DEGROWTH & STRATEGY

how to bring about social-ecological transformation

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Chapter 13: Digital technologies

An overview of strategies for social-ecological transformation in the field of digital technologies and the cases of Low-Tech Magazine and Decidim

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The relentless development of technology is not just a key trait of modernity, but also an essential driving force of the industrial society against which the degrowth movement stands. Consequently, one could expect to find clearly formulated analyses and visions about technology in the degrowth literature. But, surprisingly, there is little work specifically addressing technology (Kerschner *et al.* 2018) and strategic indeterminism (Herbert *et al.* 2018) on this question plagues a community that has not yet been able to properly formulate a desirable vision and related strategies – be they based on the radical critique of classic authors (Ellul 1964) or on the hopes some have put in digital commons and peer-to-peer production (Gorz 2010).

The rejection of gigantic technical infrastructures such as airports or pipelines and the use of bicycles as a symbol for a more human way of life are widespread in the degrowth movement. Yet beyond calls to limit the spread of technical devices (Latouche 2010), the dominant technological imaginary is left mostly untouched and very few manage to envision the kind of technology a world after growth would need or discuss how our current relationship with technology could be transformed. This is striking because technology, as the set of processes of producing and applying instrumental knowledge to improve the efficiency of material human action, involves and influences all of society and its institutions, so neither technology nor society can be transformed independently from the other. Therefore, a transformation strategy for technology must explain both how to reshape it and how to change its role within society.

In this chapter, we will describe the degrowth movement's

approach to the topic and then outline various strategies to transform technology. There are essentially two orientations: working with existing technology and controlling or repurposing it to progress towards a degrowth society, or struggling against the very imaginary underpinning the development of industrial technology. The former focuses on the role of technology in society, the latter on reshaping it. Thus, any strategy will have to combine both orientations to be successful.

Our analysis relies on Erik Olin Wright's typology of symbiotic, interstitial and ruptural transformations (Wright 2010) presented in Chapter 2, but also on a set of criteria used to evaluate how strategies address various aspects of the politics of technology. Noticeably, the strategies considered mostly involve actors from outside the degrowth movement who pursue different agendas – which reflects the weakness of the degrowth narrative in the field of technology. In order to convey a sense of the challenges ahead, we will end with a more detailed survey of two projects demonstrating the strengths and weaknesses of a particularly interesting strategy in the field of digital technology and suggest some leads for a sorely needed debate on desirable technological futures and the means to achieve them.

The degrowth movement between primitivism and techno-utopianism

Degrowth can be seen as a call to critically reassess the idea of progress as it was forged in the ideological framework of industrial societies. Too often, this is mocked as an attempt to "take us back to the dark ages", in a striking expression of the pervasive fear of losing a way of life defined by devices such as cars or televisions. This fear is rooted in the narrative that presents the continuous development of productive forces through science and technology as the essential condition of human wellbeing (Sahlins 1972). Support for this "myth of progress" is not limited to the heralds of capitalist production – it is also part of a certain Marxist teleology of human development, despite the relation between technology and alienation pointed out

by Marx himself (Wendling 2009). Technology thus plays a central role in the conflict between those seeking to downscale industrial production and those advocating the expansion of productive forces beyond capitalism (Bastani 2019). But which criteria should be considered in this debate? Here, we will foreground two: the relation of technology to resources and energy use, and its impact on society.

The general attitude of the degrowth movement towards technology hinges on the environmental question: what level of consumption of energy and natural resources is possible within planetary boundaries? The technologies underlying the expansion of capitalism have always been based on fossil fuels (Malm 2016) and scarce resources. Can these be replaced, and if so, how? No future can be imagined without first answering these questions. There is a widespread tendency to believe that the energy efficiency of technical devices can steadily increase, even though it is undermined by rebound effects (Herring and Roy 2007). But few answers are available and divergent views on the future of technology often boil down to a question of faith, as illustrated by the dominant cornucopian imaginary of always expandable natural boundaries (Jochum 2020). In our analysis, we will operate under the assumption that there will not be significantly more energy available in the future than today, due to fossil fuels being phased out and physical limits on renewable energy.

In the face of ecological uncertainties, another criterion is often used to assess the role of technology: its impact on human relations and the shaping of societies. Again, divergent views coexist in the degrowth movement. Whereas the figure of Skynet, an artificial superintelligence wiping out humankind in the movie *The Terminator*, echoes the ambivalent relation of humans with their own creations (Anders 1956), information technology is the cornerstone of many post-capitalist visions of society (Mason 2015) with which many in the degrowth movement sympathise. On a strategic level, it seems difficult to make a new imaginary appealing if it is widely deemed too technophobic, and the global blending

of cultures already achieved by modern means of communication (Appadurai 1996) should not be overlooked and cannot be rolled back. Moreover, the socio-political implications of introducing new technology cannot be fully determined in advance (Winner 1986). This all makes transforming and directing technology towards degrowth rather difficult.

The sheer amount of distinct technological fields forces us to focus our attention, and here we will mostly choose examples from one specific form of technology – digital technology, which encompasses all processes collecting and manipulating information using electronic devices. There would be much to say about bio- and nanotechnology, or space exploration, but nothing within current discourses appears as likely to reshape society and help to overcome the climate crisis as digital technology. And indeed, it is increasingly transforming democracy, work, and our use of resources. So what potential lies in this process? Digital technology is the foremost strategic field of our times, because it is at the heart of the green growth narrative, promising the dawn of a dematerialised and cognitive capitalism (McAfee 2019). It has been mobilised to support the ideological function of technological discourse, reframing industrial economic policies as paths towards sustainability, using for example the vocabulary of *smart cities* (European Commission 2020). Questioning the transformative potential of digital technology should thus be a priority for the degrowth movement.

However, from the radical democratic aspirations of the internet culture of the 1990s to the data monopolies of giant digital platforms (Srnicek 2016), and from staggering energy consumption to the promise of a dematerialised economy (Hickel and Kallis 2019), the gap between discourse and reality makes it difficult to define strategic goals. More than any other artefact, computers can shape very different technological imaginaries. But a path between fear and frenzy must be found: a radically primitivist narrative ignores too many realities, while techno-utopias mostly ignore natural boundaries and run counter to degrowth principles by demanding

ever more technology to balance the unpredictable effects of technology itself. As we will see in our analysis of strategies for transforming technology, navigating the contradictions of possible (digital) futures is an ongoing challenge.

The difficulty of shaping technology from a degrowth perspective

While degrowth as a slogan has played an important part in questioning various economic orthodoxies and suggesting new paths in the face of social and environmental disasters, in the field of technology it often appears limited to a critique of planned obsolescence and totalitarian tendencies to surveil or control our lives. The primary cause for the prevalent strategic indeterminism – the lack of a clear goal or of the means to achieve it – ironically seems to be deterministic views on modern technology, tending to describe it as either entirely dispensable or absolutely necessary (Eversberg and Schmelzer 2018). Both options are obviously unfit to support a reasonable strategy, the challenge being to envision the kind of technology that can be deemed necessary in a degrowth society.

How can the development of technology be reappropriated by the many? Inventing convivial tools means being able to assess their impact on the natural and human world (Vetter 2018). Our analysis distinguishes between four interlocking dimensions. *Ecological sustainability* is a measure relating the quantity of natural resources used in producing and deploying technology to their regeneration rate. *Social justice* addresses the ties of technical systems to privileges and power relations. *Self-determination* describes the individual and collective degree of control over the course of our own lives. Finally, *interdependency* defines the structure of necessary interactions among humans through and with the artefacts they create. It is not easy to balance these dimensions, and transformation strategies usually prioritise some over others, depending on their goals and ideological contexts. The four following strategies take these different aspects of technology into account in very different ways.

Green New Deals: industrial sustainability through efficiency

A first strategy is the symbiotic one, often labelled as the Green New Deal. Something akin to it is currently advocated for by many states and environmental organisations attempting to reach a transformative threshold through small steps, beyond which an industrial society would become sustainable (European Commission 2019). It focuses mostly on ecological sustainability and often focuses on demanding legislation against planned obsolescence – as the *Right to Repair* campaign does in the European Union – or improving recycling or upcycling rates and making cities *smart*. Crucially, energy and resource efficiency must steadily increase. Pressure on the industry is ensured through economic means, increasing prices for natural resources through taxes. The threshold is crossed when all energy is renewably produced, goods are durable and all materials cyclically reused without losing their integrity or quality. This strategy applies to technology in general, but the focus on ecological efficiency is usually associated with the transition to a digital post-industrial economy striving for qualitative development.

However, even digital technology is not immaterial but requires massive infrastructure and the industrial production of countless devices (Bratton 2016). Further developing our technical infrastructure or even just maintaining current technological standards in the Global North under this strategy illustrates the lock-in of technological thinking: all of it relies on efficiency gains and renewable energy production which themselves require sustaining a complex industry, while full recycling amounts to a technical miracle we cannot reliably hope for (Bihouix 2014).

This efficiency-oriented strategy is in practice hegemonic when it comes to sustainable technology. Interestingly, it is at the heart of the green growth narrative but also seems to appeal to those who see degrowth as a welcome attempt to decrease the ecological footprint of capitalism. In a sense, it makes degrowth attractive to those not ready to confront their own technological imaginary by channelling demands for transformation towards an optimistic agenda tailored

for capitalist modernity and its impressive track record in increasing efficiency. But despite the importance of recycling and parsimonious use of resources, there is probably no path towards degrowth following this strategy without a dramatic change in production and consumption patterns to avoid rebound effects, because all existing technologies consume non-renewable resources. Indeed, technological change without a deeper transformation, which at least accounts for social justice, can only crash into the social and physical limits to growth.

Accelerationism: repurposing technology for the common good

So as we have seen a new level of efficiency reached by a full-fledged digital infrastructure is still very likely bound to fail due to the irrational productive compulsion of capitalism. So a new question arises: Could technological progress solve our problems under another mode of production? Addressing social justice dramatically shifts previous assumptions about the kind of production that needs to be made sustainable. Could the transformation of technology just hinge on economic democracy? This is argued by left-wing accelerationists (Srnicek and Williams 2015). Their idea of repurposing technology to serve the common good rather than profit interests leads to a very ambitious symbiotic strategy aimed primarily at social justice and economic democracy. Beyond full automation to reduce working hours and a universal basic income, a characteristic demand would be for workers to take control of giant digital corporations currently organising the logistics of capital and of platforms running global communications. Such a strategy has an immense potential to become hegemonic if it can be harnessed by a political party drawing power from the ever-growing class of precarious workers (Standing 2011).

Obviously, this strategy focuses on redefining the function of technology within society rather than reshaping technology itself. One could hope that, if form follows function, this would lead to a transformation of technology – and indeed, accelerationists

argue for a combinatory approach to repurposing existing pieces of technology. However, the high-tech character of the envisioned future is likely to induce a hierarchical division of labour and is thus difficult to reconcile with a brand of grassroots democracy widely supported in the degrowth movement and rejected by accelerationists as naive *folk politics*. The central role of expertise and efficiency in a technological society thus warrants a critical approach to the accelerationist strategy within the degrowth movement.

The question of the ecological feasibility of this project is even more controversial and has just started being debated – with the promises of digital technology at the centre of the discussion. Accelerationism does not only provide a vision of high-tech and mostly digital commons liberating everyone from the drudgery of work but also promises sustainability through limitless renewable energy production. Even reformulated to avoid disregarding care work and physical realities, both aspects should be critically discussed. But reducing working hours and clean energy production are indeed important topics. So is there a middle ground between degrowth and the reappropriation of high-tech infrastructures? The essential contradiction might lie deeper, in an unabashed promotion of technological progress that should be carefully assessed. First, the development of modern technology should be replaced in the history of colonialism (Arnold 2005) and its often-disastrous impact on the Global South should be acknowledged (Fritz and Hilbig 2019). Second, the concept of progress played a central role in the victory of historical capitalism over its socialist alternatives (Wallerstein 1983) and still acts as an ideological safeguard against any attempt to overcome the industrial mode of production. The question of whether digital technology could be the cornerstone of a new socialism (Morozov 2019) beyond growth leads to a productive controversy, and yet it is clear that accelerating towards degrowth would require rethinking our relationship with technical artefacts.

The two strategies above – Green New Deals and accelerationism – suggest transformations on the basis of existing technologies and

therefore do not address the dimensions of self-determination and interdependency. The two following strategies focus on overcoming high-tech imaginaries and thus introduce a vision of alternative technologies taking these aspects into account.

Luddism: controlling and downgrading technology

The pervasiveness of the idea of progress in the development of historical capitalism foregrounds high-tech imaginaries and leads to symbiotic strategic approaches, where the industrial state is key. This can be the case even when striving to overcome capitalism, as the Soviet Union did. The paradigmatic ruptural strategy concerning technology, the opposite of "Soviet power plus electrification", emerged in an organised form at the very beginning of the industrial revolution in Great Britain. The struggle of the Luddites (Sale 1996) against the introduction of machines in manufactures and their own degradation illustrates the strained relation of workers to technology and the still-ongoing production of the working class through industrial discipline. The smashing of machines is a direct action strategy to reclaim self-determination and social justice by workers and simple citizens lacking democratic control over new technologies, and, in time, sabotage spread from the workplace to modern infrastructures such as digital communication networks (Çapulcu Redaktionskollektiv 2018).

There is a distinctive degrowth touch to the Luddite strategy of smashing the technological order, and workers burning down their factories to claim their "right to be lazy" (Paul Lafargue) would be a most apt romanticisation of a degrowth revolution. But the underlying theory of change is fuzzy, with answers pending for a few questions. What is lost when a given technology is destroyed or rejected? How far should technological development be reverted? Although turning back the clock to before the industrial revolution would indeed be a safe path to avoid a climate catastrophe, the social and human price might be too high, and even the most controversial technological developments seem difficult to revert.

So what could be viable strategies for a Luddite approach to technology? Winning over relevant sections of society to such a radical agenda implies focusing on widely rejected technologies: any device or software making work feel like slavery or serving mass surveillance could and should be targeted. And if the historical Luddites failed on a practical level, they left their mark in the form of a powerful counter-imaginary undermining the myth of technological progress and fuelling neo-Luddite attitudes (Mueller 2021). The key to successful strategies in line with a Luddite vision of technologies is to insist on radical democratic control and to show that it is more often industrial modernity than its rejection that leads to reactionary politics (Herf 1984). In an age of permanent climate crisis and digital precarity, ever more people can be convinced that new technologies are not always beneficial to humankind.

Given the centrality of technology in industrial societies, a number of variations on the Luddite theme could be considered as ruptural strategies as well. The individual refusal of technological innovations can hardly account for a systemic strategy, but a collective critical approach as a form of "methodological Luddism" could – that means, not literally destroying things, but sceptically evaluating promises of technology and rationally limiting the power of technologies (Winner 1977). Simple demands such as a moratorium on new technologies (Latouche 2010) can have massive political implications and represent real steps towards making technologies compatible with degrowth. Indeed, continued growth often relies on coercing ever more regions of the world into the world economy through technology. Can there be an effective defence of non-industrial livelihoods? Luddite strategies offer a narrative that can be useful for some extractivist struggles and post-development approaches in the Global South and helps with escaping historical determinism (Fisher 2009).

Open-source low-tech: growing appropriate technology from below

One of the most remarkable legacies of the Luddite threat to industrial societies is the space it opened for interstitial strategies within the field of technology. Disillusionment with and sometimes unfaltering opposition to existing technologies led to calls for an alternative approach (Illich 1973) breaking with oppressive technical structures (Mumford 1967). The idea of building technology outside of the industrial mode of production has spread widely – sometimes as a subculture under the slogan "do it yourself" but also out of necessity for the economically disenfranchised. To a certain extent, even large futuristic projects such as the Cybersin system in Chile had to resort to outdated technology when unable to access state-of-the-art equipment (Medina 2011).

Digital technology is at the forefront of this appropriation movement working with tinkering, hacking and bricolage to gain control over technological systems, but also illustrates its ambiguities. The relative freedom of research at institutions where early software was collaboratively developed, the introduction of personal computers and above all the internet gave rise to a particularly active community in which software was built for users, by users (Himanen 2001) – a group restricted at first to computer scientists, then wealthy enthusiasts and, by the end of the century, the global middle classes. The *Free Software* movement and its best-known achievement, the GNU/Linux operating system, takes a political stance on digital technology and directly addresses issues of social justice and self-determination (Stallman 2002). However, the transformations within capitalism driven by emerging platform corporations (Srnicek 2016) have deeply impacted hacker culture, and call for a critical evaluation of such a digital appropriation strategy. Also, technologies like blockchain and cryptocurrencies, at least to some degree addressing issues of self-determination, fail regarding their ecological impact, being very data- and therefore resource-intensive.

While the digital economy has indeed started restructuring labour relations, it is now clear that the collaborative and commons-oriented approach of the hacker community is not immune to capitalist co-optation (Terranova 2004). As opposed to the concept of free software, which prevents for-profit uses, the more pragmatic vision of open-source software offers technology companies the opportunity to reincorporate the creations of Internet culture. Another benefit of collaborative software development concerns sustainability and planned obsolescence: freed from profit constraints, hardware can be used much longer because updates can still be produced. But few are free to choose the technology they use, and the imperatives of progress undermine this practice of sustainability.

Beyond digital technology, the high-tech paradigm of implementing the latest scientific developments in complex production processes is omnipresent in industrial societies. This manifestation of the never-ending growth principle tends to disregard older or other forms of knowledge and divergent perspectives on the place of technology in our daily lives. The low-tech approach (De Decker 2019) delivers a strong critique of the high-tech imaginary and the problems it induces when applied indiscriminately to any situation, but also a positive vision of ingenious applications of simple but adequate technology to very concrete problems. With a pragmatic attitude, the low-tech movement offers a thorough reflection on the myths of growth and progress and their consequences for the human and natural world.

These observations lead us to consider an open-source low-tech interstitial strategy, which would consist of contextualising technical needs within social and environmental constraints (Bihouix 2014), democratically creating appropriate technologies, and spreading them from below. It would focus on the community of its users and developers, in much the same way as the free software movement did, but seek to lower the requirements to use and co-develop technologies rather than competing with high-tech developments. The flexibility of the low-tech concept is of strategic importance:

devices that were once high-tech can sometimes be repurposed, so that an adaptive response to the crisis of industrial societies can be developed by reusing existing components. For many digital devices already produced, such as certain standardised chips, software updates allow for an extended lifetime, while recycling is impossible. From this perspective, much can also be learned from non-industrial or low-budget technologies that can be found in many places, in particular in the Global South (Pansera *et al* 2020).

This approach is inherently oriented towards ecological sustainability and social justice because it strives to fairly distribute access to technology within natural boundaries. Its very *modus operandi* is self-determination, with an emphasis on individual and collective autonomy in the establishment of technopolitical institutions (Castoriadis 1987). But, above all, it acknowledges the complex system of interdependence induced by technical infrastructures and avoids pursuing the illusion of an individual made absolutely free and all-powerful by high-tech enhancements of its natural abilities. Rather, a low-tech tool is meant to enable fair collaboration between all those using it or affected by it. However, there is a problem with this strategy: if it questions the progress narrative, how can it become hegemonic?

The emancipation of our imaginaries from high-tech patterns requires expanding the spaces where low-tech can spread, which can be achieved by combining various strategies. Reforms establishing a right to repair within a Green New Deal strategy would strengthen the "do it yourself" culture and help share technical skills. A radically democratic reappropriation and repurposing of technology would help create new sustainable technopolitical institutions, under the influence of the critical stance and "propaganda of the deed" of the Luddite strategy. Moreover, the open-source low-tech strategy can only gain wider support in the face of digital corporations expanding their power over society and of a looming "degrowth by disaster" – for example, if high-tech infrastructures crumble under extreme weather conditions and resource exhaustion.

Synergies towards a low-tech digital democracy?

In order to illustrate some of the strategies described above, we now consider two examples showing how the hardware and software of digital technology can be transformed through following degrowth principles. In combination, they hint at a reorientation of the dominant digital imaginary towards a sustainable Internet culture built on the emancipatory ideals of the beginnings of the digital era.

Building a low-tech digital infrastructure

Low-Tech Magazine (Low-Tech Magazine n.d.) is a website presenting research into the problems and limitations of the high-tech paradigm and promoting low-tech solutions, often drawing on pre-industrial technological knowledge. It was launched in 2007 by Kris de Decker, a journalist specialised in technology, as a means to question the progress narrative – in the best critical tradition of the Enlightenment. What was at first a practically-minded discussion took a turn towards prefigurative politics in 2018 with the development of a low-tech solar-powered version of the website that would practice what it teaches, in collaboration with designer Marie Otsuka and artist Roel Roscam Abbing.

The holistic approach of Low-Tech Magazine makes this proof-of-concept particularly interesting. Beyond the carefully selected hardware components, hosted at home on a balcony near Barcelona, the solar website project is an experiment with minimalistic software design. Indeed, its energy consumption is drastically reduced through design choices, made transparent to the visitor, and the display of a battery metre as the background is in itself a political statement. The architecture of the website is perfectly adapted to its contents, and the abundant documentation provides insights and inspiration to those wishing to learn more about the thought-provoking idea of a website actually going offline during longer periods of bad weather. The idea that we can adapt our behaviour to available natural resources is made clear by presenting the printed version of the website as a legitimate offline version – a solution as much social as it is technological.

The project obtained some funding from a design institution in its starting phase and is still ongoing. The achievements and open problems of the project are evaluated and communicated regularly, making it a long-term experiment. It could be seen as a practical campaign promoting low-tech ideas, and has been very successful in this regard, garnering international attention from the media and being discussed at conferences. The website itself has hundreds of thousands of visitors a year and inspired the development of several other websites using solar-powered servers or minimalistic designs. The project has limited resources and clearly states that it has no ambition to scale things up, but also provides ideas for others to expand the experiment.

The solar Low-Tech Magazine project embodies the interstitial open-source low-tech strategy, building a small-scale alternative at the margins of an Internet dominated by the high-tech narrative. Some sites it inspired restrict themselves to reducing their ecological footprint, but the true emancipatory potential of this experiment lies in its exemplary value. It shows in great detail how a digital infrastructure based on a completely different technological assumption could be built, and scaling up the experiment could only lead to an attempted ruptural transformation. Indeed, the backbone of the world economy has been thoroughly digitalised and the infrastructure needed to maintain it could not be rebuilt on low-tech principles. Interestingly, the Internet is an incredibly heterogeneous network in which low-tech servers can easily be integrated. Obstacles to the spread of such servers are thus social and ideological rather than technical – but as energy and other resources become scarce with the end of fossil fuels, such a spread might be triggered by necessity.

Even though the principles of this website naturally hint at a degrowth narrative about technology, the project does not explicitly self-identify with degrowth. However, it definitely contributes to a shift in our technological imaginaries. So much so that it paradigmatically displays the weakness of any degrowth discourse: as

long as disasters stay unseen, the degrowth discourse can be dispelled by capitalism and remains unattractive to most people. Only when one notices that there cannot be a high-tech solution to all problems – if any – can the low-tech idea gain traction. This strategy is thus highly context-sensitive: it has more potential in regions with unstable energy grids or undeveloped communication infrastructures and offers a response to the degrading conditions induced by environmental crises.

Strengthening local democracy through digital platforms

Our second example is the software platform Decidim, developed from 2017 onwards in Barcelona to foster participatory democracy in the city. It allows an institution to manage large group processes such as planning, budgeting, assemblies, elections or consultations so that a given instance can be seen as a dedicated social network for a democratic entity. The components of these processes structure interactions between users of the platform in a transparent and traceable manner. The platform was initially created by the city of Barcelona and supported by regional public institutions but evolved into a sustainable software ecosystem driven not only by institutions using it but also by an active community – based on the observation that open-source projects dependent on few public institutions are often discontinued, for example, due to lack of funding. It is now also used by other cities, governments or cooperatives throughout Europe.

  This project reflects the entanglement of technical and political processes inherent to the use of digital technology for mass communication and organisation. Attempting to develop tools for participatory democracy, it made its own technopolitical dimension transparent and democratic by establishing a self-governance system for its own technical development, called Metadecidim – itself using Decidim as a decision-making platform, allowing for autonomous decision-making and conflict resolution. The purely technical process of maintaining the source code is hosted on an external collaborative

development platform. Using or contributing to the project requires endorsing a social contract describing its guiding principles. Today Decidim is a rather large project that involves many people and institutions and managed to secure funding for itself from public institutions and has been able to take a long-term approach.

The strategy underlying Decidim lies at the crossroads of interstitial and symbiotic approaches to transformation. Indeed, it focuses on concretely building alternative forms of politics through software development and serves as a model for implementing the principles of the future society it strives for, and yet its driving force is governmental institutions attempting to reform their political process. The changes in institutional forms and the ongoing social empowerment Decidim induces have opened spaces for alternative politics and support transformational processes in local politics. Thus, we could expect that if Barcelona were to become the centre of a ruptural transformation once more, as it was in 1936, the interstitial transformations achieved through Decidim would support its move towards a more democratic organisation of society. From this perspective, it should not come as a surprise that Decidim originated in a city that once was the centre of one of the most successful anarchist experiments in history (Bookchin 1976): culture and historical experiences are also key for strategic orientation.

Interestingly, this project can be interpreted as repurposing the platform technology used by social media networks towards a participatory form of local democracy that embodies much of the ideals of the degrowth movement – is this an accelerationist means to a *folk-political* end? This is a consequence of the versatility of web technology and yields a number of questions regarding the relevance of digital technology for the construction of a degrowth society. Crucially, Decidim is not oriented towards the development of productive forces or efficiency but aims at facilitating participation in political processes: even though the ecological costs of running such software on a large scale and in countless institutions should be critically investigated, its design cannot trigger in itself the need

for consuming more resources. Therefore, its contribution to the transformation of politics towards a form of collective organisation involving a high level of individual autonomy – a central principle for the degrowth movement – is not tainted by the economic bias of usual platforms and social networks.

It is also important to note that the democratic governance of Decidim has its limitations in the gap between collective design decisions and the actual implementation undertaken by a technical team. Avoiding leaving decisions of programming and implementation to a small group of developers, with their inevitable biases, requires reducing the gap between developers and stakeholders. Therefore, this necessitates technical competence to be shared and disseminated across a larger group of people. This would be a challenge for any attempt to support democratic processes through digital technology, as significant learning and skill-sharing are pre-requisites.

Inventing technology for a new Great Transformation

The examples of Low-Tech Magazine and Decidim illustrate two very different aspects of digital technology and its role in the struggle for a degrowth transformation. But even though the approaches they embody are far from being dominant in discourse and reality, both contain seeds of a radical transformation of technology. Indeed, one can envision a technological future where digital democratic platforms running on a low-tech infrastructure of servers and networks would play a prominent role in organising society in an integrated way. However, as the lack of societal control over technological development is a consequence of the separation of labour from democracy inherent to capitalism, achieving such a goal crucially depends on a larger transformation.

Just as the Great Transformation (Polanyi 1944) gave rise to market societies by introducing new economic mechanisms, this new transformation will need to redefine how societies coordinate needs and resources. A digital infrastructure, from servers and networks

to platforms such as Decidim, could support this transformation by combining transparency and democratic control with efficient coordination of production and consumption – advantageously replacing the invisible hand of the market (Daum and Nuss 2021). But the degrowth movement should not lose sight of the relative technical simplicity of Decidim and the role this plays in achieving its goals: making such a platform into a full-fledged techno-utopia by extending it with algorithmic control and comprehensive data collection would most likely be counter-productive with respect to essential democratic and ecological principles.

The most pressing problem to address in the field of technology is the high-tech imaginary and its elitist, centralised conception of knowledge, preventing the democratic process of establishing new techno-political institutions. This is why symbiotic and interstitial strategies must be combined to create space for alternative views of technology. The main challenge lies in making alternatives attractive, but the economic and ecological devastation of the planet – through which capitalism brings its own demise – are also powerful incentives for a deep cultural and political change in attitudes towards technology. Although rethinking and reappropriating technology is only a piece of the puzzle, reinventing socially and ecologically resilient technology is central to any serious attempt at transformation and is one of the most urgent tasks we face.

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