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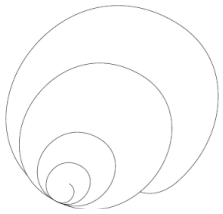

RESEARCH ARTICLE

A framework to assess the degrowth transformative capacity of niche initiatives

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Abstract
As humanity faces multiple mutually-reinforcing social-ecological crises, rhetoric on transformations abounds. However, transformations are normative, politically-contested processes that risk perpetuating, or even exacerbating, the ecological and socio-economic crises of today. We argue that transformations should seek to enhance human and non-human well-being within the planetary boundaries; a goal that is enshrined in degrowth theory. In this paper, we present an analytical framework that synthesises key concepts from transformations and degrowth literature against which a niche initiative's degrowth transformative capacity can be evaluated. This is based on a set of 32 qualitative, codable criteria. We delineate the constitutive elements of degrowth transformative capacity based on five key elements: 1) Degrowth Goals and Visions, 2) Building Networks, 3) Empowerment and Learning, 4) Democratic Governance, and 5) Fair Resource Flows. We then illustrate the usefulness of this framework by presenting a comparison of seven energy communities in Greece, in terms of their degrowth transformative capacity. The framework can be seen as a descriptive starting point that can be expanded or adapted by academics and/or practitioners to explore degrowth futures and degrowth transformative capacity in other sectors (e.g., food or transportation) and contexts (e.g., Global South countries).

1. Introduction

Sustainability transformations have long focused on green growth, based on the assumption that environmental impacts and resource use can be decoupled from economic growth. However, there is no evidence of absolute, long-term, and global decoupling (Haberl et al., 2020). Therefore, the ongoing pursuit of green growth will likely push the Earth system further

beyond its safe operating space (Spash, 2021a). As a result, socioeconomic inequalities will be exacerbated, as the world's most vulnerable and poorest communities bear the most significant effects of the climate crisis (IPCC, 2022). For the above reasons, an emerging field of scholarship calls for transformations to be explicitly degrowth-oriented (Asara et al., 2015; Vandeventer et al., 2019; Khmara and Kronenberg, 2020). Such transformations would question the basic tenets of the current growth-based socioeconomic system, namely: (1) that GDP and profit are good measures of success, (2) that humans should only pursue their financial self-interest, (3) that competition trumps cooperation, and (4) that entrepreneurship, innovation, and engagement in society are only driven by the profit motive (Göpel, 2016: 126). Degrowth research and activism is on the rise, but it is unclear in the literature what constitutes an initiative's capacity to contribute to transformations that take society beyond the growth-based system.

Although transformations scholarship has been a burgeoning field over the last decade (for a review of the field see Patterson et al., 2017; Lam et al., 2020a; Scoones et al., 2020), its operationalisation for degrowth purposes remains as an unexplored area. Examining the features that can catalyse transformations from unsustainable to more sustainable system trajectories, or what is commonly known as "transformative capacity" (Westley et al., 2013; Wolfram et al., 2019; Tuckey et al., 2023), is a nascent research area that could prove useful for degrowth research, practice, and policy.

Having identified this research gap, in this conceptual article we explore the question: How can degrowth transformative capacity be understood and assessed? In response to this question, we developed a framework that is based on the "seeds" approach to bottom-up transformative change (Pereira et al., 2018; Sellberg et al., 2020). We choose this approach as seeds can be sites where the dominant paradigm is questioned, new visions are articulated, and alternatives are prefigured through new practices and routines, guided by diverse knowledge strands (Bennett et al., 2016). In the next section, we set out the approach taken to develop this framework, we then go on to present the framework, offer some suggestions for how it can be applied, and conclude with a discussion of the strengths and limitations of the framework.

2. Research approach: iterative theoretical development

To develop the degrowth transformative capacity (DTC) framework, we iterated between the following steps: theoretical synthesis, refining the framework based on the data from an empirical case study, and further refining it based on peer feedback from relevant academics and practitioners.

In terms of research steps, we used the theoretical synthesis approach outlined by Jaakkola (2020: 21-23). This approach involves conceptual integration across multiple research fields, where knowledge from one theory is used to address a gap or inconsistency in the domain theory or field of research. In this paper, we are using transformations theory to address the gap in degrowth research when it comes to understanding the degrowth transformative capacity of initiatives and organisations.

We began with a scoping study, in order to map out the key concepts underpinning the relevant research areas (Arksey and O'Malley, 2005). Through this scoping study, we conducted a targeted review of the degrowth literature (e.g. Kallis, 2018; Rommel et al*.,* 2018; Hickel, 2020; Hinton, 2020; Nesterova, 2020; Parrique, 2019; Mastini et al., 2021), looking for recurring concepts and themes that degrowth literature deems important for an initiative or organisation to be degrowth-compatible. We then conducted a targeted review of the transformations literature (e.g., Pereira et al*.,* 2018; Lam et al., 2020b; Tuckey et al., 2023), looking for concepts, theories, or frameworks that describe how initiatives and organisations can catalyse desired changes in their broader context. Our criteria for including concepts from the transformations literature was the extent to which it helps to fill the gap in knowledge about degrowth transformative capacity, what Jaakola (2020) refers to as "supplementary value." We then conceptually synthesised the identified concepts and insights from the existing literatures (Gilson and Goldberg, 2015), in order to develop an analytical framework for understanding degrowth transformative capacity.

As a starting point, we used elements that characterise transformative potential, based on the framework for assessing "transformative capacity" by Tuckey et al. (2023). Tuckey et al.'s extensive framework provides explanatory power regarding the basic necessary elements

that, in combination, can catalyse a systemic transformation. We built on this framework and synthesised these elements with recurring themes in the degrowth literature. Thus, we aimed to build a framework with equivalent explanatory power, but specifically for *degrowth* transformations. As an example, "actor empowerment" is a cornerstone of transformations literature (Lam et al., 2020b; Tuckey et al., 2023), and "political motivation" is considered important for degrowth transformations (Kunze and Becker, 2015). In the DTC framework, these two themes are woven together in the element[1] of Empowerment and Learning, embodied specifically in the component "participation in political processes", whereby an initiative actively empowers its members to engage in politics and the commons. That is, participating in public fora (e.g., protests, citizen assemblies, conferences) to spread its counter-hegemonic, degrowth goals and visions. Similarly, networking is often identified as a key element of transformative capacity (Westley et al., 2013; Tuckey et al., 2023). From a degrowth perspective, an emphasis is given to strategic networking to build (relative) independence from State influence and capitalist socio-economic relations (D'Alisa et al., 2015). In the final framework, this feature is the "pooling resources" component of the Building Networks element. Therefore, the basis of the DTC framework was developed by fleshing out the different key aspects of a degrowth transformation.

Another important part of developing the DTC framework was testing it against an empirical case. We used seven Greek renewable energy communities as a case study (Vrettos, 2021) to further develop the DTC framework. This helped us strike a balance between a more theoretical and idealistic conceptualisation of degrowth, and unearth the controversies, compromises, and constraints of niche initiatives, like Greek energy communities. Focusing on niche initiatives rather than well-established ones aligns with the bottom-up approaches to transformative change that we emphasise here, which is also discussed in other frameworks such as the socio-technical transitions literature of the Multi-Level Perspective (Geels, 2011). This is not to say that established initiatives do not have the potential for transformation; this framework can also be useful for established initiatives. However, of particular importance in the context of this research is how these niche initiatives interact

[1] The framework consists of five main elements. Each element has three or four sub-elements, which we refer to as components.

with the dominant regime. The insights and open problematisations that arose from this process are analysed in the Discussion section. The questions and criteria used for the case study can be found in Appendix I.

An important step in this iterative process of theoretical development was to get feedback from experts, including scholars and practitioners in the field of degrowth transformations. We have received feedback on this framework from degrowth scholars, sustainability transformation scholars, and renewable energy transformation and energy community practitioners. We incorporated this feedback to improve the framework and create a solid starting point for unpacking degrowth transformative capacity. We aim for this emerging framework to be used, modified, and improved by other scholars and practitioners towards the goal of transforming society in a degrowth direction. The framework has already been substantially improved based on experts' feedback, which has helped us incorporate the nuances of (degrowth) transformations for niche initiatives within the often adversarial contexts within which they operate; as well as significantly reduce academic jargon and anchor the academic concepts within the lived experiences of niche initiatives.

3. A framework to assess degrowth transformative capacity

3.1. Background: transformations and degrowth literature

In order to understand the framework presented below, it is necessary for readers to have a basic understanding of both the transformations and degrowth strands of literature. Transformation theory postulates that when a socio-technical or social-ecological system becomes untenable (i.e., it actively erodes human well-being and the environment), a total system reconfiguration is needed (Westley et al., 2013). A transformation would entail the creation of new system variables (e.g., shared visions, goals, and technologies) and interactions (e.g., institutions, actors, and power structures) (Schmid et al., 2016). Transformative capacity is defined as the ability of actors within a system to initiate measures that navigate a social-ecological system from unsustainable and undesired trajectories towards more sustainable futures (Tuckey et al., 2023). The transformative capacity framework by Tuckey et al. (2023) identifies 21 key characteristics of niche initiatives that enable them to transform the system within which they operate. These are clustered under

three main categories: 1) Learning Practises (i.e., new forms of knowledge building and shared vision formation), 2) Networking (i.e., pooling resources and capacities), and 3) Empowerment (i.e., building capacity, knowledge, and skills). The more of these characteristics an initiative has, the greater capacity it has to transform the system. Of course, this framework also acknowledges the importance of context and factors external to the initiative, as well.

A defining aspect of the degrowth perspective is that all economic activity entails environmental impacts, so the amount of economic activity should be limited to that which equitably meets human (and non-human) needs within planetary limits (Parrique, 2019). Degrowth theorists in turn identify the global growth-based socioeconomic system as a major driver of ecological breakdown and burgeoning inequalities (Hickel and Kallis, 2020). There is no singular degrowth future vision. Instead, responding to the differing starting points and contexts of various countries and communities (e.g., in the Global North and South), degrowth encourages a plurality of pathways and visions (Kallis, 2018; Kothari et al., 2019). In general, then, degrowth requires shrinking economic activity in communities and/or sectors that are currently over-consuming and increasing economic activity in communities and/or sectors that are currently under-consuming (Hickel, 2019). A way to measure and operationalize these over/under consumption patterns would be through the Safe and Just Earth System Boundaries framework (Rockström et al., 2023). Despite their variability and multi-dimensionality, degrowth policies gravitate around three main axes: (1) Reducing the ecological and climate impact of human activities; (2) Redistributing wealth and income both within and between countries; and (3) Replacing the culture of materialism and the practices that sustain it with convivial and participatory societal institutions (Cosme et al., 2017).

Transformations and degrowth theories coalesce at multiple points, such as the emphasis that they place on changing mental models in relation to discursive power, as well as decision-making power (Westley et al., 2013; Koch, 2020). With regards to the latter, both bodies of literature emphasise the need for direct-democratic and multi-stakeholder decision-making to increase political legitimacy (Kunze and Becker, 2015; Pereira et al., 2020). Yet there remains ample space for these two strands of literature to be fruitfully brought together. Transformations theory constitutes a field with a rigorous history of intensive empirical and

theoretical research around processes of change, whilst degrowth research offers an important (and evolving) set of guidelines to ensure that change is strategic, directed, and genuinely sustainable.

As a result of synthesising the above insights, our framework of degrowth transformative capacity consists of five main elements (see Figure 1): Degrowth Goals and Visions; Empowerment and Learning; Fair Resource Flows; Democratic Governance; and Building Networks. Each of these elements has several components. “Building Networks”, for instance, consists of exchanging knowledge and experiences; pooling resources; bridging governance scales; and access to intermediaries. The synthesis process builds on the Tuckey et al. (2023) framework (the general elements are largely the same), with the aim of directing the transformations towards degrowth principles (Cosme et al., 2017). For example, the “Degrowth Goals and Visions” element contains explicit references to challenging growth and promoting more direct-democratic practices. Similarly, the “Building Networks” element explicitly mentions the need to build counter-hegemonic alternative networks to provide for each other outside of capitalist processes. The elements overlap with each other in many ways, but are distinct in terms of the dimension of an initiative that they deal with (e.g., visions, resource flows, governance). All the elements focus on the internal workings of an initiative, except for the Empowerment and Learning and the Building Networks elements. The “Empowerment and Learning” element also discusses the need for political advocacy and literacy, and the “Building Networks” element focuses on how initiatives should interact with other organisations. Each of the elements and their components are described in more detail in the Sections 3.2-3.6. The DTC differs from previous works looking at the implications of degrowth transitions (Khmara and Kronenberg, 2020; Nesterova, 2020; Hinton, 2021), in that it places emphasis on the organisational dynamics of niche initiatives, and in turn how these influence and are influenced by the communities around them. Thus, the DTC goes beyond focusing on business practices, unpacking in more detail how community-led and niche initiatives can influence and be influenced by transformation processes.

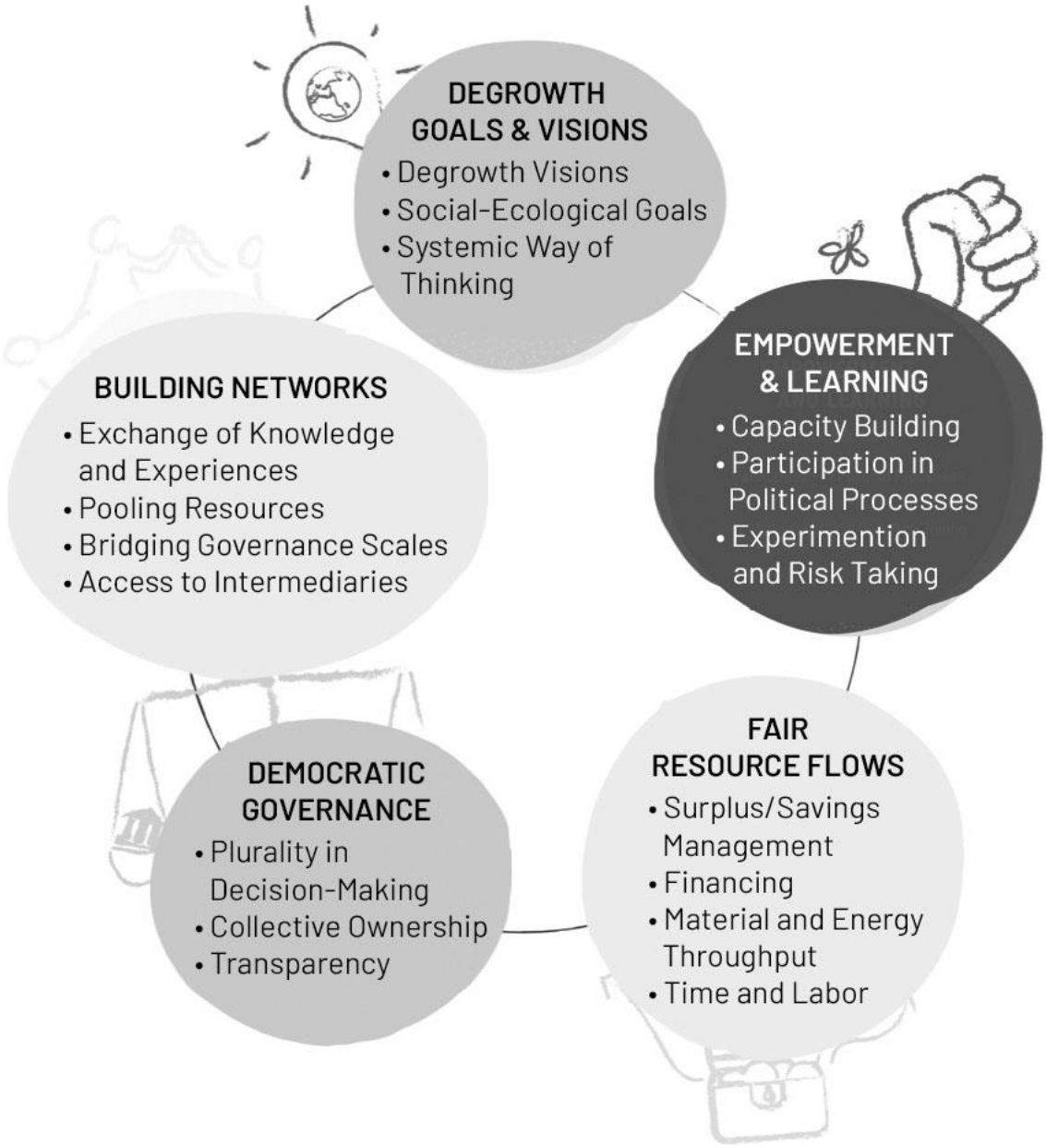

Figure 1: A Framework to Assess Degrowth Transformative Capacity

3.2. Degrowth goals and visions

The first element of the framework is that an initiative should have explicitly social-ecological goals, a degrowth vision, and a systemic perspective. A degrowth transformative initiative should move beyond growth as a goal and actively pursue **social-ecological goals** that promote human and non-human well-being, without transgressing ecological boundaries (Göpel, 2016). Accordingly, communities, economies, and organisations should be organised to pursue social and ecological goals, rather than financial goals (O'Neill, 2012). From this

perspective, economic activity and money are reframed as a *means* of achieving broader social ends, rather than as ends or as measures of success in themselves (Daly, 1977). Social goals and climate goals are pursued in conjunction and synergistically.

The articulation of shared meaning by an initiative and its members helps formulate a coherent future vision that challenges the status quo and guides the creation of goals and targets (Moore et al., 2014; Hermwille, 2016). **Degrowth visions** go beyond the bounded logic of growth-based systems, to open up a wide range of possible futures. Such visions emphasise futures where humans and nature thrive together, employment is meaningful, no one is left behind, and technology is used convivially. Kallis (2018: 118-122) offers nine principles of a degrowth vision: 1) ending exploitation; 2) direct democracy; 3) localised production; 4) sharing; 5) good and strong relationships; 6) unproductive expenditures; 7) care; 8) diversity; and 9) decommodification of land, labour, and value. Degrowth visions thus necessitate that a niche initiative transcends the pursuit of profit and growth, and instead focuses on pursuing various social-ecological objectives, such as tackling climate change, promoting gender equity, and eliminating inequalities.

Alternative visions are an important prerequisite to unlocking our collective imaginaries and enacting transformative change (Koch, 2020). A degrowth transformative initiative shapes its vision around how to meet its community's needs[2] with as little economic activity as possible, cognisant of the environmental impacts of its activities (Kallis, 2018). Sometimes this might entail growth of economic activities, but the focus is always on meeting needs while minimising pressure on the environment. The initiative should share these visions amongst its members and with the broader public, in an attempt to capture people's minds and hearts or "scale deep" (Westley et al*.,* 2013; Moore et al., 2015). Indigenous and Global South perspectives, which acknowledge the embeddedness of society in nature (Gudynas, 2015; Ramonas, 2015), should also play a role in these vision building processes. These contributions are essential to understand how to envision and implement a degrowth future outside the Global North context. At the same time, plurality in visioning and views should be maintained

[2] The satisfaction of needs is contextual, however Max-Neef et al.'s (1991) framework of universal needs is aligned with degrowth aims. They identify nine universal needs: subsistence, affection, protection, understanding, participation, leisure, identity, freedom, and creativity.

within the niche initiative so as to ensure that no rigid hegemonic visions are established, undermining the democratic character of the initiative.

A degrowth transformative initiative cultivates a **systemic way of thinking** amongst its members and the general public. This perspective sees the economy as being embedded in society, which is itself embedded within nature (Meadows, 2009). Therefore, there are biophysical limits to resource consumption. Limits do not only relate to stewardship of the environment and the commons, but also regenerative practices and intra- and inter-generational equity (Deriu, 2012; West et al., 2018). A degrowth transformative initiative should strive to educate its members, employees, and the public about this embeddedness and the systemic links between society, the economy, technology, and the environment, so as to be able to convince them about its visions and goals. This systemic way of thinking views social and climate justice as intertwined goals that can only be achieved in conjunction with each other. Affective communication, which includes arts, such as performative methods, can help one to dive deeper and more vividly into the lived experiences of degrowth communities, and thus ease them into cultivating this systemic degrowth perspective (Brossmann and Islar, 2020; Koch, 2020).

It is worth noting that navigating a transformation process often entails compromise and adaptation based on changing contexts (e.g., economic hardship) (Wittmayer et al., 2021). Regardless of the circumstances, the initiative should try not to jeopardise its degrowth visions, values, and goals, in order to avoid being co-opted or captured by vested interests (Strunz and Schindler, 2018). A strategic degrowth vision can act as the cohesive glue that ensures a niche initiative remains faithful to its goals despite external pressures or temporary compromises. Similarly, a niche initiative might be embodying many elements and practices that align with degrowth, without explicitly calling it as such. In that case too, such initiatives could benefit from a strategic degrowth vision, as it could provide them with a clear compass that guides their overall development.

3.3. Empowerment and learning

Empowerment is another core aspect of transformative capacity. The steady build-up of degrowth information and skills can be used by an initiative to empower its members and

workers, who can then themselves become agents of change (Tuckey et al., 2023). The elements of "empowerment" and "learning," which are separately listed in Tuckey et al.'s (2023) framework, are merged in a single element here to indicate the directionality of the degrowth transformation. That is, all learning and empowerment processes are guided by a vision of transforming society towards degrowth futures. A degrowth transformative initiative, as an entity, participates in political processes, such as influencing or co-creating governmental policies. Through ongoing practices of learning and experimentation, the initiative also adaptively responds to changing external conditions and the desires of local communities in the context(s) where it operates. Thus, it participates in an iterative process of responding to and actively changing institutional contexts towards the goal of degrowth. These learning practices manifest through: cultivating alternative provisioning practices and skills amongst the initiative's members and the broader public; counter-hegemonic experimentation; and participating in political processes.

As part of cultivating **alternative provisioning practices and skills,** a degrowth transformative initiative should teach its members, employees, and the public the necessary skills to provide for themselves and each other outside of the monetized sphere as much as possible. This includes, for instance, practices of local manufacturing, mutual aid, sharing, volunteering, and care work (Johanisova et al., 2013; Kostakis et al., 2018). The teaching should occur through horizontal and mutual learning processes, whereby members of the initiative can empower each other, and other stakeholders, to replicate the initiative in other contexts through strategic network building (Building Networks element, Section 3.6), while altering the way resources are produced and consumed (Fair Resource Flows element, Section 3.4). Particular space should be provided for (learning from) underprivileged groups. The initiative's vision and goals (Degrowth Goals and Visions element, Section 3.2) can guide the types of skills and practises that the members will cultivate.

Counter-hegemonic experimentation is an essential aspect of a community's transformative process (Fedele et al., 2019). As such, a degrowth transformative initiative should create spaces that foster a questioning of the dominant paradigm of growth through experimenting with alternative practices (Gui and MacGill, 2018; Koch, 2020). These spaces should challenge the cultural hegemony of growth, whilst planting the seeds of alternative societal models

(Degrowth Goals and Visions element, Section 3.2) that are rooted in lived practises and experiences (D'Alisa and Kallis, 2020). These institutions and spaces can be physical (e.g., Peer to Peer labs) (Lange and Bürkner, 2018), or more broadly generalised norms and routines that create alternatives to growth and contribute to the Fair Resource Flows mentioned in Section 3.4 (e.g., clothes-swapping parties) (Brossmann and Islar, 2020). It is worth noting that when this deliberation occurs with direct, democratic processes (Democratic Governance element, Section 3.5), there are bound to be mistakes, conflicts, and periods of instability. This is why ongoing experimentation and reiteration should be encouraged within degrowth transformative initiatives.

Lastly, a degrowth transformative initiative should actively **participate in political processes**. It should do this as an entity itself, for instance by hosting and participating in political events. It should also empower its individual members and workers to take part in the polity, for instance through citizen assemblies (Weiss and Cattaneo, 2017), direct aid solidarity networks, squats, protests, neighbourhood assemblies, (degrowth) conferences, and elections. Even when a niche initiative is already politically active, this participation in *public* processes would further constitute part of their degrowth transformative capacity.

3.4. Fair resource flows

initiative should also be able to deliberately alter resource flows in terms of the resources that come into the initiative and how those resources are used (Hinton, 2021; Tuckey et al., 2023)[3]. The initiative may use resources at a level that meets the community's needs without exceeding environmental limits. On a similar note, the initiative should channel its resources towards its social and ecological goals and share its resources with others (to the extent possible without jeopardising its operational stability). Moreover, it can educate its members and the general public about sustainable ways to manage energy and resource use, in line with its degrowth visions and goals (Section 3.2) (Göpel, 2016; O'Neill et al., 2018). Sustainable resource use here also refers to sharing resources, with a particular view of

[3] We have chosen to group financial resources, labour, time, and material resources together in this element, as they are all intimately linked with one another. For instance, financial resources are a key determinant of how much time one must spend working and how much access one has to material resources. Likewise, degrowth scholars have been quick to point out that reducing a society's material throughput requires a more even distribution of financial resources, labour, and time (Parrique, 2019).

reducing inequalities amongst its members, while working to eliminate broader systemic inequalities. The initiative should adopt a multi-scale and system-wide perspective (Fedele et al., 2019) and try to limit the impact of its operations on the environment, including by exercising care when it comes to the use of technology and profit (Degrowth Goals and Visions element, Section 3.2) (Schmid et al., 2016; Pansera et al., 2019). This element can be seen in how financially self-sufficient an initiative is; how its savings and surplus are used; its material and energy throughput; and its use of time and labour.

A degrowth transformative initiative may work towards **financial self-sufficiency**, to achieve independence from the pro-growth economy (Hinton, 2020). When possible, it can seek funding from alternative sources, such as (member) crowdfunding, donations, credit unions, or other types of not-for-profit banks (e.g., savings and loans associations, and public banks). Of course, a niche initiative can maintain its degrowth transformative capacity through traditional debt-based financing strategies (including loans from for-profit funding sources or institutions) to gradually build up financial independence and even create alternative (financial) structures (Barlow et al., 2022). For example, an energy community might receive a loan from a for-profit bank to build a solar park for collective self-consumption, in which case the loan will be paid back with interest, but the community will become independent from paying electricity bills (to private energy companies) for many years to come. Resorting to traditional sources of profit-driven financing (like selling shares for equity-based investment, or taking high interest-loans with short repayment timelines from venture capitalists) may jeopardise an initiative's degrowth transformative potential. This is because such financial instruments can drive economic growth and inequality, and can perpetuate existing power structures (Hinton, 2020, 2021).

In addition to being financially self-sufficient, such an initiative could also **reinvest any financial surplus and/or savings** into expansion, if necessary, and/or invest the surplus into social and environmental purposes (e.g., energy poverty reduction or biodiversity protection), rather than distribute it to private owners (Hinton and Maclurcan, 2017). The initiative should try to (re)invest its profits or savings in the local community, aiming to ensure that resources stay within the locality and are not syphoned out by powerful actors, such as corporations or private investors. This could serve social justice goals (e.g., refugee integration or gender

equality programs), and thus contribute to local well-being and increased community cohesion (Tsagkari et al., 2021). Finally, the initiative should strive to reduce inequality amongst its members and at the broader societal level, which can also inform how it uses financial surplus and savings. Aside from being morally repugnant, inequality drives increased consumption due to the relational status effect (i.e., determining one's self-worth by comparing levels of possessed material goods with those of others) (Wilkinson and Pickett, 2010). This can create the perception of relational poverty, which in turn diminishes psychological well-being and underpins consumerist tendencies (Dittmar et al., 2014). Societies that are more equal also tend to exhibit higher levels of well-being (O'Neill et al., 2018).

Furthermore, Fair Resource Flows means that such initiatives should use **time and labour** in a fair and sustainable way. They should encourage work-sharing and overall work-time reduction (Cosme et al., 2017), to ensure that work is equitably distributed within a community. This would also reduce economic throughput and indirectly encourage less carbon-intensive activities, such as art, care, and leisure (Parrique, 2019). Following from this, the initiative should provide wages to (potential) employees that ensure a decent standard of living, whilst maintaining a minimal wage gap between the lowest and highest paid ones.

Lastly, a degrowth transformative initiative may work towards **equitably reducing absolute material and energy throughput** to a sustainable level that still ensures human well-being (Kunze and Becker, 2015). For energy, this value could be determined with the benchmark of 149-250 EJ per year (Grubler et al*.,* 2018; Millward-Hopkins et al*.,* 2020). Similarly, for general resource use (e.g., water, paper, and other materials) this value could be determined with the benchmark of 50 billion tons of resource use per year at the global level (Bringezu, 2015). In addition to reducing consumption, this entails drawing on local knowledge and local materials to the extent that is practical. This kind of "open relocalisation" can preserve local knowledge and traditions, support local autonomy, and reduce dependence on long supply-chains that often entail social and ecological exploitation (e.g., fossil fuels for transportation and/or exploitation of workers in low-income communities) (Parrique, 2019). This component also entails utilising technologies that enhance human-nature relations, and are appropriately integrated into the local social-ecological context. An example of this is DIY small-scale wind

turbines installed in non-agrarian land, which are reusable and repairable, and whose materials and parts are sourced with minimal impact (Kerschner et al., 2018). The frugal use of energy and materials is linked with the initiative's vision of systemic embeddedness, and inter- and intra-generational equity. Members of the initiative are aligning their consumption patterns (whether increasing or decreasing them) with fair consumption pathways, to ensure everyone's needs are met within safe and just earth system boundaries.

3.5. Democratic governance

Tightly connected with fair resource use, are the *processes* by which initiatives decide how to behave and use their resources. Reconfiguring ownership and governance structures can catalyse significant changes in an initiative's (or a system's) structure, direction, and practices, therefore enabling a transformative change (Hinton and Maclurcan, 2017).

The degrowth perspective calls for more **plurality in decision-making**. This means a more direct, transparent, voluntary, democratic, and multi-stakeholder engagement of citizens in decision-making processes within any group context (Rommel et al*.,* 2018). This perspective also aligns with the concept of poly-centric governance articulated by Ostrom (2010) as a key principle in resilience thinking, from which social-ecological transformations theory arises (Biggs et al., 2012). At a time of increasing apathy towards politics, facilitating co-ownership and direct participation are important components to achieve social justice. In addition, different stakeholders can offer new and distinct insights when it comes to understanding and managing socio-technical and ecological systems. A transformative initiative should strive to balance expert/academic knowledge with multiple ways of knowing that are most attuned with the complexity and lived realities of the local context (Tengö et al*.,* 2014; Alarcón Ferrari and Chartier, 2018). Plurality in the governance of degrowth futures would also entail incorporating and uplifting Indigenous and Global South perspectives such as *buen vivir* (Gudynas, 2015) or *Ubuntu* (Ramonas, 2015). Acknowledging that transformations are normative processes, plurality in governance (and visions) is important so as to safeguard against the construction of authoritarian, rigid hegemonic views.

In order to allow for such democratic decision-making for degrowth transformations, the initiative should be **collectively-owned** and operated for collective benefit. Initiatives that

have private financial rights (i.e., private financial ownership) are particularly prone to productivist expansion and growth (Hinton, 2020). Collectively-owned and managed initiatives are better suited to instigate an equitable downscaling of operations, in line with planetary limits (Gunderson, 2018). A degrowth transformative initiative entails collective financial ownership and is governed by its members and employees through democratic and transparent processes (Johanisova and Fraňková, 2017; Nesterova, 2020; Hinton, 2021). Some level of organisational hierarchy might exist to favour operational efficiency in daily decision-making, but democratic deliberation always guides the overall direction of the organisation.

To facilitate informed, inclusive, and democratic decision-making (Deriu, 2012), a degrowth transformative initiative must **operate with full transparency**. Data on operation, decisions, and the broader organisational direction ought to be openly accessible to all members and workers of the initiative, as well as to the public. This way all relevant stakeholders can make informed decisions to collaboratively propel the initiative forward, while external societal actors can also hold the initiative accountable for not operating in a way that promotes community well-being and environmental sustainability.

3.6. Building networks

All of the above-mentioned elements focus on what happens within organisations, in terms of their internal structure, rules, goals, and behaviour (except for the Empowerment and Learning element that also looks at political advocacy). Yet, it is also important to focus on how initiatives connect with each other. Building Networks is essential for niche initiatives as it helps them access the resources necessary for establishing themselves and amplifying their impact across different contexts (Moore et al., 2015; Lam et al., 2020b). A degrowth transformative initiative forms mutual support networks with like-minded organisations, and it nurtures the creation of new initiatives with similar goals.

The first key aspect of building networks of transformative initiatives is that it allows for mutual support and the **exchange of knowledge and experiences**, so that each initiative can reach its full transformative potential. Initiatives can learn from the mistakes and best practices of their peer organisations, so that they can avoid repeating mistakes or

"reinventing the wheel" (which links to the Empowerment and Learning element in Section 3.3).

This process also includes the strategic **pooling of resources** between like-minded initiatives, which can help them grow (linking to the Fair Resource Flows element, Section 3.4). Strategic actor networks can pool resources (e.g., money, tools, and software) and create resource reserves so that they do not have to rely on mainstream actors and institutions (e.g., a for-profit bank for a loan) (D'Alisa et al., 2015; Grubačić and O'Hearn, 2016).

Additionally, Building Networks entails **bridging multiple governance scales** and working with a diverse range of powerful and niche actors (Moore et al., 2015). The garnering of support from powerful actors, like the State or the European Union, can be of importance for degrowth niche initiatives that require a favourable institutional (i.e., legal, financial, cultural) framework in order to compete with pro-growth initiatives (D'Alisa and Kallis, 2020). Through such interstitial strategies, a niche initiative can work within the system to appropriate resources and build alternatives within the cracks of the current system. However, to prevent co-optation from mainstream actors, the niche initiative must keep cultivating soft capacities related to maintaining its vision and values, and serving its social-ecological goals. Degrowth transformative initiatives might also pursue "ruptural strategies," involving direct confrontation with powerful status quo actors (Barlow et al., 2022). In this case, too, working across multiple governance scales would be important for an initiative's degrowth transformative capacity. For example, an energy community can maintain its presence at the local level through a neighbourhood group, at the national level through a federation of energy communities, and at the international level by collaborating with the International Cooperative Alliance.

Access to intermediaries (individuals or groups) that can facilitate the flow of information and resources, and link actors across scales, are key to enabling transformations (Westley et al., 2013). This becomes all the more important in the context of niche degrowth initiatives, which may be fragmented from each other and operating under an uncertain or unstable institutional landscape (Enarsson et al., 2024).

3.7. Using the DTC framework to evaluate transformative capacity

In practice this framework can be used to analyse a wide variety of niche initiatives. To operationalise the framework, its components can be used as a set of codable criteria. Table 1 shows an indicative set of questions derived from the framework that can be used to assess an initiative. The questions and their order can be altered to facilitate different interview structures. The Greek case study used a set of 30 questions to assess the DTC of seven different renewable energy communities. The updated framework presented in this paper consists of 32 criteria, while the full list of questions can be found in Appendix I.

Criteria derived from the framework can be analysed qualitatively, employing methods such as discourse analysis to capture each initiative's context-specific nuances. Total degrowth transformative capacity can then be tabulated as a function of the framework's five elements. The different elements can be weighted equally, or more weight can be given to some depending on the nature of the initiative and the context under which it operates (this is further elaborated in Section 4.1). The framework can be viewed both 1) as a roadmap tool that stimulates broader strategic discussions within an initiative, as well as 2) an assessment scoreboard from someone external to the initiative. Due to its qualitative analytical nature, the question on whether an initiative qualifies for each of the 32 criteria would be based on commonly agreed principles of degrowth (Cosme et al., 2017; Kallis, 2018: 118-122), but it would ultimately depend on the unique context under which the initiative operates.

Table 1: Questions that can be used to assess DTC according to the framework

Degrowth transformative capacity element	**Degrowth transformative features**
Degrowth goals and visions	To what extent does the initiative aim to contribute to social and ecological sustainability (i.e., meeting everyone's needs within the safe and just earth system boundaries)?
Degrowth goals and visions	Does the initiative use social and ecological value-metrics and/or indicators rather than financial indicators (like GDP, revenue, and profit) to measure progress towards its goals?
Empowerment and learning	To what extent is the initiative teaching its members (and external actors) new skills, to promote leadership, innovation, and self-sufficiency?
Empowerment and learning	To what extent is the initiative participating in larger political processes? And to what extent is it encouraging its members to engage in the commons/polity?
Fair resource flows	To what extent is the initiative openly sharing knowledge, skills, and other tools with other initiatives and relevant stakeholders?
Fair resource flows	To what extent does the initiative actively strive to invest any savings, profit, or broader financial resources into social-ecological purposes, including investing in the local community where it operates (rather than privately distributing it to investors)?
Democratic governance	To what extent does the initiative have established protocols/rules to ensure that participation, governance, and decision-making is horizontal and non-discriminatory?
Democratic governance	When it comes to actions and planning, to what extent does the initiative balance "expert" and technocratic views, with other more diverse views across income, education, or ethnic lines, including for example those of marginalised social groups?
Building networks	To what extent has the initiative already established (or is it trying to establish) links with larger institutions, power-holders, and influential actors (e.g., national government or the European Union)?
Building networks	To what extent is the initiative helping to create new initiatives with similar or broader social-ecological goals, or to expand existing ones?

4. Discussion

There are important potential benefits that come with using this framework for analysing whether (and to what extent) an initiative is transformative in a degrowth direction. This section presents three key benefits: (1) it is flexible and can be adapted to specific contexts; (2) it exposes inconsistencies and growth-oriented tendencies; and (3) it can guide policy and practice, beyond academia. Each of these is explored in more detail below, followed by a brief discussion of some of the limitations of this framework.

4.1. Flexibility and adaptability

This framework should only be seen as a starting point that can be adapted to different contexts. In the Greek case study, 30 degrowth transformative capacity criteria were given equal importance and weight in the analysis. However, the elements can be adjusted or given a different level of importance and weight, depending on one's theoretical orientation as well as the social context. Due to the lack of academic research that compares or ranks different (degrowth) transformative capacity elements, we encourage others to adapt the weighting of the different elements of this framework if this better captures the context-specificities of the study. Because degrowth theorists usually consider a change in deeply-held values and beliefs to be a key prerequisite for a degrowth transformation (Göpel, 2016; D'Alisa and Kallis, 2020; Koch, 2020), it might be important to give additional weight to the Degrowth Goals and Visions element. Another example could be that in a country with weak civil society and citizen participation in the commons, and weak links to the international community, the Empowerment and Learning and Building Networks elements could be weighted as more important, as they could unlock new capacities and resources, hitherto untapped in that specific context.

The analysis of the seven Greek energy communities (Vrettos, 2021) employed a quantitative analysis of the DTC, based on 30 codable (YES/NO) criteria (Annex I). As discussed in Section 3.7, this is only one of the many different ways of utilising the analytical power of this framework. For the purposes of increasing the analytical rigour of the framework, we have modified the framing of the 32 criteria to be answered through longer-text explanations, as opposed to a simple "Yes/No". A qualitative analysis (e.g., discourse analysis) would indeed

better capture the various tensions, nuances, and context-specific compromises that a niche initiative might face as it seeks to enact a degrowth transformation. This is especially important for criteria that contend with terms that are not universally agreed (e.g., what exactly is a degrowth aligned vision - and how is that affected by the unique context under which an initiative operates?).

This framework should also be regarded as a starting point that can be expanded or adapted to explore degrowth futures and degrowth transformative capacity in other sectors (e.g., food or transportation) and contexts (e.g., Global South countries). We have already improved this framework through several iterations of changing the names and numbers of elements and components. Thus, this framework can and should be further developed and adapted to different contexts. This is a call both to academics seeking to expand the interface between transformations and degrowth, as well as to activists and practitioners seeking to affect institutional change, through initiatives and everyday practices. The present framework could additionally function as a useful guiding tool to start collating (and comparing) degrowth niche initiatives and their general attributes, and thereby contribute to the creation of a degrowth repository of "seeds" of a sustainable degrowth future (Fitzpatrick et al., 2022). Most importantly, the DTC can contribute to ongoing discussions around degrowth strategies (Barlow et al., 2022), and provide greater clarity around the various components, and strategic directions that a degrowth transformation may follow.

4.2. Unearthing the nuances of degrowth transformation processes

Importantly, this DTC framework may also expose various grey zones, like those that Spash (2021a, 2021b) points out, which have the potential to counteract or undermine degrowth transformations. These grey zones can indicate whether a niche initiative can truly enact long-term, sustainable, and inclusive change in the right direction. Likewise, this framework can help to uncover the implicit theories and strategies of change that an initiative might be employing.

Without a rigorous, multidimensional analytical framework that describes what constitutes a degrowth transformative initiative, the risk of mistaking mainstream initiatives as transformative is high. Greek energy communities are a case in point. They have been

extensively co-opted by private interests who have set up hundreds of “shell” energy communities (Vasilakis et al., 2020). Perhaps that is why Vasilakis et al. (2020) found that from a sample of 32 energy communities, profit was the primary motive driving the establishment of the community. They further found that 16 (or 50%) of the surveyed energy communities were not open to including members other than friends and family. Unlike the communities studied in Vrettos (2021), these communities would likely score low if they were analysed through the present framework due to their discriminatory participation, profit-oriented goals, and hesitancy to collaborate with others. The DTC framework thus exposes these areas of conformity to the status-quo, allowing for a clearer understanding of whether an initiative is genuinely committed to systemic transformation for sustainability or if it is just reinforcing the unsustainable growth-based system, in the guise of being “alternative.” Through its multilayered criteria, the DTC can provide a basis for more nuanced discussions around degrowth and transformative strategies, departing from “purist” perceptions around the perfect degrowth strategy, and oversimplifying dualities such as for-profit vs. not-for-profit, independent vs conformist.

4.3. Usefulness beyond academia: guiding policy and practice

A final key benefit of this analytical framework is that it can be used by diverse actors who are working towards degrowth transformations on the ground. For instance, it can be used by practitioners to unpack specific areas of improvement within their niche initiative.

Drawing from the example of the Greek energy communities, many energy communities scored low on the Degrowth Goals and Visions element because they failed to incorporate performative methods, such as theatre, filming, and story-telling in their public activities. Such alternative educational practices could provide an embodied, effective way of understanding degrowth that translates academic “jargony” concepts into lived experiences and emotions (Brossmann and Islar, 2020). These would also make degrowth concepts more accessible—and attractive—to wider audiences, as they would instil a necessary component of fun and curiosity to people interested in degrowth ideas (Koch, 2020). Thus, to increase their total degrowth transformative capacity, Greek energy communities could start using more artistic practices to challenge growth-oriented narratives in public fora. Additionally, despite unanimously identifying Building Networks as a key enabling condition to their

development, most Greek energy communites face difficulties in mobilising resources from their national and international networks. This is partly owed to the fact that most of those communities are still young and are operating with very limited funds and capacities (Vasilakis et al., 2020). This further emphasises the important work of intermediary organisations who can facilitate this networking and resource exchange. The DTC can act as a bridge between a niche initiative's current practices (within contextual limitations) and a degrowth-aligned transformative vision for the future, providing concrete recommendations around areas of improvement.

4.4. Limitations of this framework

As with any framework, the DTC framework also has boundaries and limitations. Firstly, it focuses on synthesising one body of work on transformations with degrowth. Many other approaches and frameworks exist that could relevantly be integrated with degrowth, but these are not covered here.

Another key limitation is that the framework does not account for how niche initiatives can or should best be supported in order to enable transformations. This opens an important opportunity for future research regarding the enabling conditions for degrowth transformative governance. One way this could be done is through a comparative analysis of different degrowth initiatives across scales and contexts.

Furthermore, this framework does not resolve how enmeshed in, or dependent on, the growth-based economy a truly transformative initiative can be. For instance, the Greek energy communities seem to be quite dependent on a favourable institutional framework. However, State policies are deeply entrenched within and are influenced by the dominant regime, therefore the State is unlikely to create a policy framework that radically reconfigures power relations and resource flows, to enable a degrowth transformation (Proka, 2021). Like a "wolf protecting the sheep," we observe an oxymoron whereby "the more radical the niche innovation, the more constraints it faces in its attempts for expansion, the more protection it needs, the less it receives" (Proka, 2021: 75). This is a critical issue that is not dealt with within our framework.

All in all, considering the various compromises, concessions, and strategies that an initiative might follow, it is hard to offer a definitive, long-term assessment of its transformative capacity. One could thus argue that the DTC offers a static snapshot of an initiative's transformative capacity, which might not capture certain nuances as the initiative keeps scaling (Colombo et al., 2023). One recommendation could be to use the DTC for self-assessment purposes at regular intervals, providing an evolution and strategy benchmark, and ensuring that the initiative stays true to its original degrowth vision.

5. Conclusion

From synthetic meat to negative carbon technologies and the colonisation of Mars, rhetoric about transformations abounds. Clearly delineating the scope, scale, and direction of these transformative processes is essential to ensure genuine social-ecological sustainability and equity. Degrowth research and activism, which are rapidly expanding, offers a concrete direction for sustainability transformations; one that enhances human well-being while respecting planetary limits. The present article has outlined a framework to assess the degrowth transformative capacity of niche initiatives. Gravitating around five key elements, namely Degrowth Goals and Visions, Democratic Governance, Fair Resource Flows, Empowerment and Learning, and Building Networks, the framework can be used to analyse empirical data drawn from real world initiatives. The application of the framework can contribute to a stronger understanding of the various attributes that characterise degrowth transformative initiatives, as well as how transformative specific initiatives might be in helping to bring about degrowth futures. Practitioners can utilise the framework to tweak their initiatives' practices, interactions, and aims to better align their work with a degrowth transformative process. Future research would entail a deeper dive into the enabling conditions that would allow for degrowth transformative governance. Both researchers and practitioners should view this framework as a springboard from which they can delve into the emerging field of degrowth transformative capacity, and evolve the framework to better reflect the intricate and evolving realities of different contexts.

Conflict of interest

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Appendix I

Showing the 32 codable criteria/questions used for the Greek case study, stemming from the five elements of the Degrowth Transformative Capacity Framework.

Degrowth transformative capacity element	**Degrowth transformative features**
Degrowth Goals and Visions	To what extent does the initiative aim to contribute to social and ecological sustainability (i.e., meeting everyone's needs within the safe and just earth system boundaries)?
Degrowth Goals and Visions	To what extent do the goals consist of social and environmental considerations?
Degrowth Goals and Visions	To what extent does the initiative use social and ecological value-metrics and/or indicators rather than financial indicators (like GDP, revenue, and profit) to measure progress towards its goals?
Degrowth Goals and Visions	To what extent does the initiative remain faithful to its degrowth transformative goals, despite potential changes in circumstances or external hardship?
Degrowth Goals and Visions	To what extent does the initiative help to educate its members and the broader public about the links between society, technology, and the environment?
Degrowth Goals and Visions	To what extent do these educational practices include an emotive aspect that may enhance a systemic, convivial understanding of social-ecological and technological connections?
Degrowth Goals and Visions	To what extent does the initiative create open spaces for dialogue and information-sharing between stakeholders in which growth narratives are challenged and alternatives are presented?
Degrowth Goals and Visions	To what extent do the initiative's vision and goals align with a degrowth future?

Democratic Governance	To what extent does the initiative have established protocols/rules to ensure that participation, governance, and decision-making is horizontal and non-discriminatory?
Democratic Governance	When it comes to actions and planning, to what extent does the initiative balance "expert" and technocratic views, with other more diverse views across income, education, or ethnic lines, including for example those of marginalised social groups?
Democratic Governance	To what extent does the initiative transparently and openly share relevant information and data with its members, employees, and the public?
Fair Resource Flows	To what extent does the initiative openly share knowledge, skills, and other tools with other initiatives and relevant stakeholders?
Fair Resource Flows	To what extent does the financing model align with a degrowth transformation, despite all conditions or obligations tied to this financing mechanism?
Fair Resource Flows	To what extent does the initiative work towards finding, promoting, and utilising alternative, degrowth aligned financial models?
Fair Resource Flows	To what extent does the initiative actively strive to invest any savings, profit, or broader financial resources into social-ecological purposes, including investing in the local community where it operates (rather than privately distributing it to investors)?
Fair Resource Flows	To what extent are there awareness-raising efforts addressed to the members towards ethical/sustainable management of savings?
Fair Resource Flows	To what extent is the initiative adopting a critical stance towards energy and material use? Is it taking measures to reduce the energy (and material) use of its members?
Fair Resource Flows	To what extent is the initiative adopting a critical stance towards the relative impacts of different technologies (e.g., renewable energy systems)?
Fair Resource Flows	To what extent does the initiative take any steps to minimise the impact of technology on the environment and local communities? (Some indicative

	examples include: planning to recycle/reuse/upcycle old/expired technologies and parts; working to integrate new technologies into the local environment; and working with eco-certified suppliers.)
Fair Resource Flows	To what extent is the initiative creating jobs that deliver broader social-ecological benefits?
Fair Resource Flows	To what extent is the initiative promoting a better work-life balance through work-time reduction practices, such as work-sharing?
Empowerment and Learning	To what extent is the initiative teaching its members (and external actors) new skills, to promote leadership, innovation, and self-sufficiency?
Empowerment and Learning	To what extent does the initiative promote alternative forms of economic activity? (Some indicative examples include: bartering, gifting, reciprocity, redistribution, householding (non-monetized production for own-use), P2P trading (e.g. of electricity), volunteering, informal activity, and sharing.)
Empowerment and Learning	To what extent is the initiative cultivating interpersonal relations and a sense of community between its members?
Empowerment and Learning	To what extent does the initiative encourage and foster experimentation? (This could be in areas like testing new technologies, new organisational structures, or new finance-raising tools.)
Empowerment and Learning	To what extent is the initiative participating in larger political processes? And to what extent is it encouraging its members to engage in the commons/polity?
Building Networks	To what extent has the initiative already established (or is it trying to establish) links with other actors with similar goals, either within their sector or across sectors?
Building Networks	To what extent has the initiative already established (or is it trying to establish) links with larger institutions, power-holders, and influential actors (e.g., national government or the European Union)?
Building Networks	To what extent are these networks able to mobilise local and regional resources which help to sustain and/or expand the initiative's operation?

Building Networks	To what extent are these networks able to mobilise global resources which help to sustain and/or expand the initiative's operation?
Building Networks	To what extent is the initiative helping to create new initiatives with similar or broader social-ecological goals, or to expand existing ones?
Building Networks	To what extent is the initiative connected to intermediaries that bridge relevant gaps in networks and resource flows?