups and meetings, as a sort of peer state in the case of public institutions), which enriches participatory processes, and gives a sense of joint effort and responsibility on the production of public policies and the contrasting of proposals among equals (instead of supplicant to sovereign); and (c) the combined result displays the complex, multiscale structure of social organisation without simplifying and reducing it to a collection of individuals.

Vertical and Horizontal Communication In Sect. 2.3.2 we talked of vertical, horizontal and diagonal dynamics in Decidim. Here we can be precise on some of its architectural preconditions. We talk about verticality in communication of participatory spaces and components when the navigation of content is guided by menus and submenus in a hierarchical manner, and to the massive or selective newsletters written and sent by administrators. This helps to have a systematic and ordered path for information navigation, display and communication. It does, however, also hinder the possibility of selectively receiving information in a socially networked, rather than administrative, manner. In vertical communication, participants can only talk to each other within containers (e.g. in relation to a participatory space or object that is open to comments). This is why we introduced a set of mechanisms to foster horizontal communication. By this, we mean that participants can send and receive information about platform content independently of the hierarchical structure afforded by the site map: people can talk to each other fluidly. Mechanisms of horizontal communication include private conversations, follow and endorse actions, hashtags and mentions within user-created content and comments. Perhaps more interestingly, if you are to picture the hierarchy of information as a tree, such horizontal communication mechanisms also allow establishing diagonal links between objects of the hierarchy, converting the tree into a rhizome or a distributed network (reminding of Deleuze and Guattari's taking on the matter). *Private conversations* can boost relationships between participants, independently of the participatory spaces created by administrators. The *follow-endorse* coupling allows for a network of notifications spreading between participants, as they both selectively choose to follow one another and selectively choose to broadcast information about a participatory item or object. On the other hand, hashtags allow participants to classify content and reorganise information clusters independently of the categories and scopes defined by the administrator. Also, mentions make it possible to call for a specific participant in various places, bringing participants to action through other participants' will.

Multitenancy Decidim is a multi-tenant infrastructure. This means it allows setting several instances on a single server while guaranteeing their independent operation. This drastically facilitates and reduces the costs of provision of Decidim as a service. It has stirred the development of a Decidim service model wherein different institutions, organisations and projects can operate a single installation supporting multiple active sites. This approach reduces management and maintenance costs while providing enhanced support to these instances of Decidim. Notable examples include the Barcelona Provincial Council (Diputació de Barcelona), which currently offers this model to over a hundred municipalities in the province of Barcelona. Another example is the Decidim Programme for Organisations, initiated by the Barcelona City Council. This municipal public service extends a Decidim installation to social organisations within the city, aiming to promote and enhance democratic processes within those organisations: it amounts to a system of public Software as a Service (pSaaS), another way of nurturing the public-common alliance. The programme has already established over 30 active Decidim instances in

the city, involving NGOs, cooperatives, social organisations, youth organisations, federations, universities, schools and family associations. These instances explore new environments for fostering democratic communities.

Federation We finish this section with a design principle that still requires more technical development but stands as a guiding principle behind some technical and sociopolitical decisions in Decidim. Federation is a form of supra-organisational coordination that respects the autonomy of the organisations involved. It operates in the social, political and technical arenas by facilitating connections, establishing protocols and agreements and enhancing interconnection between different Decidim instances. This federated approach has been implemented in Decidim at various levels.

Firstly, at the code level, Decidim's modular architecture implies a sort of technical federation between its modules, which are part of a complex technological matrix while preserving their operational autonomy (they can be plugged and unplugged without breaking themselves or the whole system). Beyond that, the main repository is deployed across numerous instances, which thereby adhere themselves to shared technical principles along with situated adaptations. This has enabled the formation of collaborative networks around the core code and some community-developed modules. It has also fostered agreements and the creation of lightweight structures to ensure sustainability, representing an initial manifestation of federation.

Moreover, at the technopolitical level, the open API has facilitated the creation of complementary environments for monitoring data from various Decidim instances, enabling modules for comparing participation data or implementing a search engine for processes across all Decidim instances in Catalonia. These examples contribute to the Decidim community's capacity to forge agreements and embrace emerging forms of collaboration and cooperation in sharing experiences and participatory practices around the platform.

Finally, oscillating between the technopolitical and a more typically political plane, Decidim has developed a system that allows the connection of different instances through OAuth authorisation. This system facilitates participation across instances by making it possible to authorise users of a Decidim platform to participate on other platforms, and presents significant potential for future development. In the conclusions, we briefly mention some possibilities for political federation resulting from these features and future ones.

3.2 Architecture: Decidim's Functional Architecture for Participation

Decidim's Sociotechnical Code: Functional and Participatory Architecture The complex technopolitical dimension of the Decidim project is most apparent when looking through its code as a material shaped by the design

principles of the project: with varying strength, such principles have operated in areas that go from the most general functional architecture down to the concrete mechanical and aesthetic details that constitute the platform. From its very conception, the design of the platform has been crafted to attend to the political dynamics that can emerge from it. Like any social platform, Decidim can be seen from the lenses of behavioural engineering, but it can also be seen as an enactive architecture that can be configured to enable and give some warranties to democratic participation, on the one hand, and be appropriated by participants whose practices may exceed its intended uses, on the other.

Decidim as a Democratic-System Programming Framework Decidim is an abstract, functionally open, modular and configurable framework. This means that an administrator can easily activate, configure and deploy different mechanisms and spaces for participatory democracy. In a sense, Decidim is a framework to program (not so much at the computer level, but at the sociotechnical level, the level of governmentality, as noted in Sect. 2.4) the basis of a democratic system. Administrators can set affordances for various democratic architectures and models through the many combinations of elements. In other words, thanks to Decidim the “democracy-designer” is free from the complexities of programming details and can focus on the design of participatory processes, organs, initiatives and the interrelated architectures of a democratic system. Obviously, the architectures of affordances are only enablers, not determinants: people retain wide areas of agency within and beyond the planned designs. Paraphrasing Gibson, participants always find new uses for technologies.

To understand in detail how Decidim operates, the first relevant distinction is the one between the two most basic elements of the platform: participatory *spaces* and *components* (see Fig. 3.1).

- **Participatory spaces.** These are the frameworks that define how participation will be carried out and the *settings* or media where citizens or members of an organisation can realise various activities. Each of them has a specific design. *Initiatives*, *Processes*, *Assemblies*, *Votings*⁵ and *Conferences* are all participatory spaces (see blue boxes in Fig. 3.1). Specific examples of each of these spaces include a citizen initiative for directly changing a regulation (*Initiative*); a general assembly or workers’ council (*Assembly*); a participatory budgeting, strategic planning or electoral process (*Processes*); a referendum or call to vote “Yes” or “No” to change, for instance, the name of an organisation (*Votings*); and a

⁵Some of these namings are clearly platform-specific and prioritise other factors beyond strict conceptual consistence. “Votings” is understood as a participatory space (rather than something that happens within a given space). Within the Decidim framework, “Votings” works as a space that can generically host any type of vote, from a city-wide referendum organised by a City Council, to the voting of different questions in a decision-making process of any organisation. On the other hand, the “Elections” component works within other participatory spaces (assemblies or processes), for example, when a participatory body has to vote to elect its representatives inside their own assembly.

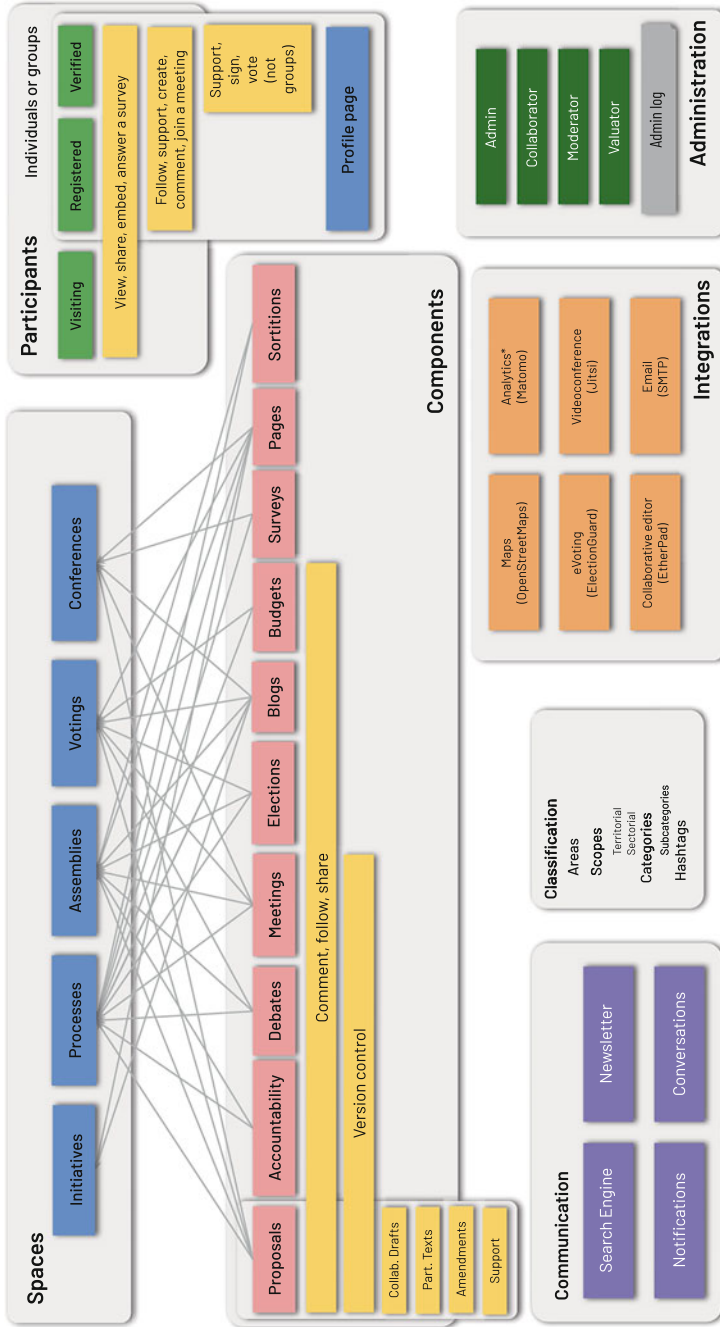


Fig. 3.1 Summary diagram of Decidim's functional architecture, showing a combination of components in participatory spaces

collection of meetings (with talks, working groups, announcements, etc.) for an event such as a Peace Conference or an Annual Congress or Convention (*Conferences*).

- **Participatory components.** These are the participatory *mechanisms* that afford and define a series of possible operations and interactions between the platform's users and objects, as well as between users themselves, within each of the participatory spaces. The following are participatory components: *proposals (with amendments, participatory text, etc.)*, *debates*, *meetings*, *elections*, *blogs*, *budgets*, *surveys*, *pages*, *sortitions* and *accountability*.⁶ Some components share functional features that include relevant participation affordances: most notably the possibility to *comment* on and to *share* or *follow* component items (in yellow below component red boxes in Fig. 3.1).

The way in which spaces and components interact is the following. Users of the platform (participants) interact through *components* which afford a variety of operations. They provide specific features for the different participatory *spaces*. In other words, participatory *spaces* have *components* at their disposal which work together as participatory mechanisms. So, for example, the various phases of a participatory budgeting process (where members of an organisation are called to decide how to spend a budget) can combine components in the following way: at an early phase, public *meetings* can be opened for citizens to share different needs classified by city district or policy topics. In turn, these meetings can lead to the design of a *survey*. The survey results can then be used to define a set of categories for projects to be proposed. The *proposal* component might be activated at this point for participants to present and publish their projects as solutions to the identified needs. These proposals can be commented on. After a period of deliberation that can include *meetings*, the *budget* component can be activated to select among the projects using a budget-expenditure system. Participants can then be called to a final public meeting to evaluate the results, and an assessment survey can be launched for those who could not attend the meeting. Finally, the *accountability* component can be activated to monitor the degree of execution of the selected projects and people can comment on it. This is but one example of how components are combined in a participatory space, but there are many other combinatorial possibilities. What makes Decidim particularly powerful is this crossing of components within spaces, which provides an organisation with a complete toolkit to easily design and deploy a democratic system adapted to its needs. On what follows, we analyse them in more detail.

⁶In line with the previous note, this component may be rather labelled “follow-up”, which is a concrete mechanism, rather than “accountability”, which is an emergent property of a democratic system on a higher scale than that of its mechanisms or operations.

3.2.1 *Participatory Spaces*

Decidim's top navigation bar displays the different types of active **spaces** in the platform. **Processes** is a space that allows to create, activate/deactivate and manage various participatory processes. Processes are distinguished from other spaces by being structured in different *phases*, within which components can be incorporated. Examples of participatory processes are an election process for members of a committee, participatory budgeting, a strategic planning process, the collaborative writing of a regulation or norm, the design of an urban space or the production of a public policy plan.

Assemblies are spaces that offer the possibility of setting decision-making bodies or groups (councils, working groups, committees, etc.) that meet up periodically, detailing their composition, listing their meetings and allowing other people to take part. Take part, for example, attending if the seating capacity and nature of the assembly allows it, adding items to the agenda or commenting on the proposals and decisions taken by that body.

Votings is a space that allows to coordinate referendums, trigger discussions and debates and get voting results published. It is not a single voting procedure (like the ones that can be activated for proposals, shown below). It is a full space of participatory democracy that should accommodate debates, arguments, public meetings, etc. to generate a proper deliberative process before the specific act of voting, which is conducted using the elections component (see below). While elections can be held in other spaces such as a process or an assembly, this space provides some extra functionality like the integration with physical voting and census management.

Initiatives is a space that allows participants to collaboratively create citizen initiatives, define their trajectory and goals, gather endorsements and discuss, debate and disseminate them, as well as defining meeting points where signatures can be collected from attendees or debates opened to other members of the organisation. Initiatives are a special kind of space by which members of the organisation can trigger actions that are generally restricted to elected bodies or platform administrators, by collecting (digital) signatures. The organisation can define the types of initiatives and set up the number of signatures that are required to trigger the expected result (e.g. to call for a consultation or voting).

Finally, **conferences** allows an organisation to create a website for a big event by joining up a series of predefined meetings (talks, workshops, etc.), putting together a unified program and managing attendees.

3.2.2 *Participatory Components*

The **components** are displayed (with white background) as a menu within spaces, such as a specific participatory process, as displayed in Fig. 3.1. Within a specific space, a participant can see which components are activated to participate.

Participatory components are to participatory spaces what furniture is to rooms: they provide specific action possibilities.

The **proposal** component is the most powerful one. Proposals are the building blocks of political participation: to propose problems, to propose candidates, to propose solutions, to propose projects, actions or sanctions, rules or desires. The following step is to amend, support, share, comment or reject proposals. The relevant feature of this component is that proposals can be created through **collaborative drafting**, which acts as a proposal incubator, facilitating the collaborative creation of proposals as well as the monitoring and control of changes throughout the process. The **proposals** component allows a participant to create a proposal using a creation wizard, compare it with existing ones, publish it in the platform and include additional information like geolocation or attached documents and images. This component also makes it possible to navigate, filter and interact with a set of proposals. Administrators can also create a proposal from the admin panel (displayed as an official proposal) or by importing them from a text document (that gets split into a number of proposals, one per paragraph or sub-sub-section). Proposals can also be imported from a previous set of proposals, thus allowing for an iterative proposal flow to improve ideas (imported proposals get linked to the original ones, allowing for complete traceability).

Proposal flow. Once created, proposals are published. They can then be displayed as a set of proposals to be filtered and navigated as cards (default option) or as a continuous document (organised by categories and subcategories that correspond to the sections and sections of the document). Once published, proposals can be endorsed, commented or shared (also embedded in other sites). A proposal can also be amended: different participants can suggest changes. These changes can be accepted or rejected. If the amendment gets rejected, the author of the amendment can publish it as an independent proposal. Proposals can also get supports. On the basis of the support received (or of other criteria, e.g. after being evaluated by a committee), a proposal can be accepted or rejected. Acceptance can lead to a new phase of proposals. It can also lead to a proposal becoming a project to be voted on by means of a participatory budgeting process. Or it can be finally included or converted into a result (which is in turn subject to a public follow-up of their degree of execution). When imported into a new proposal set, a proposal can be deleted or merged with another proposal of the same set or split into two different proposals.⁷

Comments can be activated for proposals enabling users to add comments, to identify the comment as being in favour, against or neutral in relation to the commented object (e.g. a proposal), to vote comments, to respond to them in a nested manner and to receive notifications about responses. Comments can be activated in relation to any other component like meetings, results, and so on, but they are particularly relevant in debates.

⁷A full diagram of how proposal flow is structured can be viewed on GitHub, where the original design was discussed: <https://github.com/decidim/decidim/issues/1970>.

A wide range of settings offers organisations the possibility of activating different **support systems** around proposals: unlimited, limited to a given threshold, weighted, cost-based, etc. This last method is, in fact, carried out by a specific component called budgets. The **budgets** component enables voting in a participatory budget process using the shopping cart method. In this method, a set of projects is presented, and each project is assigned a specific cost. Participants are given a budget and can choose projects based on the available funds, effectively filling their "shopping cart". This approach offers several advantages: it fosters participant accountability in the project prioritisation process, promotes transparency by revealing the costs associated with public policies and prevents project promoters from solely voting for their own proposals. Similar to proposals, budgets projects can be commented on, shared and supplemented with additional information such as images or documentation. The **participatory texts** feature of the proposal component can be activated and used to convert lengthy text documents into various proposals or results and, vice versa, to compose and display a unified text based on a collection of proposals or results. The **amendment** feature can also be activated so that participants can suggest modifications to each proposal, argue about the suggested amendment using comments and coordinate among themselves to accept or reject the amendment, including voting amendments.

Proposals can move from one phase to another till a definite set of proposals are declared as **results**. Administrators can provide official responses and can declare a proposal as accepted, rejected or under evaluation. It is also possible to merge various proposals into a single result or to split a proposal into various results. The **accountability** component offers the possibility of subdividing results into projects, defining and assigning a progress status to their implementation, and to filter such information by categories and scopes.

The **meeting** component offers organisations and participants the opportunity to convene meetings, determine their location and time, register and limit attendees, define the structure and content of the meeting as well as publish the minutes and the resulting proposals. Together with the proposal component, it is one of the most used and complex ones in the platform. Meetings can be online (integrated with the Jitsi video conferencing system) or offline (where they can be geolocated). It is possible to visualise all meetings (past or upcoming) on a calendar or a map. The configuration of a meeting includes various options that are typical of advanced event management software: it is possible to set a maximum of attendees and a registration for the meeting. In this last case, registration codes are generated that can be used as a ticket to the meeting, terms and conditions for the registration of the meeting might be specified (e.g. to provide permission to record the meeting), participant can be given options like requesting vegetarian menus or special accessibility conditions, and a collaborative digital board can be activated (using Etherpad integration).

The **debate** component provides a space for people to engage in meaningful deliberation on various topics. It facilitates discussions among participants without the need for voting or prioritisation. AMA (Ask Me Anything) debates are a specific type of discussion, where participants have the opportunity to ask questions directly to a designated individual or a panel of experts. The selection process for the order of

questions is based on the number of upvotes received by each one. The questions with the highest number of upvotes are prioritised and given precedence during the response by the designated individual or expert panel. This approach ensures that the questions perceived as most important or popular by the community are given priority and have a higher chance of being answered during the AMA session. Furthermore, the debates component allows the closure of discussions by adding conclusions or summaries. This feature enables the consolidation of key points and outcomes, ensuring that the essence of the debate is captured and easily accessible to participants and visitors.

The **elections** component invites participants to make secure decisions on a wide range of questions, backed by cryptographic guarantees. It achieves this by establishing communication through a **bulletin board**, which acts as a publicly accessible log that maintains a secure and auditable record of end-to-end voting. In the election process, the role of election trustees is pivotal. These individuals serve as custodians of the decryption keys required to unlock the election results. They play a crucial role throughout the lifecycle of an election. Prior to the election, they gather to generate the encryption keys in a process known as the “key ceremony”. Once the voting period concludes, they collaborate to combine the partial decryption keys they have securely stored during the voting process. By doing so, they are able to decrypt the election results computed by the bulletin board.

The **surveys** component can be used to design and publish surveys and to display and download their results. The **sortition** component allows to select a number of proposals (e.g. candidates for a jury) with random, yet reproducible, procedures that guarantee non-biased and uniform distributions. The **pages** component is used to create informative pages with rich text formatting, embedded pictures and videos. The **blog** component allows to create posts or news and to navigate them chronologically. The **newsletter** component makes it possible to send emails to everyone registered in the platform or, more selectively, to those who participate in a specific space.

To conclude, we can summarise the **types of actions** that participants can carry on within the platform. 0. They can **navigate** and search for information. (1) They can **create** content of different types (e.g. proposals and debates). (2) They can **vote, support or sign**: these actions allow participants to aggregate their preferences or, beyond that, to try to articulate a collective will, for a specific election question, proposal or initiative, respectively. These three types of actions involve different levels of security and anonymity: signatures can be audited and attributed to a participant; supports cannot (in order to prevent coercion); and votes involve higher cryptographic guarantees than supports. (3) Participants can **comment** on any object of the platform (proposals, debates, results, sortition, etc.). (4) They can **endorse** any content, meaning that they can publicly declare that they support it or find it relevant. (5) They can **follow** other participants, a participatory process, an initiative, a specific proposal, etc. and receive notifications about their activity. (6) Participants can also make use of a private **messaging** space to start conversations. (7) They can **sign up** for a meeting. (8) They can also **share** and **embed** content outside the platform, sharing the link to other social networks and embedding content on other

sites. These actions, along with features mentioned above, outline a revisable ontology of digital practice and thereby connect to a governmentality of sorts, as noted in Sect. 2.4.

3.2.3 Other Features

There are other features. Component items (e.g. a proposal, a blog post, a meeting) have their individual page, but are also displayed as **cards** throughout the platform. Cards operate as a major design interface to interact with components.

Participants in Decidim can be grouped into three different categories (see Fig. 3.1 top right):

- **Visitors** have access to all contents without having to sign up or provide any information.
- **Registered** participants can create content and comments, sign up for meetings, endorse content, follow other participants and objects in the platform, customise their profile and receive notifications, mentions and private messages. By choosing a username and a password, accepting the user agreement and providing an email account, participants become registered. Registered participants can also have their account officialised (meaning their username is accompanied by a special symbol, indicating they really are who they claim to be on their profile).
- **Verified** participants can effectively contribute to decision-making. In order to fall under this category they must first be verified as members of the organisation, citizens of the municipality or constituents of the decision-making group (an association, community, collective etc.). Decidim offers different ways to carry out this verification: physical verification, verification by personal code, verification by SMS or verification against an organisation census. Once verified, participants will be able to make decisions by supporting proposals, signing initiatives and voting in consultations.

Each participant has its own public **profile page** on Decidim. It displays a profile picture and short biography, what they follow, who follows them and whether they have any kind of official status. It is also possible to see the public activity of the participant. Finally, from this page, participants can also access their own user groups and manage them. And the participant's private space includes its feed with the updated activity of everything she/he follows and a specific section for private messages.

Administrators are the participants who have management permissions and access to the backend of the platform (see Fig. 3.1, bottom right, in green). There are different types of administrators: **administrators (proper)**, of the whole platform or of specific spaces and components; **moderators**, only able to moderate proposals, comments or debates; **collaborators** that can read unpublished content and create notes and responses to proposals; and **evaluators** that can only accept or reject proposals or assign an economic cost to the proposal (to be voted with the

budget component). Administrators (proper) can configure the platform, design the front page and open, configure and close spaces and components within. Administrators can also manage permissions for registered or verified users selectively. For example, proposal creation can be activated for both registered and verified users, while proposal support is only available for verified users. It is also possible (although rarely recommended) to consider all registered users as verified and to grant them decision-making powers.

Participants can register as an **individual** or as a **collective** (associations, organisations, etc.). **User groups** might also be created so that individuals can be associated with a collective. Decidim allows participants belonging to a group to express or act, either individually or embodying the collective identity.

Participants can not only navigate the content of Decidim through the top menu and move down the architectural hierarchy, from a space to its different components, they can also get information through the **search engine** or via **notifications**. Participants can also talk to each other by internal messaging or **conversations**.

The **content of the platform can be classified** by different criteria (see Fig. 3.1 bottom). A participatory space or its contents (e.g. a participatory process or the proposals within it) can be independently assigned a **scope**. Scopes are set for the whole platform, and they can be thematic or territorial (e.g. an assembly can be assigned to a specific theme or subject, like “ecology”, and to a specific territory, like a district within a city). Content within a space can be assigned to a **category** or sub-category (e.g. topics) that is specific for such a space instance. For example, the categories “sport facilities”, “parks” and “schools” can be created for a participatory budgeting process, and proposals will be assigned to these categories. **Hashtags** can also be freely created and introduced in the body text almost anywhere in the platform (proposals, debates, comments, process description, etc.), both by participants and administrators, to classify content and make it searchable.

3.3 Configuration: Decidim’s Configuration of Participatory Spaces

We have explained the functional architecture of what Decidim makes possible, and we have defined the technopolitical design of its underlying logic and intended effects. In this section, we outline how to design and configure a participatory process using Decidim to illustrate the bridge between the technical (software implementation) and the political (its effects on a participatory democracy process). In other words, if Decidim is understood as a “programming language” for participatory democracy, this section should be understood as a technopolitical how-to-program different participatory spaces. A full guide of how to configure and deploy Decidim, however, is out of the scope of this book. A detailed handbook to use Decidim in public administrations and large organisations can be found in Barandiaran (2023).

An example of a complete participatory process from the viewpoint of Decidim's possibilities should include seven phases (see Fig. 3.2). The configuration and presentation phase (1) will set up the whole process, announce it, set the tone and goal and determine who is called to participate. It is very important also to explain what is going to be decided, designed or built during the process and what are the real participatory possibilities that are open. Meetings (online or offline) can be activated to collectively configure the process or announce it. Most of the information that explains the process (including the phases and the components that will be activated) need to be published, and newsletters and a blog can be used to call for participation. Phase 2 involves the creation of a participatory diagnostic of what the problem really is and how to approach it (e.g. to determine which problem categories are going to be addressed with proposals later). Open, relatively unconstrained, debates should be open in this phase and can be combined with surveys and meetings to render a good diagnosis. Phase 3 involves the creation of proposals, by individuals, collectives, public meetings or otherwise. Phase 4 involves the selection of proposals by adding supports and selecting those with more support, by mini-publics or deliberation meetings that select proposals or by any of the multiple ways of expressing preference and collectively voting or filtering proposals the Decidim makes possible. Phase 5 involves the creation of results out of the previous selection process. It is possible (and often desirable) to create several cycles of creation and selection to finally distil a good set of proposals. An evaluation phase could use surveys and meetings to provide feedback for the whole process and improve future ones (or reconsider re-opening the process again). And finally in Phase 7 the accountability component should be activated so that participants can track and monitor the execution of the decisions that were finally made.

Assemblies are a traditional way of building participatory democracy, and their design in Decidim from a technopolitical perspective is fundamental. Within Decidim, assemblies are conceived as collective spaces for common work and decision-making, organised through recurrent meetings. They are made up of multiple participants (members) whether they are councils, parliaments, commissions or working groups. Assemblies can be managed autonomously by giving administration permissions only to their members, and Decidim allows the creation of relationships between assemblies (mother assemblies that have daughter assemblies) or simply by creating a horizontal relationship between them to be articulated in networks. Meetings are the central element of articulation, which are the moments when the members of the assembly meet (either in person or online). Note that meetings can automatically call for the members; it makes it easy to define the agenda, to publish the minutes and to keep a record of the members who attended the meeting (among other features). Multiple configurations can be made in the design of an assembly. For instance, proposals can be open (to participants not belonging to the assembly, e.g. a council), then commented on, then evaluated by the assembly and finally converted into results. Additionally, other components can be also activated, such as the blog (to highlight or announce important achievements of the assembly), sortition (to select for members of the assembly), surveys (to evaluate

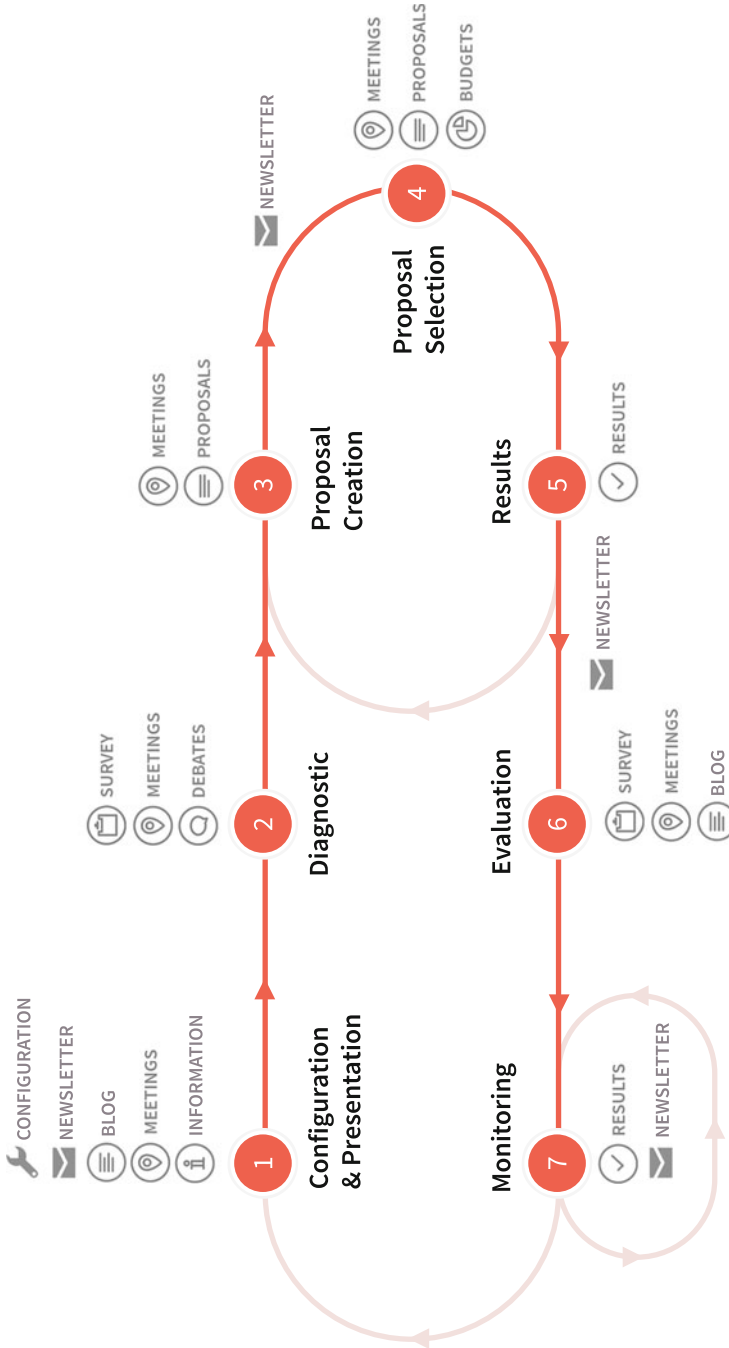


Fig. 3.2 Participatory process structure and flow, depicting different phases and the components that should be activated in Decidim

meetings) or debates that give continuity to questions that have been left open in a meeting.

3.4 Metadecidim: Decidim’s Participatory Governance, Community and Organisation

Metadecidim, or the Decidim community, emerged alongside the Decidim platform. Just as the principle of free software is fundamental, the principle of community is an inherent requirement of the project. A democratic project cannot take shape without a democratic community. In November 2016, a participatory process entitled “Metadecidim: Participatory Design of the Decidim Platform” was initiated in Barcelona.⁸ At the time, the platform was only used in the City of Barcelona and the call was open to its citizens. This process involved open debates and proposal submissions concerning the decidim.barcelona platform itself. There was a commitment to accept and include the most supported proposals in Decidim’s development roadmap, which would then be implemented by the Barcelona City Council. The open call to participate stated that “The aim of the process is to empower citizens, enabling them to take ownership of the tool, contribute to its development, and become active co-participants in its construction”. Over 450 individuals participated in this process, contributing 99 proposals. Among them, 49 proposals were accepted and subsequently developed in the following years. These developments included enhancements to privacy, the creation of a participatory budgeting component, space for citizen initiatives, the implementation of Participation Councils and the transition from Google Map to OpenStreetMap, among others. This was the kick-off for a community that rapidly spread beyond Barcelona. After this process, the community began to meet regularly through both deliberative spaces (SOMs) and research spaces (LABs), launched its own governance platform based on Decidim ([meta.decidim.org](https://www.decidim.org)) and instituted periodic international meetings, first through the JAMs and later with DecidimFest, starting in 2019. Metadecidim has not stopped growing since 2016. In this section we describe its recursive, infrastructural nature (Sect. 3.4.1), its organisational scales (Sect. 3.4.2) and community and code governance (Sects. 3.4.3 and 3.4.4).

⁸<https://www.decidim.barcelona/processes/metadecidim>

3.4.1 *The Reflexivity of a Technopolitical Network: Technopolitical Democratisation, Recursive (Participatory) Subjects and Democratic Software*

The most important (techno)political aspect of the Decidim project is the Decidim community and its platform meta.decidim.org. As the very name indicates, this is a democratic community that reflects and acts upon the multiple dimensions of the project. As its name suggests, Metadecidim is a democratic place where the project is built in a participatory and collaborative way. We decide over Decidim (which, as already noted, means “we decide”), thus the name Metadecidim. It is the space of collective design and governance of the project and its community. In Metadecidim, key aspects of the project’s orientation are discussed, new functionalities are proposed, working groups are set, community conferences such as the DecidimFest are organised, and all the activities of the Decidim Association are reflected and carried out. It is the key space of participatory governance and governmentality of the project. The Association is the formal part of Metadecidim, a non-profit organisation that serves as the legal arm of the community. It has the function of guaranteeing compliance with the social contract and community participation in the design and development of the code; it is presented in more detail in Sect. 3.4.3.

The meta.decidim.org platform is the basic digital infrastructure for the community. As of 15 June 2023, it has approximately 5000 registered participants; it hosts minutes of 292 public meetings, details of 13 assemblies or working groups and 4 stable participation spaces (welcome process, bug reporting, feature proposals and translations) together with various initiatives and processes aimed at defining the roadmap and software design of the platform, community and project governance, research and development and more.

The meta.decidim.org platform fulfils a number of needs to care, structure, govern and inform the community and the project itself:

- **Onboarding** of newcomers: implemented as a participatory process, this onboarding brings the newcomers through a journey that covers all the main features of the platform and the community.
- **Communication**: for major updates and community events.
- **Support**: a community support forum is open for administrators and participants to ask questions and open debates of different sorts regarding best practices of the platform, advanced configuration, etc.
- **Bug reporting**: mistakes, broken features, malfunctioning or software problems of different kinds can be reported and discussed through the platform.
- **Participatory design** of the platform: the most important participatory process in the meta.decidim.org is the very design of the platform, where participants propose new features and the community discuss and evaluate them, while the product team validates decisions following technical criteria and the principles of the social contract (the product team, its role and the process of participatory design are addressed in Sects. 3.4.2 and 3.4.4).

- **Structuring the community:**

- The general assembly is called SOM, literally “we are” in Catalan, but it is also the acronym for *Sesiones Operativas Metadecidim*, that is, Metadecidim Operative Sessions.
- Assemblies for specific committees, working groups, etc. (e.g. LAB Metadecidim, Steering Committee, etc.).
- The annual community conference and its different editions, Decidim JAM (2016–2018) and DecidimFest (from 2019 to 2023).

- **Governance:** the platform hosts the meetings, minutes and composition of the association together with participatory processes (e.g. debates, planning, etc.) that help to democratise the project’s governance from its vision to its action.

Techno-democratic Reflexivity and Recursivity The platform-community relation embodies an important reflexive and recursive structuring dynamic. Through meta.decidim.org community members (developers, admins, consultants, citizens, etc.) use their own software, “we eat our own dog-food”.⁹ Decidim is not a product *for others*, but first (and often foremost) for its very producers. The community directly enjoys (and suffers!) the functioning (and malfunctioning!) of the software it produces. This is something that helps to improve the quality of the software at different scales, since it serves as a quality control or testing procedure. And it is intended to be used as such. Anytime there is a new release of the Decidim framework, it is always tested first at the meta.decidim.org site, where users can directly report bugs, explore the new features, systematically discover possible failures and suggest improvements (see the development process below, Sect. 4.1.2).

Dog-fooding, however, is not only effective at the level of the software itself (usability, experience, testing, etc.), but also of its technical and political effect. Metadecidim (the software and the democratic model it involves, which goes way beyond the software, as noted in Chap. 2) is the main space for the participatory governance of the community. This means that reflexivity is constitutive of the community. In a sense, the organisation does not only eat its own product, it nurtures from it. The very software is a product and also the scaffold of the community.

The more successful the software is at facilitating an adaptive, resilient, autonomous and strong community, the better for the community, and the better the community, the more its capacity to rethink and recraft the software, i.e.: the better the software. This implies a deeper testing of the software, a political test, and a deeper construction of the community, a technical test. This brings about two relevant results of Metadecidim: a political one, the nurturing of a recursive participant (or recursive participatory subject), and a technical one, the development of a participatory or democratic software paradigm (Calleja-López, 2017). On the political side, Metadecidim’s work (e.g. by improving the software) contributes to grow a Decidim user base that ranges from institutions to citizens or workers, which

⁹https://en.wikipedia.org/wiki/Eating_your_own_dog_food

activates a feedback loop that frequently also nurtures both the community and software (e.g. through new members, funding, etc.). More relevantly, in the cross-fertilising displacements between the wider communities of users (or co-deciders), a narrower Metadecidim community of co-designers and a more reduced community of co-producers (see Table 1) lies the possibilities of nurturing recursive participants (recursive subjects or recursive participatory subjects) that intervene in shaping the conditions (specially, the technological conditions) of their participation in digital societies.¹⁰ On the technical side, Metadecidim works towards a paradigm of democratic or participatory software that goes beyond free software (which had broken with and gone beyond the proprietary software paradigm) to the extent that it explicitly aims to incorporate actors beyond technical experts (programmers, designers, hackers, etc.) into the design of the platform and the governance of the project (i.e. in the multiple layers mapped in this book). We believe this improves the software both in political and in technological terms. Crucially, Metadecidim nurtures a constitutive relationship between a political subject (a recursive participatory subject), a technical object (a democratic software) and a broader, digitalising society that takes the form of a recursive participation.

There have been many cases in which improvements to the software have been made as a result of the difficulties encountered in the way it shaped democracy itself within the Metadecidim community. The translation of political challenges into software improvements is made possible through a participatory process within meta.decidim.org, a crucial technopolitical interface for the project. One of the clearest examples of this process is the “Propose New Features: Designing Decidim Together” initiative, which serves as an open space for engaging in debates regarding the political implications of developing new features, architectural considerations and the effects of implementing specific strategies in real-use cases. Within this space, there is a proposal component where community participants can submit their proposals for new features as individuals or organisations (including public institutions, development projects or social organisations). This process allows other community members to contribute to the feature discussion, linking the proposed feature to specific needs, comparing it with other experiences and subjecting it to evaluation by the entire community. The most extensively debated technopolitical proposals have focused on participatory text and collaborative legislation, the impact of spam on the platform, the influence of the social contract on the usage of Decidim, security and privacy concerns as well as initiatives aimed at enhancing participant engagement.

Other important digital infrastructures are also used by the community in various ways: the decidim.org website that describes the whole project and the platform features; the [GitHub.com/decidim](https://github.com/decidim) repositories with the code and collaborative technical aspects (programming, design, documentation, etc.); the documentation portal docs.decidim.org; and the translation platform based on Crowdin

¹⁰These take diverse, field specific forms such as recursive citizenries in the field of politics, recursive workers in the field of work, etc. See Kely (2008) on the notion of recursive publics.

software to coordinate the 50+ languages in translate.decidim.org. There are also instances of the Decidim software that are widely used for training courses, such as edu.decidim.org, or to test and show the software to anybody willing to understand its internal working in an intuitive and practical manner, such as try.decidim.org. On top of these, several groups and channels on Telegram and Element (a free software instant messaging platform) are also used for a more fluid communication between members of different groups of the community (developers, board members, local administrators, etc.).

3.4.2 *Organisational Scales: Decidim Team and Metadecidim Assemblies*

Decidim is organised at different levels and under a logic of multiscale collaboration and participation, conceived from its very beginning as essential for the sustainability and democratic governance of the project. The leadership of the project stems from the Directorate for Democratic Innovation¹¹ of the Barcelona City Council, with the support of the Technopolitics research unit at IN3/UOC, and later Localret, a consortium of Catalan cities, as well as other agents, to a lesser degree. This intersection gave rise to the **Decidim Team**, the driving force behind the project since 2017.

Alongside the Decidim Team, there is the Decidim **Product Team** that coordinates and organises the development of the platform and includes three main actors: City of Barcelona, Localret and Decidim Association. The product team evaluates and coordinates the roadmap with the community and the new design and code contributions. Apart from the organisation of these teams (Decidim Team and Product Team), with their specific meetings and digital infrastructures (mostly meta.decidim.org, GitHub and messaging groups), there are a number of other groups, events and gatherings that have been key to the constitution of the community and the construction of the platform, the project and its ecosystem.

LAB Metadecidim. LAB Metadecidim has been an open and collaborative research space revolving around the challenges of the Decidim project and democracy more broadly, particularly in its intersection with digital technologies. Many key technological decisions regarding the project require complex scientific and technological knowledge and, at times, specific research projects. In order to advance knowledge, share results and review specific technical fields, numerous laboratory meetings have been set. Different proposals born in the LAB

¹¹The full administrative position was initially named “Research, Development & Innovation Directorate for Participation, Transparency & Citizen Rights” and it was modified in 2020 to “Democratic Innovation Directorate for Participation and Districts”.

Metadecidim seminars have been incorporated into updates of the Decidim software.¹²

SOM Metadecidim. The SOM, later called “community meetings”, are open meetings of the community, made up of technical staff, hackers, researchers, experts, civil society organisations and citizens. Sessions are organised around thematic areas of work or specific assemblies. These meetings are a space where community members and the general citizenry can think, prioritise development lines, decide on improvement projects and discuss the uses and future possibilities of the Decidim platform. It is the most important event space of the Decidim Community and one of its main goals is to empower citizens to take part in Decidim, contribute to its development and shape its construction.

In its early days, the active axes were:

- **TECH** (technologies): Focused on experimentation and reflection on useful technologies for Decidim, platform architecture, development community and GitFlow, installation of Decidim, technical documentation, etc.
- **PX** (participant experience): Where the community got to know and share the experience that users have of Decidim in order to improve the usability and the participation experience in the platform.
- **COM** (story): Explored technopolitical communication, narratives, imagination and seduction, for the construction of common and creative discourses about participation, Decidim and democracy.
- **LAB** (research): Served to dig communiterily into the debates open in the monthly session of the Metadecidim.lab, as well as into other research challenges connected with the development of Decidim and democracy.
- **GOV** (governance): Dedicated to collectively discussing the governance of the community and the steps to follow in its growth.
- **PR** (processes): Helped to exchange experiences and designs of participation in the organisations that use Decidim.

Finally, the community has maintained an annual conference¹³ (first called JAM—Jornadas Anuales Metadecidim—from 2016¹⁴ to 2018 then **DecidimFest** from 2019¹⁵ to 2023). It includes several days of workshops, conferences, panels, interventions, presentations and other activities related to networked democracy, political participation, digital technologies and the Decidim software. An annual General Assembly of the community is often carried out during this conference. Since 2019, with the transition to DecidimFest, the conference has established itself as a renowned international event addressing various topics related to technology

¹²Other seminar formats have been designed to explore the transformational capacities of the deployment of Decidim in diverse contexts and ecosystems and are presented in more detail in Sect. 4.4.1.

¹³<https://meta.decidim.org/conferences/>

¹⁴<https://meta.decidim.org/conferences/jam16>

¹⁵<https://meta.decidim.org/conferences/decidimfest19>

and democracy. It draws inspiration from other notable global conferences like MozFest, organised annually by Mozilla. Each edition of DecidimFest has attracted several hundreds of participants and featured presentations by influential figures from around the world. These presentations delve into crucial themes such as the future challenges of global technology governance, the impact of the pandemic on digital technology and rights, the implications of ICTs from an environmental standpoint, the issues surrounding global justice, the future of the Internet or the effects of artificial intelligence on democracy.

3.4.3 *Community Governance and the Decidim Association*

The Autonomy and the Legal Constitution of the Community The various events and spaces just mentioned nurtured the Metadecidim community during its first 2 years of life. Then, during 2018 and 2019 the community carried out a participatory governance process (which stands as a little example of our conception of such a term) to define its organisational system. It aimed to set its official decision-making mechanisms and internal bodies, and how they are chosen, beyond its original, informal community and the Decidim Team organised around the Barcelona City Council.

Several factors determined the need to co-design a governance system for the Decidim community. The Decidim project has been enriched and expanded by its ecosystem, which brings together different actors: social organisations, municipalities and administrations that manage Decidim instances, universities and research centres, development companies and training service providers, technology activists, programmers, students, citizens, etc. On the other hand, the project, as an infrastructure for democracy, has been growing rapidly, beyond the Barcelona City Council, and has shown the need to have some management and decision autonomy that allows it to continue growing in a sustainable way into the future. It is a fact that Decidim is no longer only an infrastructure of the Barcelona City Council, and it is necessary to conceive the project as a digital commons to be preserved and nurtured, a good that belongs to everyone and that must be governed in a democratic way.

In order to advance in the construction of this governance, the participatory process “Decidim.GOV: A democratic governance for an open community” was carried out.¹⁶ The participatory process for defining the governance of the Decidim community had a preparation phase of diagnosis and analysis that began in November 2017 and lasted until November 2018. In this early phase, different governance experiences from other free software communities were analysed. During 2018, the participatory governance process accelerated to reach an agreement on the legal organisation of the community as well as on the decision-making and

¹⁶<https://meta.decidim.org/processes/decidim-gov>

organisational bodies it should have; a conclusion was the need to constitute an association. This stage of the process began on 26 November 2018 and ended on 16 February 2019 with an extraordinary session for the constitution of the Decidim Association. This second stage of the governance process had the following goals:

- To provide autonomy and guarantees of democratic quality in the management of the Decidim software repositories
- To provide legal mechanisms for the community to participate in the governance of the project
- To respond to the need of extending the project and to ensure its sustainability

At the end of the process, the community was constituted as a non-profit private association and its statutes¹⁷ were defined, which aim to preserve and consolidate the founding principles of Decidim, included in its social contract. Trying to row against the gender asymmetries prevalent in most technological projects, the first president of the Decidim association was female and led a mostly female steering committee.

During the process of building the association, proposals for future internal regulations and the statutes were discussed, a proposal for an organisational chart was designed with the association's decision-making and consultative bodies, and a Coordination Committee was chosen, made up of nine people who, over the course of a year, would finalise the process of setting up the Decidim Association and legally registering its statutes.

Once formally constituted, a first agreement was signed between the Barcelona City Council, the Localret Consortium and the Decidim Association, legally recognising that the latter is the official manager of the code base, the trademark and the community of the project. This agreement was renewed in May 2023, and it will be valid until May 2027.¹⁸ In February 2021, another agreement was signed between the Association, the Generalitat de Catalunya and the Barcelona City Council, which establishes a commitment by these two institutions to provide financial support to the Association and to promote the creation of a technical office until 2024.

Between 2021 and 2023, the Association invested a great deal of time and effort in setting up the technical office, which currently has (on 15 June 2023) three employees: an administrative manager, a senior developer and a junior developer. However, the Coordination Committee, composed of volunteers, has taken on additional administrative and management tasks, resulting in an overwhelming workload. These tasks include grant management, representation at events, coordination with public administrations and day-to-day operations. This has shown the

¹⁷ <https://meta.decidim.org/processes/decidim-gov/f/1017/>

¹⁸ Note however that the renewing character of this agreement does not jeopardise the autonomy of the project because the code, data and contents are copyleft (and no public or private institution, even if it has financed or contributed to the code, can claim any exclusive right over it) and the trademark is registered by the Association.

need to rethink (and augment) the roles of the technical office and the relationship between the technical and political management of the organisation.

On the other hand, sustaining Decidim in the long run requires addressing financial sustainability. This includes exploring funding models, diversifying revenue streams and securing resources to support ongoing development and maintenance. In that sense, the Association has started to implement a partnership policy, aimed to foster mutually beneficial relationships with its ecosystem, while ensuring alignment with its democratic and participatory goals. As of mid-2023, a new governance process¹⁹ is underway in Metadecidim to address these challenges. These are incremental steps towards a self-governed, sustainable and technopolitically autonomous project.

3.4.4 Code Governance and Decidim Agile

The Decidim Software Is Being Continuously Developed in an Open Collaborative Manner This happens on GitHub, a web-based service of code version control and repository hosting, powered with functionalities like bug tracking, feature requests, task management and different kinds of statistics. The core of the Decidim project includes eight repositories.²⁰ The most important holds the code for the software, but there are also others for its documentation, its installer, its website, etc. Each repository can be thought of as a software factory or workshop where contributions of different programmers are discussed, evaluated and merged, quality tests carried out, code conflicts identified and resolved and different versions of the code delivered. This is a complex process in terms of both software complexity and social complexity. It involves coordinating over 130 programmers that have contributed to the code of the project so far, dealing with dependencies with other free software packages and technologies, communicating with project managers of different companies hired to develop specific features of Decidim as well as handling feature requests, demands and feedback provided by the community on meta.decidim.org.

The governance model in the code layer involves the rules of contribution and decision-making by acceptance or rejection of specific programming contributions, and their implications. Objects of potential conflict and governance can be found at three levels: issues (small contributions or proposals), pull requests (code contributions to the Decidim code) and releases (the set of new features and fixed bugs included in a new version or subversion of Decidim). The main challenge, and one of the main innovations of Decidim in comparison with other software projects, is the integration of GitHub (where the code lives) and meta.decidim.org (where the

¹⁹<https://meta.decidim.org/processes/sustainability-governance>

²⁰<https://github.com/decidim/>

community for the democratic governance of the project lives). This integration aims to solve some problems and limitations on decision-making processes, allow the communication between programmers and non-programmers and structure democratic processes of the whole chain of design, deliberation, decision and following of any kind of development. The meta.decidim.org site is used to discuss new features for Decidim, and [GitHub.com/decidim](https://github.com/decidim) is used to coordinate their implementation.

Any member of the community can make a proposal in Metadecidim²¹ for a new feature or the improvement of an existing one. Proposals can receive endorsements, although these are not decisive for a proposal to be included on the development roadmap. The endorsements serve as indicators of the interest of the proposal or the need it covers. The comments to the proposals are also enabled, to collectively elaborate the initial idea and bring it to a productive result. The product team reviews new proposals on a regular basis and decides whether they are accepted, reflecting on questions such as how many different Decidim instances are complaining/asking about it and what their community composition (large, small, institutional, specialist, generalist) is, how in tune with the Decidim Social Contract is the suggested feature or if it is sustainable to develop it (financial support for the requested features, its mid- and long-term cost of maintenance, etc.). It is often the case that a sponsor is responsible for funding the development of some features. Types of sponsors include public institutions, companies or members of the developer community, associations, collectives, etc.

After a new feature proposal is approved, a new issue is created in GitHub to track the progress of its development. This issue serves as a dedicated space to technically discuss and collaborate on the implementation of the proposed feature. The development progress is monitored through various stages until it reaches the production phase, using the GitHub platform. To ensure that the community can easily track and stay informed about these developments, we establish a link between the corresponding GitHub issue and the Metadecidim proposal. Once a new feature has been fully developed, it is included in the upcoming release and communicated to the community. This ensures transparency and keeps the community informed about the progress and availability of new features. To provide a glimpse of the complexity of the process, more than 11,000 issues and code contributions have been completed so far. Anyone can follow and intervene on each specific issue, the associated code, the political and technical discussion around them and its final completion.²² The open, transparency and traceability principle (and various others established in the social contract and in the Decidim culture) applies not only at the political plane but also at the technopolitical one.

²¹ <https://meta.decidim.org/processes/roadmap>

²² <https://github.com/decidim/decidim/issues>

3.4.5 Public-Common Partnership: Public Procurements and Digital Commons

Decidim is a model of producing technology from the public-common. In terms of political economy logics, we can distinguish public, private and common modes of promoting and governing innovation and technology. Each of these models points, respectively, to the priority of the public sector (frequently galvanised around the State), the private sector (led by companies and markets) and local communities and citizens (associations, social movements, NGOs, etc.) in aspects such as the funding, provision, appropriation or, more crucially, the governance (Jessop, 2012) of innovation and technologies.²³ These logics can be combined, as is typical of neoliberalism, in the form of public-private partnerships frequently tied to forms of oligarchic or technocratic governance. Decidim is a bet against this model, a bet for public-common partnerships, in which the private logic and sector, if present, operate in a rather subsidiary and subordinated manner.

A challenge to this democratic and participatory code governance of Decidim comes from the financial support of the new developments and the (mostly) public procurement processes involved. Since a significant portion of the development funding has come (and still does) from the city of Barcelona, it has been necessary to find a way to incorporate community contributions into the public procurement process. This was an important innovation in public procurement: citizens participating directly on the requirement of a public contract and its evaluation. To manage development investments, the Decidim Team sought an original approach. The majority of new development issues are typically assigned on the basis of planned participatory processes with the community, but also tailored to the specific needs of decidim.barcelona. Once the scope of a given public contract or set of them is defined (e.g. improvements to citizen initiatives), any relevant proposals submitted by the community are reviewed for inclusion. A portion of the budget is also allocated for reducing technical debt or undertaking refactoring to enhance the entire platform or specific spaces or components.

Since 2017, various types of public procurement contracts have been used to develop Decidim, including feature-driven development and specific participatory spaces (e.g. electronic voting), as well as more generic improvements of the platform (e.g. redesign process). One common characteristic of these approaches is that the public contract or procedure encompasses both technical requirements (such as code peer review by two other developers, testing the code, issue pattern definition, version control and modular architecture) and technopolitical requirements (such as the community's role in the development process, adherence to the social contract during development and the AGPL licence for all new developments). Additionally, the public procurement process includes a methodology for development that employs agile strategies, with sprints conducted every 2–3 weeks, refinement

²³This passage has been taken from Calleja-López, Cancela and Jiménez (forthcoming).

sessions and planning meetings. The use of GitHub as a public workspace and project management platform is also a contractual requirement.

As the community's timeline sometimes outpaced that of the public administration and its slow contracting procedures, a new challenge emerged. Since Decidim is a free software project open to collaboration, the roadmap is continuously enriched and developed with contributions from other organisations that often were capable to complete milestones of the democratically designed roadmap before the public contract was completed. Therefore, the Barcelona City Council included a formal mechanism to develop additional features in case some were already completed by the time of the contract execution.

Overall, this innovative approach adopted by the City Council not only represents a novel way of developing Decidim within the administrative constraints while, at the same time, involving the community in defining the scope of new features, but also serves as a model for creating and developing technology from the public sector based on a Free-Open Source model with democratic-participatory governance. The Decidim model stands as a fruitful example of public-common partnership where the good that results from public investment is governed and managed by an open community in a democratic manner (as opposed to the neoliberal, technocratic or oligarchic model of public-private partnership).

References

- Barandiaran, X. E. (2023). *Cómo usar Decidim. Guía para administraciones públicas y grandes organizaciones*. Decidim.org. <https://xabier.barandiaran.net/?p=2843>
- Calleja-López, A. (2017). *Since 15M: The technopolitical reassembling of democracy in Spain*. [PhD Thesis, University of Exeter]. <https://ore.exeter.ac.uk/repository/handle/10871/29295>
- Feenberg, A. (1999). *Questioning Technology*. Routledge.
- Flaxman, S., Goel, S., & Rao, J. M. (2016). Filter Bubbles, Echo Chambers, and Online News Consumption. *Public Opinion Quarterly*, 80(S1), 298–320. <https://doi.org/https://doi.org/10.1093/poq/nfw006>
- Freeman, J. (1972). The Tyranny of Structurelessness. *Berkeley Journal of Sociology*, 17, 151–164.
- Gurstein, M. B. (2011a). Open data: Empowering the empowered or effective data use for everyone? *First Monday*, 16(2). <https://doi.org/https://doi.org/10.5210/fm.v16i2.3316>
- Gurstein, M. B. (2011b, July 11). A Data Divide? Data “Haves” and “Have Nots” and Open (Government) Data. *Gurstein's Community Informatics*. <https://gurstein.wordpress.com/2011/07/11/a-data-divide-data-%e2%80%9chaves%e2%80%9d-and-%e2%80%9chave-nots%e2%80%9d-and-open-government-data/>
- Halonen, A. (2012). *Being Open about Data: Analysis of the UK open data policies and applicability of open data* (The Reports of the Finnish Institute in London). Finnish Institute in London. <http://archive.fininst.uk/media/W1siZiIsIjIwMTYvMDgvMjUvMDkvMzgvMjEvZGQyOGQ5MTUyY2Q4YS00N2U0LWEyZTAzM2FiOWUxN2M0Njc2L2JlaW5nIG9wZW4gYWJvdXQgZGF0YS5wZGYiXV0/being%20open%20about%20data-sha=cad600352a6ffb0b.pdf>
- Jessop, B. (2012). Understanding the ‘Economization’ of Social Formations. In U. Schimank & U. Volkmann, *The Marketization of Society: Economizing the Non-Economic*. Universität Bremen.

- Kelty, C. M. (2008). *Two Bits. The Cultural Significance of Free Software*. Duke University Press.
<https://twobits.net/pub/Kelty-TwoBits.pdf>
- Lessig, L. (2006). *Code: And Other Laws of Cyberspace, Version 2.0*. Basic Books.
- Lessig, L. (2016). *Free Culture*. Lulu Press, Inc.
- Pérez-Verdugo, M., & Barandiaran, X. E. (2023). Personal autonomy and (digital) technology. An enactive sensorimotor framework. *Submitted to Philosophy & Technology (under Review)*.
Pre-Print Available at <https://psyarxiv.com/y8mga/>. <https://doi.org/10.31234/osf.io/y8mga>
- Tehrani, J. (2015). The New ©ensorship. *Iowa Law Review*, 101(1), 245–295.
- Toret, J., Calleja-López, A., Miró, Ó. M., Aragón, P., Aguilera, M., Barandiaran, X. E., Lumberras, A., & Monterde, A. (2015). *Tecnopolítica y 15 M: La potencia de las multitudes conectadas*. Editorial UOC.

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Chapter 4

The Technical Plane: The Fabric of an Infrastructure



The technical plane of Decidim has multiple subdivisions, ranging from the purely informatic to the legal or pedagogical. Ultimately, it includes aspects that compose and define the new infrastructural conditions of network democracy, from regulatory norms to human capabilities, and including, of course, computer code. In this chapter we deal with some aspects of the project that, being technical and certainly important, lie beneath the technopolitical layer we have just described in the previous chapter. These deeper technical details act frequently as preconditions (and sometimes as target) of the processes and practices we have presented so far.¹

4.1 Development: Code Programming and Deployment

As we have already mentioned, Decidim is a free/libre open-source software built on the Ruby on Rails web development framework. This means that it is built on top of a complex stack of previously freed software, knowledge and programming techniques (as is typical of most free software projects). In order to open Decidim to free collaboration, and for the first time, the Barcelona City Council created a space on the collaborative platform GitHub and shared it to the world. The software is now hosted on its own repositories within GitHub, not those of City Council, and is independently managed by the Decidim Association and the community. Unlike other existing infrastructures, Decidim's architecture is modular, scalable and easily configurable. It is not necessary to have advanced programming skills to use it as administrator because it has been designed to facilitate the configuration and deployment of processes, assemblies and participatory mechanisms from an administrator

¹More fine-grained aspects of the project can be consulted at Decidim's documentation page at <https://docs.decidim.org>

panel (another form of democratisation). These properties derive from the specific history of technical decisions and programming choices we explain here.

4.1.1 Modular Architecture

As noted earlier in this book, Decidim started as a fork of Consul,² the software launched by the Madrid City Council for its participation platform Decide Madrid.³ Consul is a full Rails application; this means that for each new instance a fork of the code must be created in a new repository, and the source code must be overwritten to adapt it as needed. This task can become cumbersome, especially if the volume of customisations is high, as was the case in Barcelona. As pointed out in the report “Proposed changes to Consul’s architecture” (Pereira de Lucena & Blanco-García, 2016),⁴ the typical, monolithic architecture of Ruby on Rails presents some limits in terms of code reuse and collaborative development. In the report, there were some proposals to modularise the development of Consul and thus improve its reusability by any organisation. After several conversations, there was no technical or political agreement between the Decidim and Consul teams to carry them out (see Calleja-López, 2017 for an overview of those disagreements and their roots). For this reason, it was finally decided to conduct a complete rewrite of the code, based on Ruby on Rails engines.⁵ Engines can be considered small applications or plugins that provide functionalities to the applications that host them. In this way, each new functionality or module required by the platform can be developed independently of the platform core, thus allowing great flexibility when it comes to generating a development ecosystem. Decidim also has a multitenant architecture, which means that a single installation enables as many active Decidim sites as needed. Therefore, an organisation can create participatory sites for its sub-organisations, and various organisations can share a server and reduce the maintenance costs of its instances. As a result of such technical decisions, Decidim soon became a fully independent project and fostered the open collaborative modularity that Consul did not provide.

As a result, Decidim has reached a vivid and diverse development and deployment. The code constitutes a digital common that anybody can reuse, fork, develop and adapt to their own needs. Furthermore, its development is modular, which means the code can be easily decentralised while remaining integrated and consistent. Every participatory component or space (as described in Sect. 3.2) is programmed as a module. Modules can be added, developed or adapted independently. The core modules are maintained officially, but there also exist open ecosystems of modules that can be used as plugins and are developed and maintained by third parties. There

²<https://consulproject.org/en/>

³<https://decide.madrid.es/>

⁴<https://doc-consul-architecture-proposal.andreslucena.dev/>

⁵<https://guides.rubyonrails.org/engines.html>

are currently more than 80 community-developed modules.⁶ These ecosystems expand and enrich Decidim's basic functionalities in a decentralised manner. They complement the democratic governance of the project with a distributed form of do-cra-cy that is not limited by the decisions of the association or the product team: another form or result of practices of technocracy. Sometimes, some of these functionalities may be included into the core, if the democratic mechanisms of the community and the association, or those of the product team, certify the desirability of such incorporation.

4.1.2 Code Contribution and Collaboration

Decidim is maintained and developed by a growing socio-technological ecosystem that includes companies, foundations, associations, cooperatives and other institutions, as well as individual hackers and developers. The code is licensed under an AGPL v3 licence, which means that anyone can view, copy, modify and distribute the software as long as the same licence is maintained. All development, including feature specifications and bug fixes, is done openly through the (already mentioned) code publishing and collaboration platform GitHub. The language used is English in order to reach a growing, international community of developers. Specific programs, such as DecidimFemDev, have been oriented to incorporate female and non-binary profiles into such communities of development and co-production.

Several metrics of programming activity can be found on the project GitHub's page.⁷ As of 15th June 2023 they show the following numbers: 135 contributors, 1265 stargazers (GitHub users who have flagged the project as interesting), 368 forks, more than 7600 pull requests (contributions to the source code) and 3357 feature requests or bug reports, of which 3065 have already been closed.

In GitHub everything is organised through different repositories:

- `/decidim`: the main code repository, with its libraries
- [/decidim.org](https://decidim.org): the project landing website, which uses the static places' generator Middleman
- [/demo.decidim.org](https://demo.decidim.org): the repository hosting a Decidim demo
- `/Metadecidim`: the repository for the code of the Metadecidim community platform
- `/decidim-bulletin-board`: a bulletin board that provides services to Decidim instances to allow them to run secure, end-to-end, auditable votings
- `/documentation`: the documentation repository, using the Antora documentation generation system

⁶<https://decidim.org/modules/>

⁷<https://github.com/decidim/>

Regarding the product development flow, we use the model initially proposed by the free software project GitFlow,⁸ with some variations in the case of Decidim. A version control system of collaboration can be understood like an evolutionary tree with different branches representing different “species” of Decidim, some more stable or experimental, other temporarily alive just to test or develop a specific feature, that will be later merged into the main trunk. The most important types of branches in Decidim are the following:

- **develop**: this is the default branch instead of Master/Main (the initial branch that Git checks out locally when someone clones the repository), on which the other branches are integrated. We made this decision to simplify the release process after discussing⁹ it with the core maintainers.
- **release/Y.X-stable**: where Y is the major release number (0 so far) and X is the number of the minor version. It accumulates developments and features for the next stable version, published through GitHub releases and rubygems.org.
- **fix/x**: for bug fixing. These changes are backported, meaning that they will be available to the last two releases.
- **feature/X**: where X are different features that may or may not arrive to be included in a specific milestone of the main branch. New components or other possible features are developed in parallel branches until they are completed.
- **refactor**: for restructuring existing code.

New releases are published following the recommendations of Semantic Versioning,¹⁰ a scheme of presentation of versions of the software that uses a three-part number format: major.minor.patch. Each number component conveys specific information about the release.

- Major version updates (e.g. the version changes from 1.0.0 to 2.0.0) indicate significant changes that may introduce backward-incompatible features or require modifications to existing integrations.
- Minor version updates (e.g. the version changes from 1.2.0 to 1.3.0) include new features or enhancements that are backward-compatible with previous versions.
- Patch version updates (e.g. the version changes from 1.2.1 to 1.2.2) primarily address bug fixes and do not introduce any new features or backward-incompatible changes.

By adhering to Semantic Versioning, clarity and consistency in version numbering is ensured, making it easier for users and developers to understand the impact and compatibility of each version. As of 15th June 2023, 125 releases¹¹ have been published, of which 27 are minor releases and 98 are patches. No major version of Decidim has been released yet.

⁸<https://nvie.com/posts/a-successful-git-branching-model/>

⁹<https://github.com/decidim/decidim/discussions/7226>

¹⁰<https://semver.org/>

¹¹<https://rubygems.org/gems/decidim/versions>

As a final detail on code contribution and collaboration, it is worth noting that the project has a software translation management platform that makes it easy to collectively work on translations. This is done through a service based on the Crowdin¹² platform and has allowed the platform to be translated into 53 languages. The Barcelona City Council has only assumed the translation into Catalan, Spanish and English. The rest of translations has been done by the community and international organisations that have decided to support the project.

4.1.3 Installation Deployment and Configuration

Decidim can be installed using the command prompt in any GNU/Linux server with the following installed services: PostgreSQL, Ruby, Node.js with yarn (JavaScript dependency manager) and ImageMagick. An automatic installation script allows you to deploy the whole dependency system, libraries, databases and other automatically required services in Heroku or Docker.

A specific platform settings are customisable through the fields of a form available in the administration panel: name of the portal, social network profiles (Twitter, Facebook, Instagram, YouTube, GitHub), brief description, welcome text, default language, home image, organisation's logo, favicon, reference prefix (unique identifier that will apply to the portal's elements) and the organisation's URL.

4.1.4 Integration with Other Services and Compatibility/Creation of Additional Services

Decidim is committed to providing a platform that is accessible and efficient for all participants, and the integration of digital services is key to achieving this goal. However, the dependence on large technology companies for secondary services is a concern, as it can lead to a decrease of participants' privacy because of the insertion of tracking technologies such as cookies. Decidim is part of a global network of free and open-source software services and uses various integrated services of this ecosystem. By using such integration we can enhance the power of the platform while ensuring that it is not controlled by an external entity, that the data of participants remains private and secure and that it is possible to modify and adapt the software integrated with Decidim. Furthermore, the integration of digital tools such as maps and calendars is crucial in order to enhance the participatory experience. By providing easy access to these tools, participants can easily share and get information, making the platform more accessible and efficient. We here detail some of the key integrations of Decidim.

¹²<https://crowdin.com/>

Active Job is an integration that allows Decidim to perform certain actions in the background, such as sending emails to participants when they register. This integration ensures that the platform can operate smoothly and efficiently, without slowing down the user experience.

The Bulletin Board integration is an application that allows Decidim to conduct end-to-end auditable votings using the Elections module. This integration promotes transparency and accountability in the voting process, as it allows for a verifiable and tamper-proof voting system. The Bulletin Board is based on Election Guard,¹³ an open-source SDK that aims to improve the security, transparency and accessibility of voting systems by allowing vendors to incorporate end-to-end verifiability and enabling organisations to conduct and publish post-election audits.

OpenStreetMap is an integration that allows Decidim to display meetings and proposals with geolocation. This integration provides a visual representation of the location of the proposal, making it easier for participants to understand and access the information.

Etherpad is an integration that allows Decidim to create collaborative, real-time writing boards. This integration promotes collaboration and transparency among participants, as it allows multiple users to work on a document simultaneously, track the contribution of each user (in different colours) in real time and record the history of the document.

Jitsi is an integration that allows Decidim to embed a video conference room in any meeting. This integration enhances the hybrid nature of meetings by enabling remote participants to engage in discussions, deliberations and decision-making processes, fostering inclusivity and augmenting participation.

Other integrable services include SMTP, to send email, integration and compatibility with calendar-management systems and automatic creation and updating of event calendars. It should also be mentioned the SMS delivery systems that are used mainly to verify participants by sending a verification code and a wide variety of authentication methods used by public administrations or different organisations to identify their participants (e.g. digital IDs, LDAP, etc.). The modular architecture and open API of Decidim allow integration with multiple open technologies, and this process is a key element that guarantees its continuous dynamism in development and in the generation of technological alliances with other free software projects.

4.2 Documentation: Decidim's Documentation System

Documentation is a critical feature of many social processes, especially in public administration. It plays an even more important role in highly technical and complex projects, in software projects in particular. The main goal of good software documentation is to democratise access to the effective deployment and functioning of the

¹³<https://www.electionguard.vote/>

infrastructure, rather than just access to its code. For this reason, documentation can be for a software project an asset as important as the software itself. This fact is even more true for a technopolitical community like Metadecidim. It has a strong requirement for collectively producing, maintaining, evolving and curating a large body of documents of different kinds: technical, theoretical, political, legal, etc..

In accordance with our social contract, documentation must be written “in the open” and published under a Creative Commons By-SA licence, collaboration must be fostered and contributions need to be traceable and carefully attributed. Many documents need translation to different languages and both technical and social forks (in other terms, divisions of the technology or the community) can be useful in some situations.

Another strong requirement for Decidim is that contributions to any document can be done with free software. Publication of any of our contents in a static website must also be possible without resorting to proprietary tools. At the same time, the Decidim Team is trying to minimise its use of corporate platforms that trade with user data, like Google Docs (which is still in use for practical purposes).

After some testing and research, Decidim has adopted a documentation methodology that follows three well-established trends in the technical documentation community:

- *Single-source* contents and multi-format delivery: our aim is to write content only once and (relying on tools and formats that facilitate its separation from a given format) reuse that content whenever necessary.
- *Docs-as-code*: by storing text in software source code repositories, we get a very mature versioning technology that provides integrity and traceability of contributions, multi-version documents and automatic checking and publication after edition, among other facilities aligned with agile principles. This is an application of the openness, transparency and trackability principle discussed in the (techno)-political plane.
- *Online first*: we favour the web as our primary publishing format and medium, even if we also provide means to generate other formats, like PDF files.

The official documentation uses a light-weight markup language called AsciiDoc.¹⁴ It is similar to Markdown (a common markup language) both in syntax and spirit, but it is more expressive and sound for writing long, complex documents. Although often unknown to non-programmers, markup languages are plain text encodings of formatted text that (unlike Word or LibreOffice word processors) make it easier to write texts collaboratively and consistently in a simple and systematic manner. In short, a markup language makes it possible to treat rich text as computer code and take advantage of control version and the power of Git technology to coordinate collaborative contributions. The documentation repository is hosted with the rest of the computer code on GitHub.¹⁵

¹⁴<https://asciidoc.org/>

¹⁵<https://github.com/decidim/documentation>

Unfortunately, a balance between easing complex collaboration and easing writing contributions is difficult to achieve. A highly open, reusable, collaborative and automated documentation poses a high barrier for non-expert contributors. This is particularly important when writing collaboratively or when entering complex cycles of revision, bibliographic management, etc. Complex documentation systems, although adapted to asynchronous long-term writing and update of documents, are not ideal for synchronous collaborative writing. For this reason, online word processors, like Google Docs or Etherpad, are often used to write non-technical documentation collaboratively in Decidim.

In our experience writing relevant documents for the project (technical, political and otherwise), we have established a set of conventions about what metadata store for each document and how to show it in a chart. We store, for each document, title, contributors, revision number and date, keywords, summary, history, distribution terms and how to cite it. Decidim has a sophisticated classification of contributions, inherited from the project FLOK Society—Buen Conocer (Vila-Viñas & Barandiaran, 2015), a means to acknowledge the multiple ways in which people can contribute to a document. The authorship levels are editor, author, contributor, participant and proofreader.

But it is not only self-generated documents that matter to the project. Importantly, the political, scientific and theoretical documentation that nurtures research and gives direction to it is also a very valuable collective resource to share. In order to organise and facilitate access to all this bibliographic material, we use the Zotero¹⁶ software and sharing cloud. The Metadecidim group¹⁷ in Zotero is publicly accessible and contains all the relevant bibliographic references of the Metadecidim Lab sessions (publications by invited speakers, background readings, etc.), theoretical collections, folders containing papers about Decidim or the set of bibliographic references cited in this very book.¹⁸ A private group also exists (Metadecidim-PDFs¹⁹) to share not only the bibliographic entries but the PDF files among researchers and members of the Decidim community.

4.3 Legal: Licences, Regulation, Procurements, Agreements and Statutes

Laws are a crucial form through which societies order themselves today. So are technologies. Technologies are a sort of “second constitution” of society (Winner, 1986) because, in many ways and for most practical purposes, code is law (Lessig, 2006): they contribute to shaping people’s ways of acting and thinking, both

¹⁶<https://zotero.org>

¹⁷<https://www.zotero.org/groups/1607464/Metadecidim/library>

¹⁸<https://www.zotero.org/groups/1607464/Metadecidim/collections/9IHDBLXH>

¹⁹<https://www.zotero.org/groups/1607466/Metadecidim-pdfs>

individually and socially, and thereby help to constitute ways of life. As we have seen, technologies are also shaped and reshaped by such ways of acting, thinking and living. Meanwhile, State laws continue to be essential in shaping society. Thereby, the connections between legal code and technological code are multidirectional, to the point of the blurring of their boundaries.

In this section, we will not attend so much to how a technology such as Decidim can affect legal codes through participation in politics (Chapter 2 has dealt with it in some detail) or embody a legal code in technology (as developed in Chap. 3). Instead, we will focus on the ways in which legal codes and the legality of political institutions can affect Decidim as a project, in its production, deployment and broader success. We also attend to how Decidim practices can aid to transform public administration on the technical plane.

The first way in which legal forms shape Decidim is through its licence: AGPLv3, Decidim's licence, GNU Affero General Public License v3.0 (AGPLv3).²⁰ This is one of the most important legal agreements of the project, set to ensure the free access to a digital common resource such as Decidim. Unlike other copyleft licences, the Affero one was designed specifically for online services where end-users don't download and install the code on their computer but rather interact with a server where most of the code is executed. This licence implies that any participant in a platform that runs Decidim software (or any variation or future evolution of Decidim) has the legal right to access, audit, reuse and further develop the code that is effectively running on the server side. This is not only a fundamental legal guarantee of transparency in any democratic process, but it also implies the power of any participant, in case of strong conflict, to fork the platform and create a new one. All platforms that use Decidim need to provide a link to the code that runs on the servers.

The Affero GPLv3 is not the only copyleft/copyright licence that is relevant for the project, as we have repeatedly highlighted. Specific legally binding licences are used for the content of the platform, documentation and design (Creative Commons By-SA licences²¹) and for the data (Open Access Database Licence²²) which are oriented to ensure the freedom of participants and guarantee the cooperative and non-privatising nature of the democratic processes. We have already explained the technopolitical effects of these licences (see Chap. 3), suffice it to say here that there is a technical depth on the way such licences operate, and they are themselves the result of complex processes that involved not only legal experts but contributors and defendants of knowledge and culture commons.

When it comes to public administrations, a set of public contracts requires the maintenance of the code licence for all developments, as well as the use of open licences (GNU free documentation Licence GFDL²³) for all documentation

²⁰<https://GitHub.com/decidim/decidim/blob/develop/LICENSE-AGPLv3.txt>

²¹<https://creativecommons.org/licenses/by-sa/4.0/>

²²<https://opendatacommons.org/licenses/odbl/1-0/>

²³<http://www.gnu.org/copyleft/fdl.html>

generated during the contract. These contracts also included the social contract (see Sect. 1.1) to ensure that any new development complies with all the principles of democratic quality. This has allowed to generate new forms of software production from within public administrations in favour of free software, technological sovereignty through open-source development as well as the inclusion of democratic quality criteria in public contracts. In addition, this has generated a contagion when other administrations have reused these public procurements to make new development orders of Decidim, which had to include these legal codes (i.e. the licence and the social contract).

Throughout the project several inter-institutional and collaborative agreements have been generated to guarantee the following: (1) the extension of Decidim to other municipalities, (2) the shared governance of the code between the city of Barcelona and the Metadecidim community through the Decidim Association²⁴ and (3) the protection, defence and promotion of the Metadecidim community and the main repository,²⁵ oriented, in turn, to guarantee the quality of the project and its capacity to respond to the contributions of its international base.

Institutionalising Decidim requires incorporating it in the formal (frequently legal) norms, rules and codes of the institution in which it is deployed. That process is not without challenges. A paradigmatic case of the stakes involved is that of Barcelona. A key aspect for the institutionalisation and expansion of Decidim's infrastructure and practices in the Barcelona City Council was its incorporation in the Citizen Participation Regulation (CPR) for the city. References to a digital platform and several new participatory mechanisms (especially, multi-consultations²⁶) were first incorporated in the CPR developed during the 2015–2019 mandate (the first ever to refer to a digital platform), then in a municipal decree and finally in a second CPR drafted and approved during the 2019–2023 mandate (June 2022) with some relevant modifications from the previous one. However, the story of the first of those Regulations is illustrative of the challenges of democratisation more broadly. The CPR drafted during the 2015–2019²⁷ mandate was heavily, legally attacked after the announcement of a consultation on the re-municipalisation of Barcelona's urban water service, currently a multi-billion-

²⁴ Agreement with Barcelona City Council and Localret <https://meta.decidim.org/assemblies/general-assembly-association>

²⁵ Agreement with Barcelona City Council and Catalan Government <https://meta.decidim.org/assemblies/general-assembly-association/f/1204/posts/166>

²⁶ Multi-consultations were conceived to be periodic macro-consultations to all of Barcelona's inhabitants to decide upon citizen initiatives that had previously gathered signatures over a given threshold.

²⁷ The Citizen Participation Regulation was approved in a municipal plenary in 2017, and after more than 30 judicial appeals, it was suspended in 2019 when the Superior Court of Justice of Catalonia annulled it, with the argumentation that this regulation did not respect article 71 of Law 7/1985 regulating the bases of the local regime that regulates citizen consultations. The Barcelona City Council had announced the holding of a consultation for the municipalisation of the city's water, and several companies linked to the current private management of municipal water surreptitiously stirred these resources.

euro business run by Agbar corporation. This attack was led both by private agents (a number of associations shadowy and primarily supported by Agbar) and by the State (afraid of anything resembling a referendum in a context of political conflict with the Catalan Independentist movement), through the High Court of Justice of Catalonia. These actors challenged various aspects of the CPR, especially matters related to multi-consultations, which could unsettle various aspects of the political and economic status quo. Ultimately, after the legal defeat of the City Council, a new CPR was drafted and approved in May 2022, including multi-consultations but requiring approval from the central Spanish government and pushing the minimal requirements from 15,000 to 88,700 signatures to get an initiative considered.

The CPR is a relevant norm because it updates the municipal regulation of 2002 and gives security and legal cover to the new processes, mechanisms and needs of democratic participation in the city and inspires others to do the same. Two general relevant elements of the regulation stand out from a technopolitical viewpoint: (1) The Decidim platform incorporates in its structure the different participation spaces covered by the regulation: processes, bodies, initiatives and consultation; they are included in, and adapted to, the regulation while taking into account the digital platform and its possibilities. (2) The regulation contains for the first time a specific chapter dedicated to the digital platform. This chapter details the characteristics and technical conditions that a platform that articulates citizen participation must comply with. For example, that it is open source or that there is full transparency in the processes of participation. In addition, the chapter establishes democratic guarantees for the platform, such as the minimum content it must have to ensure the quality of processes tied to it.

Finally, a key aspect in terms of the future sustainability, independence and self-governing capacity of the project, are the statutes of the Decidim association (see Sect. 3.4.3 for more details). Their most relevant innovation, perhaps pioneering in this sense, is that they include an explicit reference to the Metadecidim platform as an integral part of its democratic constitution.²⁸

4.4 Research: Laboratories, Innovation and Collective Intelligence

Decidim results from the knowledge of people who contribute to the project in its different axes. The Decidim Team and the Metadecidim community are formed by members with different abilities, who collaborate and deliberate to push Decidim further. This hybrid and multidisciplinary nature, typical of FLOSS communities such as Wikipedia, represents an instance of collective intelligence of the type outlined in Chap. 2. However, the mobilisation of the participants' knowledge is

²⁸The full states in English, Spanish and Catalan languages can be downloaded here: <https://meta.decidim.org/assemblees/our-governance>.

not sufficient to guarantee that the project is innovative in relation to the state of the art. To this end, Decidim requires a space for academic and citizen research and experimentation to address the challenges and opportunities of both Decidim and participatory democracy: this is the Metadecidim Laboratories.

It is directly inspired by hacklabs, understood as collective technopolitical assemblies that critically and practically address problems circulating between society and the laboratory (Barandiaran, 2003). Unlike the traditional university laboratory or the techno-solutionist “lab” sponsored by Silicon Valley or MIT, Metadecidim Laboratories reflect the importance of design in technoculture and the practical ways of increasing social capacities for digital design, in relationship with increasing the level of participation (Sangüesa, 2013). These spaces are conceived as two intertwined layers: **Lab.Metadecidim**, the networked research space within the Metadecidim community, and the **Centre for Digital and Democratic Innovation**, an open and public-common space for critical R&D projects of free technologies for democratic cities and societies. Since 2020 the centre provides resources to Decidim and other free software communities, the Lab and to other ecosystems of democratic innovation in Barcelona.

4.4.1 *Lab.Metadecidim*

Lab.Metadecidim is an open and collaborative research network aimed at addressing key challenges in the development of Decidim and networked democracy. It is also a complex articulation of collective intelligence in and around the Decidim project. As noted earlier, it relies not only on the knowledge of the community but also of external experts. However, such knowledge is socialised and applied to the project, rather than remaining an elitist and abstract academic matter.

The network was launched at the same time Metadecidim community was born. The first Lab.Metadecidim activity took place at the First Annual Metadecidim Conference in 2016.²⁹ Between 2017 and 2019 Lab.Metadecidim hosted 17 sessions³⁰ on Decidim challenges and relevant problems of the networked democracy, such as “Democratic innovation guided by simulated models”, “Democratic governance of digital commons infrastructures”, “Digital ontologies of participation”, “Investigating new democratic governance models for new scales of cities”, “Strategies of engagement for democracy”, “Digital identities”, “Verification and democratic processes”, “Political gamification”, “Strategic planning and participatory budgeting”, “Feminist perspectives in Decidim”, “Participation technologies for public policies guided by citizen science”, “Citizen participation technologies for cultural management and production”, “Technologies for citizen participation for social movements and organisations”, “Administrative-legal validity for digital

²⁹<https://meta.decidim.org/conferences/jam16?locale=en>

³⁰<https://meta.decidim.org/assemblies/eix-lab/f/87/>

participation”, “Data visualisation for democratic participation”, “Radical democracy stories: narratives for citizen participation and networked democracy”, “Indicators for democratic quality” or “Participatory design for digital and democratic platforms”.

An objective of the seminars is to network with communities of experts in topics related to Decidim’s challenges. It also aims to contribute to globalising Decidim as a project. For this reason, the Lab.Metadecidim seminars involve experts at the local, national and international levels. Each seminar is usually made up of two sessions, separated by a coffee break. The first part begins with the presentation of the challenge and the research questions by a member of the Decidim Team (usually, a person who has contributed to design the seminar). Then, invited lecturers give 10–15 min talks to share their knowledge with the Metadecidim community. This is followed by an open debate with the attendees, including a group of local experts (primarily from the Barcelona metropolitan area) who are also invited to the seminar. After the break, the second part is aimed at generating, in a participatory, deliberative and informed manner, proposals for orienting or improving Decidim (and, sometimes, Metadecidim). The nature of the proposals (new theoretical approaches or technical functionalities, systems prototyping, bug detection, etc.), as well as the facilitation methodology, varies according to the specific needs of the issue at stake. In every session, videos of the talks and of the debate are recorded, and these contents are available at the Metadecidim site, to provide access to community members who could not attend the event.³¹

4.4.2 *Centre³² for Digital and Democratic Innovation (Canòdrom) in Barcelona*

In recent years, many cities have set up citizen laboratories to address a wide range of problems. Taking advantage of the trajectory of the Decidim project as a technopolitical device for democratic innovation, and Lab.Metadecidim as networked and participatory space for research, the Centre for Digital and Democratic Innovation³³ was born in Barcelona in 2020 to address local and global challenges in an intelligent, participative and democratic way, with special attention to problems of governance, social innovation, free software, critical tech development and co-management of commons. The Centre is therefore an open, participative and networked space, offering knowledge, human resources, technology, legal

³¹ <https://Metadecidim.org/assemblies/eix-lab/f/87/>

³²In Catalan it is called “Ateneu” and refers to the popular Ateneus, cultural centres that were widespread in the city of Barcelona in the late nineteenth and early twentieth centuries. These spaces were places of meeting, culture and popular education and also of political organisation with a strong link to the anarchist tradition in the city during that period.

³³<http://canodrom.barcelona/en>

support and funding for democratic and collaborative research and innovation beyond Decidim, but taking it as a tool and as a model.

The Centre is located at “Canòdrom”, a 1753 m² municipal historical building, within the Sant Andreu district. It includes shared public resources (working spaces for collectives, open spaces for workshops, auditorium for events and talks, tech infrastructure, a bar, etc.), open and managed with the resident projects and the public. The space is projected as an inter-institutional, public-common, critical R&D +I space. Furthermore, the laboratory aspires to serve as a pioneering node in a network of municipal laboratories of sociotechnical, democratic experimentation in Barcelona and beyond, covering a wide range of areas: culture, technology, economy, politics, etc.

The Centre is the physical space where the Decidim Team works on a daily basis, where the DecidimFest has been celebrated since 2020 and where most of the Decidim ecosystem that resides in Barcelona meets. Part of the physical space, tables and panels have been designed by members of the Decidim Team to foster recombinant collaboration.

Beyond Decidim the Centre has different missions for the long term, including:

- Offering services, resources and infrastructures for the development of co-decision, co-design and co-production projects
- To promote critical citizen research and synergies with academia, institutions, industry and society to face different urban problems
- To prototype models of critical technology, citizen science, sociotechnical innovation and co-management and governance of urban laboratories
- To generate a productive ecosystem of services around digital and democratic innovation
- To experiment with new functionalities and applications of Decidim, including its use in the governance of the Canòdrom community itself
- To nurture inclusive and intersectional (feminist, anti-racist, anti-ableist, etc.) approaches to all these missions

4.5 Education: Training, Empowerment and Mediation

As we have repeatedly insisted throughout this document, Decidim is a technopolitical project aimed to radically democratise society. One of the key modern tools for producing, reproducing or transforming society (especially, after the Enlightenment) has been education. Through education, people gain capabilities (sometimes, incapacibilities too). In this sense, Decidim also relates to education. And it does so in primarily two ways: firstly, the potential of Decidim presupposes certain capabilities from users, who, for this reason, require specific forms of training, awareness and capacity-building, and, secondly, Decidim and its broader logics of technopolitical democratisation may contribute to transform education itself (with a virtuous twist).

Throughout the years, various materials and courses have been developed to facilitate a rich deployment and empowered use of Decidim. There are three fundamental profiles when it comes to educational materials and activities around Decidim: participants, administrators and educators. Each requires a specific type of educational path. The first training material on the project was designed for participants and educators of all ages and was focused on basic learnings on issues related to democracy in a digital society and how to teach them. The “Decidim training”,³⁴ which was designed in 2017, was linked to the Decidim vision and included lessons of two key types: the first set focused on raising awareness of how surveillance capitalism works and how to protect ourselves from it. This educational set touches on topics going from the way mobile communications work up to digital corporations’ data extractivism, as well as the resulting need to protect oneself and one’s own data in the digital realm. The second group of lessons was centred on emancipatory technopolitical possibilities for democracy, ranging from lessons on technological sovereignty and technologies for collaborative work to networked democracy. This second group included lessons on critical awareness raising and capacity-building for exploiting Decidim’s capabilities. For trainers and educators, the curricula included lessons on how to organise educational sessions and on how to teach these issues to kids and adults.

Later on, in 2018, a specific Decidim site³⁵ was set up in order for administrators to learn how to use Decidim in a rich way. This primarily implies learning how to use the software and, moreover, learning how to design good participatory spaces and processes. Since this site was set up, hundreds of administrators have received courses supported by it. This specific Decidim instance includes educational resources such as formative materials, meetings for offline or online courses, step-by-step tutorials, exercises, exploratory sandboxes and more.

Finally, more recently, the *Athenaeum for digital democracy* at Canòdrom has become a hub of training courses for citizens and administrators. The citizen courses entitled *Atenea Cibernetarium Canòdrom*³⁶ are oriented to promote digital literacy among citizens. Unlike other digital training spaces (including others managed by the Barcelona City Council), these are centred in free software with a feminist perspective. The courses are oriented to actual or potential administrators of Decidim sites, including civil servants, as well as people generally interested in Decidim. They are adapted to various levels of familiarity with the platform, are primarily practical and are oriented to enable proactive and creative relations with the platform, while including some formative material on democracy and digital society.

These are preparatory courses, tools and trainings for learning Decidim and beyond. They are aimed to stir knowledge, equality and empowerment around the relations between technology and politics. However, the ultimate schools of such a technopolitical democratisation are the sites in which all of these lessons may be

³⁴See <https://training.decidim.org/>

³⁵See <https://edu.decidim.org/>

³⁶See <https://canodrom.barcelona/en/node/49>

applied and lived: public institutions, social organisations and economic enterprises where they may be enacted, shifted, translated, questioned and enriched. Some of those sites are educational in the usual sense of the term. We talk of projects such as Decidim Schools, mentioned in Chap. 1, or others such as the Democratic Digitalisation project, promoted by the Directorate for Democratic Innovation and oriented to deploy free tools (e.g. Moodle, Jitsi, OpenOffice) against Big Tech platforms currently colonising primary and secondary education (e.g. Google Classroom, Windows Office). Education for enabling Decidim (and its vision) and Decidim (and its vision) for transforming education, reciprocally operate as a potential school of networked democracy.

References

- Barandiaran, X. E. (2003). *Activismo digital y telemático. Poder y contrapoder en el ciberespacio* (v. 1.1). Metabolik Biohacklab. <http://sindominio.net/char%20126elax%20xabier/textos/adt/adt.pdf>
- Calleja-López, A. (2017). *Since 15 M: The technopolitical reassembling of democracy in Spain*. [PhD Thesis, University of Exeter]. <https://ore.exeter.ac.uk/repository/handle/10871/29295>
- Lessig, L. (2006). *Code: And Other Laws of Cyberspace, Version 2.0*. Basic Books.
- Pereira de Lucena, A., & Blanco-García, A. (2016). *Propuesta de cambios en la Arquitectura de Consul*. GitBook. <https://alabs.gitbooks.io/propuesta-de-cambios-en-la-arquitectura-de-consul/content/>
- Sangüesa, R. (2013). La tecnocultura y su democratización: Ruido, límites y oportunidades de los Labs. *Revista iberoamericana de ciencia tecnología y sociedad*, 8(23), 259-282.
- Vila-Viñas, D., & Barandiaran, X. E. (Eds.). (2015). *Buen conocer / FLOK Society: Modelos sostenibles y políticas públicas para una economía social del conocimiento común y abierto en Ecuador*. IAEN-CIESPAL. <http://book.floksociety.org/ec/>
- Winner, L. (1986). Do Artifacts Have Politics? In *The Whale and the Reactor: A Search for Limits in an Age of High Technology* (pp. 19–39). University of Chicago Press.

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Chapter 5

A Technopolitical Network for Participatory Democracy: The Future of a Collective Platform



There is no need to fear or hope, but only to look for new weapons.
Gilles Deleuze

5.1 The Future of Decidim

So far we have covered the historical development, the philosophical foundations, the political principles, community practices and technological stack of Decidim as a project. By the time you read this, some of the content will already be outdated. The Decidim network is open to creative evolution, like any genuine democratic network should be. It is open to question its foundations, to critically assessing its past and, particularly, to always interrogating its future and that of the societies we live in. It is not our aim here to define and close Decidim's future, but to identify some of the challenges and opportunities that the project and the community will have to face in the coming years.

5.1.1 *Decidim's Past: Lessons for the Future*

The experience accumulated along the history of Decidim brings forth a set of lessons at various scales. At the political level, we have often witnessed a mismatch between the technopolitical principles of democratic design and the political-institutional complexities, fears, resistances and limitations. While the functional possibilities for participation are enormous for Decidim, in most use cases, they always end up being reduced to a few, often low-quality, options where participants are restrained on the direct expression of their preferences (no support or voting mechanism are activated), open debates are absent or highly limited, etc. However, these fears and preventive limitations have started to change. The widespread adoption of Decidim by different governments has allowed the standardisation and wide adoption of some participation models, forms and practices (most notably

participatory budgeting, but also strategic planning and citizen initiatives). But there is still a long way to go towards standardising powerful and high-quality participation models. At the political-institutional level, representative democracy has not adopted Decidim as a vehicle of their own dynamics (despite Decidim's full potential to accommodate official council or parliamentary dynamics) and has rarely given genuine decision space to participatory democracy in Decidim. This has often resulted from reasons of political will, and others from excessively narrow legal frameworks from higher-order political institutions (such as the Spanish government prohibiting referenda at municipal scales). In some cases, most notably Barcelona's attempt to bring to a referendum the municipalisation of water management, Decidim have faced fierce opposition from big corporations, such as Agbar, mobilising legal and communicative resources to discredit, block or even sabotage direct decision-making capabilities.

There is also a tension between the technical and the political. The active and passive resistance within public administrations to adopt technologies like Decidim is significant: fear of change, heavy dependence on software solutions run by big corporations, difficulties on innovating in public procurement processes and the inability to envision new relationships with technology are among the most notable challenges. In this sense, the Barcelona City Council has been a proof of concept of how it was perfectly possible to introduce new forms of FLOSS into public administrations to innovate at all levels: technical, technopolitical and political. Others have gone even further by deploying the service in-house, resulting in a full digital sovereignty for participatory democracy. However, problems are still widespread with communication departments that heavily rely on traditional media and social networks and under-appreciate the strong potential of Decidim to become one of the primary communication networks between governments, public administration and citizens.

Beyond the arena of institutional politics, hurdles have been faced too. While some notable installations in cooperatives and collaborative economy projects stand out, there are very few use cases led by social movements or autonomous civil society groups. A proper analysis of this failure is still needed, but some hypothetical causes could include technical and financial difficulties for deploying Decidim infrastructure and training, lack of self-organising technopolitical features in Decidim (something we will address later in this chapter) or, finally, efficient technopolitical usage of other existing infrastructures.

At the purely technopolitical plane of Metadecidim, there remains challenges, such as improving the democratic governance of the project. This may be achieved by increasing the typology, quantity and quality of inclusive citizen involvement in decision-making, from software design to project strategy. A second challenge is to ensure the economic sustainability of Decidim and the community itself. Nowadays, the reliance on Catalan institutions remains a critical dependency that is progressively being dampened by a sustainability strategy involving donations, private partners within the community and external resources from global digital funds.

The brief history of Decidim has also taught us that some technical frozen accidents can bear important consequences, oscillating between the technical and

the technopolitical plane. We inherited Ruby on Rails (RoR) as a programming language and framework from `decide.madrid.es` (whose software was latter called Consul). This was, and still is, a rather limitative choice. There are very few RoR programmers and the learning curve is very steep. Nevertheless, this decision had the effect of limiting the participation of large companies in public tenders, and to open opportunities for small-sized companies, of a more artisanal nature and with a more solid hacker and open culture. At the same time, this decision left out the FLOSS communities most likely to participate in a project of this nature (e.g. those coming from Python or PHP environments). This might be one of the factors, certainly not the only one, explaining the gender and origin inequality in development, with a substantial majority of code contributors coming from Western, young and male programmers (despite systematic efforts to compensate for it, like the DecidimFemDev initiative). The quantity of contributors to the code, however, is big (compared to other projects of the same size, often led by a single company and one or two main programmers). This is often interpreted as a problem in terms of consistency and continuity of development, but has also turned into a community virtue, resulting in a more democratic and participatory codebase that does not depend on a single individual or organisation.

5.1.2 The Challenges of Artificial Intelligence and Computational Complexity

In Sect. 2.4, we have addressed various theoretical and political aspects of the rise of artificial intelligence, including its relations to collective intelligence and to the political philosophy underlying the Decidim project. Now we can address more concrete details of the future relations that could be established between AI and Decidim.

AI as assistant. The potential of AI as an assistant expands to the three layers we have stated. Starting from the technical layer where artificial intelligence has already shown a notable increase in productivity and could also assume an increasing number of tasks on cleaning, testing and refactoring (as some GitHub bots already partially do). It is still to be seen how much artificial intelligence could facilitate and democratise the transition from design to coding. At the technopolitical level, assistance could not only help training and integrating newcomers into the community but also, and more importantly, on facilitating the configuration of the platform. The risks are also notable: this automatisisation of administrative power will certainly hide political biases and could preclude a deep and autonomous understanding and appropriation of the platform. At the political level, AI systems may contribute to democratise the quality of proposal writing by improving language choice and structure, helping to synthesise or providing useful information or references or even facilitating collaboration. It may also guide participants through or help them

imagine different legal, economic, ecological or social antecedents and future implications of their proposals.

AI as participatory automata. This is already a growing concern and will inevitably augment in the future. The increase in the quantity and quality of bots or automatic participants fuelled by AI can destroy entire democratic communities. This is particularly dangerous with commercial spambots and armies of digital automata at the service of a few. Avoiding such risks will demand a more intensive use of authentication methods for participants and developing detection methods. There are also opportunities to explore more creative uses of participatory automata that could enhance democratic quality and diversity, like their use to represent non-human agents (like animals) into a participatory space. In the midterm, such AI systems, exposed to personal control (from data to performance), democratic design and justice checks, might serve as delegates (always subject to recall and aimed at keeping specific forms of political activity alive) of participants.¹

AI as interface. The future of digital interfaces is nowadays oscillating between (and might probably converge around) augmented reality (AR) and AI-mediated voice interfaces. Many potential and practical uses of large language models involve their capacity to execute complex digital operations by means of linguistic (textual or voice) prompting: a paradigm change from command-based interaction to intent-based interaction where we don't tell the computer what to do but what we want to get (Nielsen, 2023). If this paradigm shift becomes generalised, it will pose an important challenge to the way Decidim has been designed so far.

AI, alignment and regulation. We should not only think how AI will impact the project, but also how Decidim could impact AI. In this sense, the most promising entanglement is that in which Decidim is used to collectively govern the relationships between AI and humanity (or human communities). A spreading concern regarding the possible emergence of artificial general intelligence (or superhuman intelligence) is how we should align it with the good life of anyone and everyone (Bostrom, 2017). Stuart Russell (one of the most prominent figures of AI) has suggested that one way to ensure the alignment between AI behaviour and human goals is to use learning procedures where humans don't directly specify the ultimate goal to the AI but provide feedback to stir it (Russell, 2019). This and similar approaches to the alignment problem can only be properly evaluated and enacted democratically, and Decidim stands as a unique interface to channel collective steering of AI. Moreover, calls for AI regulation might also benefit from using Decidim (like other big democratic challenges, e.g. climate crisis, have already done).

Artificial life and Decidim. Beyond the current hype of AI, alternative or parallel complex computational mediations might be envisioned to boost democratic processes. Some collective intelligence mechanisms are already in place on Decidim, but they make no use of the rich data and interaction possibilities that the platform

¹This is understood as an experimental possibility, which implies doubts (with varying strength) even among the authors of this book.

affords. Drawing inspiration from life itself (not only from human intelligence), it is possible to envision multiple ways of implementing bottom-up artificial life techniques to enhance democracy (Barandiaran, 2019)—some kind of digital permaculture for the democratic life that grows in a Decidim platform.

5.1.3 *Federation, Self-Organisation and Decentralisation*

An important aspect of the future of Decidim has to do with its potential for increasing federated interconnectedness, decentralisation and capacity for self-organisation beyond the administrators/participants dichotomy—all forms of augmenting (autonomous) agency and distributing power while promoting collective coordination, organisation and action.

Federated technologies, exemplified by standard protocols like ActivityPub, have made significant strides in recent years. These protocols are increasingly prevalent among open-source communities for content sharing across different platforms. For Decidim, the first challenge lies in further developing technical forms of federation to enable seamless content sharing between instances. This presents not only a substantial technical opportunity, but also a chance to ensure infrastructure sustainability. Technical federation provides an opportunity to contemplate technopolitical federated governance models wherein content and supra-instance governance are shared, while exploring and experimenting with types of political federation, thanks to the interactions and agreements between instances. This may enable new models and scales of political governance (e.g. global intercity networks, multiscale organisations, etc.) with high potential for democratic innovation.

Decidim has grown in parallel to a radical trend towards a decentralised and cryptographically guaranteed democracy stack that includes identity management systems, voting systems, smart contracts and other digital infrastructures often assembled around the concept of DAO—Distributed Autonomous Organisation (Santana & Albareda, 2022). Some of these initiatives have failed (DuPont, 2017), others have grown already but provide only partial elements for a full democratic infrastructure like identification systems (Siddarth et al., 2020), others promise to deliver high-quality solutions,² but to our knowledge none has been put to practical use at the scale and extent of Decidim. Unlike other domains (typesetting, calculating, mailing, document sharing or even banking), attempts to (fully) digitalise democracy are recent, and decentralised architectures make fast innovation, prototyping as well as continuous, adaptive and recursive democratic redesign more difficult. The relatively centralised character of Decidim's instance administration has been critical to its adaptive success. But at the cost of a high dependency and trust over the administrators of the platform and the integrity of the server. This makes Decidim (like any other human-driven institution or administrative

²<https://daostack.io/>

procedure) vulnerable to very strong pressures or high-conflict scenarios. Ideally, democratic infrastructures should be resistant, by default, to these conditions, and the technical possibilities on this front are growing. Part of the future of Decidim may be tied to these projects. It already is. In this direction, Decidim has not only developed its own cryptographic and secure voting system (see Sect. 3.2.2) but has also facilitated an easy integration with other cryptographic and distributed free software blockchain-based tools such as Vocdoni.³

Democracy cannot be contained within the strict limits posed by any administration. It will always spill it. In this sense, Decidim's future will be determined by the way in which it expands its capacity to foster spaces of self-organisation within or through the platform beyond the specific spaces and components officially activated by the administration. The current potential of the platform for creative reappropriation of the democratic mechanisms by participants is poor. The biggest technical challenge to solve this problem is to progressively blur the boundary between participants and administrators. The self-convening of face-to-face meetings has been a great recent leap in this direction. Independently of administrators, participants can now call for meetings and self-organise them. They can also already promote and manage their own citizen initiatives. Expanding this possibility to online components could dramatically increase the potential of the platform. One way to do so could be the freedom to activate components like proposals, debates or blogs by participants on their profile page. This would avoid the intermediation of administrators and would give full autonomy of content generation to the participants, opening up the democratic power of a community from the moment Decidim starts to run. Another possibility to reduce the administrator-participant barrier is to support collective moderation distributed among participants by lottery, avoiding the involvement of administrators in content management and collectively assessing content complaints.

5.1.4 A Future of Democratic Quality

At the beginning of this book, we made clear that a project like Decidim might be necessary, but is certainly not sufficient for advancing democracy. There is no future for Decidim or for democracy without a deep transformation of the material living conditions, the social (and global) inequalities and the myriad of oppressive structures that are reproduced every day. Decidim should leave no room for techno-solutionism (the idea that social or political problems have technological solutions). It should equally debunk techno-fatalism. It already has. Decidim is an example of how it is possible to create and deploy a large-scale, radically transformative software project out of the platform capitalist model. An important challenge to any radical democratisation process (particularly when addressing struggles) is the

³<https://vocdoni.io/>

problem of coordination of collective action. This is where Decidim should be ready to become a valuable infrastructure, which may then contribute to address the challenges of complexity and conflictuality of society.

In turn, the practical use of Decidim involves a set of present and future challenges. Using Decidim requires expertise, so its future success involves the capacity of the community and the association to provide appropriate technopolitical support and guidance. Equally important for this task is the development of intensive R&D+I programs that define and promote technopolitical standards to measure democratic quality (deliberativeness, inclusiveness, effectiveness, etc.). On the other hand, an immediate practical risk is that of being instrumentalised with the aim of patching up the democratic system without carrying out any profound transformations or, even worse, hiding lack of democratic quality with the platform: that is *participatory washing*. There are a number of technical provisions in place to avoid such a misuse of Decidim (such as the social contract or Decidim's default configuration). But the leadership of the association and other institutions will be crucial to assess and denounce misuses (e.g. through observatories) and promote good uses (e.g. through quality seals). The aforementioned quality measurement indicators could also be very valuable for shaping these tasks and mechanisms. The open Decidim community (as a space of participatory governmentality) should always be the space where all of them are collectively conceived, evaluated, and established.

5.2 A Technopolitical Network . . .

We stick to the term network because it is still today easily understood in everyday language: many people in the Decidim community conceive of themselves as part of a network, and the word includes an explicit reference to work (as noted by Latour, 2005), to forms of peer production (Benkler, 2006), to production and channelling of collective energy as a complex living network (Kauffman, 2000). The key products here are three: software, a community and new participatory forms (e.g. processes and institutions). These are, respectively, the key technical, technopolitical and political materialisations of the project.

As we have stressed throughout the book, the key lies in the assemblage between the three, and its central element is Metadecidim. Metadecidim as a technopolitical network is a working process much more than a structure, oriented to democratically politicise and technically recraft both politics and technology. It is as diverse and hybrid as any complex contemporary assemblage⁴ (a useful concept to think through the heterogeneity and partial autonomy of its elements): it comprises executing code

⁴The concept of assemblage is useful to stress the heterogeneity, interrelatedness and yet partial autonomy of its elements, against the reduction of things to relations in some versions of actor-network theory. For an account of the relations and differences between the actor-network and the assemblage concept, see Müller (2015).

(hundreds of thousands lines of code), workers (hundreds of them, distributed in different institutions, companies and associations), digital content (with hundreds of thousands of proposals, debates, comments in hundreds of Decidim instances), learning dispositives, hacktivists, caring procedures, feminist researchers, servers, developers, code repositories, reconfigurable tables and panels with post-its on a lab, international Telegram groups, notification feeds and spambot cleaners. Each of those can be plugged and unplugged from the assemblage, but their actions and interactions contribute to shaping the very network.

In turn, this technopolitical network produces software. And this product (that itself sustains the assemblage that produces it) can also be conceived as a technical or technological network, plugged to other software networks. As a Ruby on Rails gem in itself, Decidim is composed of gems, and each module (spaces and components) is a gem. When installed, the gems deploy the whole platform and bring with them an underlying network of software package dependencies from other free software projects (usually in the form of other Ruby gems that don't belong to Decidim). We already explained how Decidim can be integrated with other tools to deliver a network of services (maps, calendars, video calls, pads, etc.). Moreover, as we have seen, the Decidim software defines and promotes politics as a complex, hybrid, networked process that brings together institutions with individuals, nested participatory spaces with collective agencies and debates involving votes or proposals with offline meetings. In terms of Decidim's architecture, design principles such as the modularity, hybridisation and polymorphism increase the assemblage effect, while multi-tenancy and Federation intensify the rhizomatic nature of its connections and multiplications. Participatory spaces are assemblages of components and component types are assemblages of component tokens (specific proposals, debates, blog posts, hashtags, etc.) that generate a complex interaction network.

This constitutes Decidim as a *political network*, distinct from the informational and social networks that preceded it. In informational networks the key is information; in social networks, interaction; and in the political ones, decisions, commitments and collectivity. As has been stressed in earlier chapters, the centrality of collectivity in Decidim is present in a variety of forms, from the narrative of "we decide" to the architectural technicalities of design principles such as that of multiplicity of agency (exposed in Sect. 3.1.2) oriented to allow collective actors to operate in the platform along individuals or organising institutions. Seen from this light, Metadecidim is a technopolitical network because it deploys a political network such as Decidim to rethink and remake (otherwise, to politicise, in a democratising direction) both politics and technology, starting with the politics and the technology of its own community and, thereby, Decidim itself as a software.

But beyond the community, its potential as a political network must be understood in its context. As noted in Chap. 1, its way of reassembling politics points beyond neoliberal representative politics and its crises and connects with radical democracy movements, from the alter-globalisation and Occupy/15M to Extinction Rebellion. Decidim also goes against the dominant cognitive and platform-capitalist model of digitalisation. On the technical plane (as noted in Chap. 4), it works against

the centralising, privatising, closing and fragmenting logics of that dominant model while working in a privacy-preserving and free commonalisation, reopening and federating direction. On the technopolitical plane, unlike corporate platforms, Decidim is highly configurable (as exposed in Chap. 3). The flexibility and modularity in the combination of spaces and components allows the design of participation systems adaptable to multiple needs, providing high levels of autonomy to organisations in the operationalisation of their democratic governance models. On the political plane (as noted in Sects. 2.3 and 2.4), it aims to go against the social dynamics typical of platform capitalism: against mechanisms of vigilance and influence from above (surveillance and *surwilling*), it aims to favour mechanisms of vigilance and influence from below (*subveillance* and *subwilling*); instead of mass communication, it fosters free multitudinous self-communication; and instead of individualism, corporate intelligence and inaction, it is oriented to potentiate collective and common subjectivation, intelligence and action. It also embodies and benefits from all this, via Metadecidim. This brings us to the type of social dynamic that this technopolitical network aims to produce: participatory democracy.

5.3 . . . for Participatory Democracy

In Chap. 2 we distinguished three models of democracy (representative, direct and deliberative) and suggested that the participatory model may encompass and recraft those three (make them strong, as suggested by Barber 1984). However, a radical reading of participation as *pars capere inter pares*, as taking part as peers, points towards a stronger form of politics and also towards an alternative form of society. Decidim is a software and a project oriented to embody and promote that vision.

We have shown how Decidim helps to rethink the intervention of citizenry and social actors (e.g. associations, cooperatives) into the public policy cycle, from the inception of a given policy to the long-term monitoring of its result. At the scale of public administration, Decidim helps to redefine the boundaries between the inside and the outside of those institutions, somehow remaking the geometry of government. The new forms of democratic innovation connected to the Decidim project point towards a reorientation (rather than a hollowing out or neoliberal transformation) of public institutions and technologies, towards alternative modernities, guided by the idea of the commons, creativity and multitudinous reappropriation of social life. That means defining, implementing and innovating in concepts and criteria related to democratic quality and public service, countering the more traditional principles of public institutions, such as representation, hierarchy and efficiency (in the traditional Weberian model) or privatisation, competition and optimisation (in the New Public Management model of neoliberalism), with the Decidim logic of bottom-up empowerment, radical democratisation and public value.

The public-common partnership underlying the Decidim project points in this direction, at least, when it comes to the development of Decidim as a project and as an infrastructure. The collaboration between Barcelona's City Council (and, later on, other public institutions) and the Metadecidim community, as well as the continuous work of *technoacracy* by the Decidim Team (in fields that go from programming to legislation and from education to communication), is an example of the possibilities of such a public-common partnership, with its various limits and challenges.

Participation should go beyond public administration and the state; it should not stop at the factory gate or the commercial centre. Decidim did not only establish a prototype of public-common partnership but an economic ecosystem of services around the platform in which heterogeneous, quadruple helix actors, led by a partnership between the state and communities, have brought about digital commons accessible to anyone. The project has been able to mobilise incentives and commitments for such a variety of actors, becoming itself an experiment of democratisation and commonalisation in the economic field. The use of Decidim to make decisions within large consumer and producer cooperatives (such as Som Energia) and its adoption by several third sector initiatives is another example of how the project contributes (and can further contribute) to the democratisation of the economy.

As a digital platform for participatory democracy, Decidim has to face one of the greatest of democratic challenges: that of planetary autonomy and sustainability. In this sense, Decidim can become a crucial tool for potential transitions towards sustainable futures. Social movements, such as Extinction Rebellion, reclaim democratic assemblies as one of the key means to advance in this transition. In a similar (but state-driven) direction, public institutions have deployed Decidim for organising participatory climatic assemblies in places like Barcelona, Spain and France.

Here, again, is a good space to recall that we started this book with the acknowledgement that a platform for participatory democracy, collective autonomy, technopolitical democratisation, etc. is today a condition, but certainly not a sufficient condition for a strong and rich democracy. It will only succeed if it becomes part of processes of sociotechnical transformation that go way beyond it. Decidim was born out of a technopolitical trajectory that had as its cornerstone the 15M movement and the political cycle that came after it. A long hope is that we may find a necessary alliance with contemporary social movements (economic, ecological, feminist and technopolitical, among others). Decidim (or any other technology for that matter) is not and cannot be the subject of any democratic revolution; it can only contribute to it, to take part in it and to participate in the strongest sense. It is not enough that Decidim is an appropriate platform for that task; it also has to be appropriated.

5.4 Autonomy of a Collective Platform in the Age of Digital Intelligence

Metadecidim is a community that collaborates in the design of the platform and the construction of the project. It is also an instance of Decidim software⁵ that enables (along with face-to-face events) the community to do so. The communities and practices that surround Decidim redefine it as it redefines them. The prescriptions inserted in the code are rewritten by the inscriptions inserted by actors in action. This process can go from unexpected uses to the actual redesign of the platform. This is the primary objective of the Metadecidim community.

Metadecidim implies several key innovations. The first is its condition as a technopolitical digital network and community: in both senses, Metadecidim is oriented to design Decidim as technology and to decide it as a project. This is a work of self-institution, as Castoriadis may point out. A second key innovation concerns how Metadecidim steers the project into technopolitical democratisation: on the one hand, Decidim is a technology and a project for the democratisation of democracy, aimed to bring existing democracy beyond the liberal representative model; for that it questions, incorporates and experiments with different visions and practices of democracy (as analysed in Chap. 2). On the other hand, Metadecidim is a space and process for democratising technology (concretely, Decidim technology) bringing it beyond the technocratic and the private model of software design, development and management. In the field of public administration, this implies a model of technoacraçy opposed to technocracy.

This work aspires to ignite a “spiral of technopolitical democratisation” (Calleja-López, 2017): a recursive loop of deployment of technology and technologically mediated processes for furthering political democratisation feeding back with processes of democratisation of technology. This brings about a relevant political feature: it nurtures a recursive subject or participatory subject, which democratically shapes the (technopolitical) conditions for its exercise of agency in different fields of digital societies, and modulates itself as a recursive citizenry in the field of politics, a recursive worker in the field of work and so on. It also brings a relevant technological feature: a model of democratic or participatory software that goes beyond free software. Projecting this practical work into the future, Decidim outlines the vision of democratic stacks built upon participatory and appropriated technologies (from hardware to various types of software and AI, and digital objects such as data) that contribute to democratise both politics and society more broadly (Calleja-López, 2021).

Decidim as a platform for democracy is aimed at democratising the social field beyond technology and politics. The reflexivity of the project is thereby not static (like that of a mirror) but recursive and dynamic (like that of a fractal unfolding), growing by including itself and its own reflexivity into recurrent loops, upwards

⁵<https://meta.decidim.org>

towards government and downwards towards governmentality, directed to transform the top(s) and the bottom(s) of an increasing number of social spheres, from technology and politics into economics, culture, education and others. The growing fractality and recursivity of technopolitical democratisation, and of Decidim as a project, embodies a deep sense of social, technical and political autonomy for itself and the societies we live in.

Note that neither reflexivity nor recursivity are perfect nor closed: autonomy is never complete and should never be understood as self-sufficiency. Moreover, in a globalised and interdependent world, no community can aspire to be fully autonomous. But there are at least three senses in which the aspiration for technopolitical autonomy is, despite unfinished, increasingly present in Decidim as a project: first, a negative sense of autonomy as subtraction from the alienating logic of platform capitalism or bureaucratic iron cages; second, a positive sense of autonomy as recursive self-determination in the technopolitical plane (on top of material and social conditions for which we also need to care); and third, an open sense of autonomy as the capacity to create new potentialities, to question the limits imposed by previous conditions and to sustain and to maintain an open future.

Moreover, Decidim's project cannot be that of an increasing and never-ending spiralling digitalisation of participation towards some kind of democratic singularity. Autonomy also means to acknowledge our own interdependencies and limitations, psychic, social and ecological. It is impossible to participate in everything; there is no unlimited energy and time in personal or computational terms. Decidim is not a digital project; it is a technopolitical project that brings with it the limitations (and potentialities) of biological, social and technical bodies, those of materiality. The acknowledgement of these limitations, and the capacity for self-limitation, is also a fundamental part of autonomy. In the age of digital intelligence we live in, autonomy demands recognising that all types of intelligence, artificial and collective, are themselves constituted by and constitutive of material and precarious forms of collective living.

5.5 Choosing Decidim as Generative Democracy

As a coagulation of hundreds of Metadecidim debates, the movement recursivity includes this very text; and so recrafts thinking, action, and, crucially, the frequently forgotten (re)production. We began suggesting that this book aims to think through Decidim after we did take part in it. Actually, we were thinking through Decidim as we were doing it, and Decidim keeps making and thinking itself today. With this book we came to recapitulate and throw out several lines of flight that show how Decidim has aimed to retie technology, politics, economics, ecology and beyond, and that flight has the form of a living animal: it is the flight of a cyborg owl. The cyborg owl can be taken as an imaginary ode to our animal and our technical, increasingly post-natural and allegedly post-humanist condition. Yet this owl is not the symbol of a Hegelian self-reflective movement that satisfies itself in

contemplation, but the owl that flies in the evening to bring, back to the nest, the provision to sustain a new day. It is reflective action and active reflection aimed at producing and reproducing flourishing forms of life.

At this point we want to recall the centrality of collective living. Earlier we pointed out how Decidim (that Catalan “we decide”) embodied a technological interpellation to us as a collective: to our collective self, a form of collective subjectivation. Then we noted that collective intelligence (human, animal, artificial or hybrid) shall be enactively understood in terms of dynamics of collective life (human, animal, artificial and, ultimately, hybrid). The same applied to collective action: flourishing personal and collective lives, their collective definition, construction and sustainability at various scales is one of the ultimate aims of (if not the ultimate aim of) collective action from the Decidim perspective.

It is worth highlighting that (as noted in a broad literature, from Latour to Stengers and from Haraway to Braidotti, with their many differences) approaching such a horizon today implies rethinking and reassembling the human and the non-human, the natural and the artificial, the individual and the collective, in ways that sometimes blur the old boundaries and always aim to promote equality and solidarity, justice, flourishing and sustainability. This may require that new actors be carefully, deliberatively and yet differentially⁶ incorporated as co-constituting the *demos* (or *demoi*). Otherwise, it aims to reassemble them in democratic forms that avoid indifferentiation while going beyond patriarchy, racism, speciesism, coloniality, etc. and the various -isms that divide us as active, powerful collectives. Crucially, beyond capitalism too, be it qualified as informational, cognitive, platform or something else. Such rethinking and remaking is key for transitions between existing, possible and desirable forms of life, for tomorrow and the day after it. We believe future conceptions and enactments of Decidim may contribute to such endeavours.

As Bloch knew, this rethinking and remaking will require a logic of hope (perhaps also a pessimism of the intellect and an optimism of the will, Gramsci style) able to consistently imagine and prefigure alternative societies. A logic of hope that makes us part of those societies and that makes us take part not only in the present but also in the futures to come. In an age of disbelief and despair, of hypermediatically narrated doom and collapse, this is a necessary step: to take part in the reimagining and recrafting of the future. Hopefully, Decidim and Metadecidim will help to such a recraft of our collective selves (and also our personal ones) along with our present and future worlds.

Through participation, Decidim has conquered its right to be. It has transited from a struggle to be born, functional, sustainable and participated, to a stage of a relatively mature well-being. It is still a deeply interdependent and precarious project, but autonomous nonetheless, in the sense we have just outlined. This passage from the struggle to be born to a relative maturity may prefigure a passage

⁶In different forms according to their moral and ontological differences, always attending to their distinctive forms of flourishing or potentiality.

from participatory democracy to a foreseeable generative democracy. Whereas participatory democracy is more centred around the *struggle to take* (back) the pieces of sovereignty and power of which we have been deprived, the notion of a generative democracy is more centred on the *joy of giving*. At some point we might also transit from a society where the main social challenge is that of redistributing power to that in which the challenge is to generate potency, to create, exploring the virtues of plenitude and mutual gain. In this sense, no participatory democracy can fully succeed without a generative democracy, of which Decidim might also be taken as an example.

We want to conclude with a reflexive note. It is often the case that democracy is reduced to decision-making, or even to decision taking. This makes us blind to the fact that some things need to be made before a decision is taken. Decidim is one of them. We don't only change the world by using technologies; we also change the world by making technologies. And sometimes changing technologies (and the way technologies are made) also remakes worlds. But far from any techno-determinism, Decidim expresses social forms that have yet to become worlds: struggles will be the signers of their fate. Inspired by the augmented event of 15M and its social forms⁷ in the midst of a world of capitalist realism, Decidim aspires not so much to make democracy *feel* more real, but to make it *be* more real, and to collectively imagine and decide what that means. Beyond hope or fear, Decidim is a new weapon in the struggle for real democracy.

This book ends here. Decidim continues.

References

- Barandiaran, X. E. (2019). Artificial Democratic Life. Re-engineering the autonomy of the social, a research program. *The 2019 Conference on Artificial Life*, 31, 11–12. https://doi.org/10.1162/isaal_a_00131
- Barber, B. R. (1984). *Strong democracy: Participatory politics for a new age*. University of California Press.
- Benkler, Y. (2006). *The Wealth of Networks: How Social Production Transforms Markets and Freedom*. Yale University Press.
- Bostrom, N. (2017). *Superintelligence*. Dunod.
- Calleja-López, A. (2017). *Since 15M: The technopolitical reassembling of democracy in Spain*. [PhD Thesis, University of Exeter]. <https://ore.exeter.ac.uk/repository/handle/10871/29295>
- Calleja-López, A. (2021, September 29). Democratización tecnológica: Reimaginando la sociedad digital de abajo arriba. *Anuario Internacional CIDOB*, 57.
- DuPont, Q. (2017). Experiments in algorithmic governance. A history and ethnography of “The DAO,” a failed decentralized autonomous organization. In M. Campbell-Verduyn (Ed.), *Bitcoin and Beyond: Cryptocurrencies, Blockchains, and Global Governance* (1st ed., pp. 157–178). Routledge. <https://doi.org/https://doi.org/10.4324/9781315211909>
- Kauffman, S. A. (2000). *Investigations*. Oxford University Press US.

⁷Which connected back to previous autonomous movements and forward to a key political cycle.

- Latour, B. (2005). *Reassembling the social: An introduction to actor-network-theory*. Oxford University Press.
- Müller, M. (2015). Assemblages and Actor-networks: Rethinking Socio-material Power, Politics and Space: Assemblages and Actor-networks. *Geography Compass*, 9(1), 27–41. <https://doi.org/https://doi.org/10.1111/gec3.12192>
- Nielsen, J. (2023, June 18). AI: First New UI Paradigm in 60 Years. *Nielsen Norman Group*. <https://www.nngroup.com/articles/ai-paradigm/>
- Russell, S. (2019). *Human compatible: Artificial intelligence and the problem of control*.
- Santana, C., & Albareda, L. (2022). Blockchain and the emergence of Decentralized Autonomous Organizations (DAOs): An integrative model and research agenda. *Technological Forecasting and Social Change*, 182, 121,806. <https://doi.org/https://doi.org/10.1016/j.techfore.2022.121806>
- Siddarth, D., Ivliev, S., Siri, S., & Berman, P. (2020). *Who Watches the Watchmen? A Review of Subjective Approaches for Sybil-resistance in Proof of Personhood Protocols* (arXiv:2008.05300). arXiv. <https://doi.org/10.48550/arXiv.2008.05300>

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