Proliferating circularity efforts

Coordinating multi-value creation in multi-actor contexts

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Abstract

In this paper, we highlight the growing urgency of sustainability transitions in general and circularity transitions in particular, which is hardly taking shape in practice. We explore new pathways to accelerate such transition, focusing on a regional scale. We frame the lack of change as a multi-faceted, wicked, problem of organisation. Two specific aspects of increasing complexity are explored: extension of the value set taken into consideration by actors, and expansion of actor types involved. Our value-actor matrix illustrates this two-dimensional increase of complexity, and points to societal coordination as the main problem of circularity transitions. We define four criteria for new coordination models: integration of top-down and bottom-up efforts, scalability from local to global, diplomacy between ideological and sectoral coordination and intuitiveness for rapid proliferation. We use these to analyse five cases, leading to the identification of a common cause of the lack of change. Next, the concept of task democracy is explored, attempting to fix the cause and customise it for a circular economy. The resulting framework takes shape in an open-source manifesto for product councils, on local and regional scales. This research takes large and sometimes speculative steps and the result is largely untested. Yet it shows one pathway to acceleration, which may inspire further research.

Keywords

Circular economy, multi-value creation, sustainable regional development, task democracy, value-actor matrix

Introduction

To many of us, a **circular economy** is the ideal of keeping precious or harmful materials in endless recycling, thus preventing waste and emissions, and preserving scarce natural resources (in line with e.g., Stahel, 1982).This concept has been studied from many viewpoints, ranging from technology and product design (e.g., Braungart and McDonough, 2002), via business models and business strategy (e.g., Jonker and Faber, 2021) to circular economy policy (e.g. European Parliament, 2015) and the UN sustainable development goals (UN, 2015). In all these approaches it becomes clear that the problem of realising a circular economy is a problem in which many actors are involved; it is a societal multi-actor problem. In this paper, we focus on the intermediate (regional) level, where industry, consumers and government meet each other and where joint action can be taken. It is at this level we want to find out which factors contribute to sustainable development. We perceive sustainable regional development as creating economic, ecological and social value, for and by regional actors (e.g., Jovovic, Draskovic, Delibasic, and Jovovic, 2017).

We consider the issues of a circular economy and sustainable development as two sides of the same coin. While the two topics are commonly debated in separate discourses (Jonker and Faber, 2021), they have more in common than they differ. A circular economy principally focuses on organising value preservation, thus minimising the use of natural resources, and eliminating the concept of waste (Stahel, 1982). The ambition of minimising environmental impact aligns with early calls for sustainable development (e.g., Meadows, Meadows, Randers, and Behrens, 1972) and more recent stipulations of the safe operating space for humanity (Rockström, Steffen, Noone, Persson, Chaplin, et al., 2009). Consequently, we switch back and forth between concepts of sustainable development and circular economy throughout this paper. Next to their common roots and objectives, this became inevitable as we focus on societal coordination of circular economy. This is a political domain, which inherently interweaves the two issues.

The **urgency** of sustainable development in general, is more than evident, regarding the increasing number of and deepening of global crises. Taking action on this is rapidly developing from optional to existential, especially for hunger, climate change and biodiversity (IPCC, 2022). However, global response over the past decades has been inadequate. For circular economy too, the pressure is on. Global progress on SDG 12 (Responsible Consumption and Production) is measured as negative at -0.4%since 2015, while most other SDGs have small positive index scores (Sachs et al., 2021). In The Netherlands, only limited progress is shown during the past decade, while the objective is to reach a fully circular economy by 2050 (Planbureau voor de Leefomgeving, 2021). Even a modest measure like introducing a recycling deposit on small PET bottles took 20years (Ministerie van Infrastructuur en Waterstaat, 2020). Other problematic examples include plastics recycling, recycling of chemically bonded materials, battery recycling, e-waste and nuclear waste. In all of these examples, we see a wider array of actors involved, besides producer and consumer, and we see that in trying to realize something circular not just the national or local government is involved. The pattern that unfolds shows that circularity is a multi-level and multi-actor topic, riddled with technological challenges and conflicts of interest. Even in early stages, when low hanging fruit is abundant, society is mostly unable to get up to speed with transitions towards circularity.

This paper aims to analyse this dramatic lack of progress and to identify strategies that may help to **drastically speed up circularity everywhere**. We do not consider political feasibility or economic realism yet, but start from the necessary future result and work our way back to see what would be needed, postponing the reality check until we arrive at current options. Our interest is exploring the whole field of options, including if needed uncharted territories, and finding new pathways for circular economy policies.

The problem of inadequate global urgency response can be seen as a **wicked problem**(Conklin, 2003; Rittel and Webber, 1973). This implies that a repair plan, even if it would work, has a limited chance of getting accepted. In other words, both the problem and the solutions are political issues. Given the urgency, however, the academic research community cannot limit itself to reductionism, to solving partial problems in technology or legislation in the hope this will contribute to fixing the whole thing. Even presenting holistic models and leaving decision-making to politics will not do. More is needed, particularly concerning societal coordination and political problem-solving. To start with, we need an

overarching perspective to see all facets, find blind spots and hidden problems and identify new connections and new synergies.

The daunting complexity of coordinating circularity efforts

What is complex and dynamic in a circular economy?

Classified as a wicked problem (Jonker and Faber, 2021), the complexities and dynamics of a circular economy span a varied array of aspects. To start with **technology**, we observe a wide range of product families that needs to be circular. This includes every manufactured object in our daily lives. Many products are complex in themselves, consisting of assembled parts or complex mixtures or processed materials. The components and parts may originate from everywhere on the globe and may travel long distances. Also, products change all the time, driven by innovation, fashion or competition.

Next, we identify the complexity of **manufacturing**, which is done by countless businesses in competitive markets. Entrepreneurs want to stay in business and have more to think of than circularity alone. Standardisation, for instance, can be desirable for circularity but does not necessarily match each company's strategy. Intellectual property and business data need to be protected, while circularity demands chain transparency and life cycle analysis (Lokesh, Matharu, Kookos, Ladakis, et al., 2020). The natural entrepreneurial reflex to fend off competitors while winning the customer makes eager to lower costs. This fosters a tendency to externalise costs, for instance by not bothering about environmental effects. This way, capitalist ownership of businesses has since long led to short-sightedness (e.g., Mintzberg, 2015), resulting in privatising profits while socialising costs (Coase, 1960).

Furthermore, there is the complexity of **government regulation** of dynamic markets. Countries use their political system to regulate their economy. This may include circularity and transitions (e.g., Ministerie van Infrastructuur en Milieu, 2016). Transition, in turn, needs a level playing field, which requires more regulation, preferably internationally. An example is the effort of the European Parliament to establish consumer rights to repair (European Parliament, 2022). Moreover, governments must deal with geopolitical issues, conflicts and sanctions, circumstances that often outweigh the urgency of circularity.

The **demand side** of markets has complexities of its own. Theoretically, demand is a dominant market power and decides what is manufactured. However, in practice, consumers are sensitive to marketing efforts and fashion and are easily overrun by supply push when they are not or weakly united. Government regulation and product certification for fair trade, product safety and circularity are needed to maintain the balance.

Finally, knowledge about circularity needs to be developed and transferred, which asks for diffusion in **curricula**. So far, sustainable development has reached primary and secondary education (Faber, van der Gaast, Gelderblom, de Graaf, et al., 2017), but in technical education, industrial design, and especially business and economics education, progress towards integration seems to be slow.

In summary, the complexity of a circular economy lies not just in its economical or technological aspects. It is also embedded in the involvement of all of society and in numerous delicate **balances of interests** in which the need for circularity is just one force, and in many cases not the most powerful.

Changing value systems add more complexity

Apart from the complexity of the economy and the strong values of innovation and growth, there is the growing weight and influence of social and ecological values, fuelled by growing awareness of the devastating consequences of ongoing growth in a confined system (Meadows, Meadows, Randers, and Behrens, 1972; Meadows, Meadows, and Randers, 1992; Meadows, Randers, and Meadows, 2005). Shifting values have already influenced how we measure progress, as can be seen in the set of SDG indicators and common critiques on GDP as an indicator of prosperity (van den Bergh, 2009). On the other hand, social, ecological and economical capital are uncomparable and have **no common currency**. Therefore, societies generally revert to trading in the most immediate currency, which is financial.

For instance, Stimson, Stough and Roberts (2006) provide a comprehensive understanding of regional development, explaining the main components and their dynamics, and providing various tools to intervene. However, they measure development mostly in growth of economic production. The same pattern is visible in political research, where conciliating social, ecological and economic development is seen as a challenge for politics and government, requiring

participation of civil society and citizens (e.g., While, Jonas, and Gibbs, 2010). But here too we observe that regional development almost exclusively translates to economic-financial indicators. In other words, sustainable development is commonly measured and treated as a **one-dimensional issue** in both economic and political arenas, while sustainability by nature is a multi-value phenomenon. This is complicated further through the variety of actors involved, who adhere to a wide variety of values. In the next section, we suggest a means to visualise and reduce this complexity, developing a conceptual lens that enables the simultaneous identification of regional actors and their values.

A value-actor matrix

As indicated, sustainability (and circularity) is a matter not just for companies or governments, nor of single values. Instead, it brings to the fore a multidimensional perspective on development. In one dimension, the number and type of involved groups are expanding from market players and government to all actors of society. Simultaneously, environmental, social, and economic values together form a new playing field, each bringing forth their complexities and interdependencies between them. The need to accommodate multiple, different actors in realising their values politicises the issue of sustainability. We visualise this in a 'value-actor matrix' (Figure 1), where the area of concern has expanded in two directions.

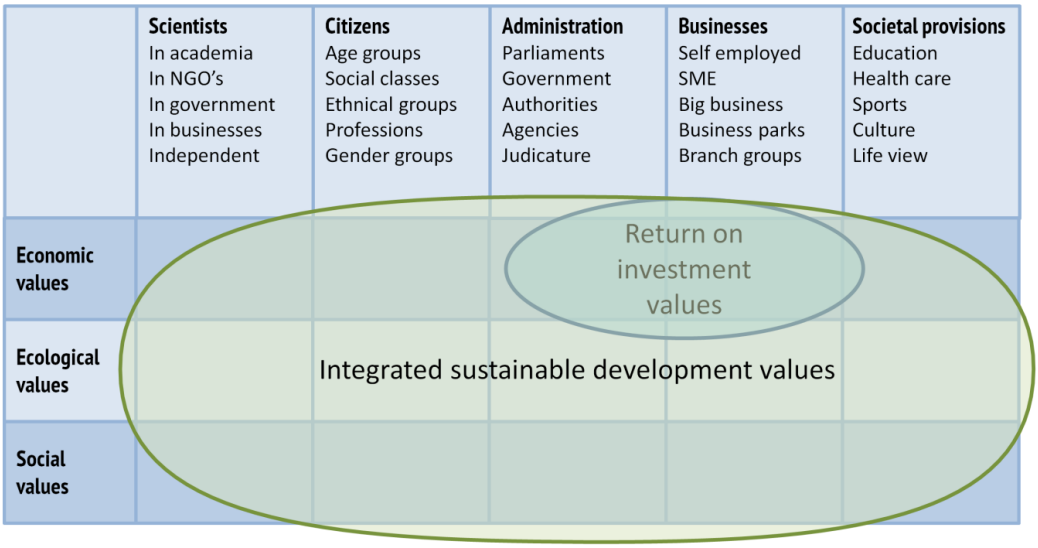

Figure 1 Value-actor matrix

The presented matrix captures the complexity of sustainable development in social contexts. Firstly, the actor dimension identifies the various segments of this context. We discern the segments of (1) scientists, (2) citizens, (3) administration, (4) businesses, and (5) societal provisions: education, health care, sports, culture, and life view (Bootsma, 2021). Each segment forms a specific intersection of societal actors, stipulating their roles and activities.The actor dimension intends to reduce societal complexity, bringing conceptual order to the increasing connectivity between societal actors. Secondly, the value dimension identifies the three values that span sustainable development: environmental, social, and economic (e.g., Elkington, 1999; WCED, 1987).Together, both dimensions give shape to an actor-value matrix that on the one hand provides a societal segmentation that enables us to identify relevant regional actors. On the other hand, it allows for a more in-depth understanding and identification of the values connected to each of the actors. In this way, we argue that the value-actor matrix allows us to harness some of the complexities that emerge from the common and collective strive for sustainable development. This stands in stark contrast to the traditional, single actor (business) and single value (economic) orientation on regional development we have been accustomed to (Stimson et al., 2006).A consequence of this observation is that the shift to a multi-actor and multi-value approach to development will no longer allow it to be managed traditionally. This calls for a new paradigm of understanding and coordination across actors and values.

Challenges to a circular economy

We now have a basic understanding of the two-dimensional increase of complexity of sustainable development and circular economy, and the objective of understanding and coordinating across actors and values. Given the urgencies, any new framework for coordination will need to proliferate at a significant speed. This implies that, apart from political will and decision making, it should in itself be easily deployed across scale levels and it should easily 'hype' horizontally between areas. To achieve this, the coordination concept needs to be *multi-value* and *or* and *integrative*, *scalable*, *diplomatic* and *intuitive*.

Integration is about joining top-down and bottom-up efforts. To realise the intended integration, bottom-up efforts need to be *expansive*: including both more actor types and more value types. For instance, a regional circularity initiative of a business branch organisation should not only involve the supply side but the demand side as well. Likewise, top-down efforts should be more *comprehensive*: taking the full set of actors and values into account, from the

onset. An example would be a government programme for circularity with a democratic steering committee representing all sectors of society. Without coordination, both expansive bottom-up efforts and comprehensive top-down efforts will run into a multiplication of the number of actors and interests involved. The coordination concept needs to recognise this and should protect efforts from unrealistic ambitions. The concept should also nudge bottom-up and top-down efforts to support each other, e.g., by inviting both effort types to the same table.

Scalability implies that the value-actor matrix itself needs to be scalable. This already holds for the 'people, planet, profit' value set, which is being referred to in countless local initiatives as well as globally in UN goals and policies. Scalability also asks for connectivity with peers, both horizontally in neighbouring areas and vertically in larger and smaller areas.

Diplomacy in coordination between bottom-up and top-down efforts is crucial. The top-down democratic government already is a delicate balancing act between ideological perspectives. Adding bottom-up initiatives complicates the play further as bottom-up chiefly organises on a sectoral basis, around social groups such as citizens, farmers, or industry. At meeting points, this incompatibility may yield friction. An example is the widespread criticism of national politicians regarding sectoral agreements (Koole, 2019). In the same spirit, sectoral representation often is negatively framed as self-interest, while ideological parties are seen as protectors of common interest (Grant, 2020). Another challenge in coordinating top-down and bottom-up efforts is decreased trust in democracy. Both entrepreneurs and bottom-up activists often prefer autonomous peer projects, above engagement in government programmes. An example is the rise of cooperatives. So, new concepts for coordination of circular economy transitions need to reconcile not only top-down and bottom-up efforts and scale differences, but also the ideological and the sectoral dimension of organising transitions.

These already complex requirements lead to one more criterion for coordination frameworks, which is that they need to be **intuitive**. While they call for a new mindset, an article, webinar or lecture should be sufficient to transfer the big idea. If this level of portability can be achieved, adding small scale examples and visionary leadership might be sufficient to trigger rapid proliferation.

In short, for the sake of rapid proliferation, new coordination models for circular economy need to be multi-value and multi-actor, and need to fulfil the four requirements of (1) integration between top-down and bottom-up efforts, (2) scalability from local to global, (3) diplomacy between ideological and sectoral coordination and (4)align with the intuitiveness of the parties involved.

Examples of current bottom-up and top-down efforts for circularity

To illustrate the way top-down and bottom-up initiatives unfold, we briefly touch upon some examples, revolving around the need for coordination. We present five cases of mixed bottom-up and top-down efforts for circularity and investigate to what extent coordination is multi-value, multi-actor, **integrative, scalable, diplomatic** and **intuitive**.

Case: Appingedam

(1) In the Dutch city of Appingedam, local entrepreneurs devised a plan to revitalize the local economy and spur a wider regional development (Pennink and Gerrits, 2021). Their first step was to stimulate local customers to visit their shops more often, making them more aware of their products and attracting them to shop, optionally winning a prize. The introduced loyalty card idea was a starting point in creating shared value between local entrepreneurs and local consumers. The principal objective of this loyalty card has been to create a loyal group of returning customers for local retailers. Currently, the card's potential application for a wider array of uses is explored, including the incorporation of other values besides financial benefits. One direction is a possible extension of the loyalty card to enable shared value creation between local citizens and local NGOs. The underlying rationale for these explorations is to gain further insight into how sustainable regional development may take shape. Preliminary analysis shows how specific actors and values (dis)connect. As the loyalty card started as a top-down approach the extensions into other dimensions of shared values have to be discussed further with NGOs and local citizens. This opens the possibility to realise a bottom-up effort as well. The question that remains unanswered as of yet is how these ideas and actions regarding shared value creation around the loyalty card, involving a wide range of local actors, will be coordinated.

The Appingedam effort started as a bottom-up, business economic effort. Then the value set was expanded, and thereafter the actor set. While several actor groups are mentioned, coordination seems absent. There is some integration, however, as there is contact between bottom-up (entrepreneurs) and top-down (politicians). On the other hand, the critical note on politicians signifies the

absence of diplomacy. Scalability is no factor here. A loyalty card can be considered an intuitive aid in achieving coordination.

Case: Energy cooperatives

(2) Our second example concerns a study of six energy cooperatives in the Netherlands and Belgium and illustrates a bottom-up effort towards regional development (Pennink and Gerrits, 2021).This study shows that cooperatives may be quite successful in realizing green energy solutions on a regional scale, building on a value set that includes economic, social and environmental values. Their constituency not only includes homeowners and businesses within the region but also outside actors. It appears that more recently established cooperatives have a more complete value set and a larger working area. Older cooperatives are more locally focused.

Similar to the previous example, energy cooperatives started as bottom-up, but now eventually with a fully expanded value set and a partially extended actor set. Interesting is that value set expansion correlates with territorial expansion. A limitation of cooperatives is their entrepreneurial character. In practice, not all perspectives of society are included. Missing actors are scientists, administration and societal provisions. The cooperatives focus and rely on the government and others for additional coordination. This illustrates some of the possible diplomatic tensions between the bottom-up (the initiatives of cooperatives) and the top-down setting for all kinds of regulations related to the production and delivery of energy as stipulated in government regulations.

Case: RIS3 Strategies

(3) Following the 2008 financial crisis, the EU developed the National/Regional Research and Innovation Strategies for Smart Specialisation (RIS3 strategies). A popular class of models for implementing RIS3 is the helix family, evolving from triple to quadruple and quintuple variants. Despite this shift from technological to social innovation and despite their growing emphasis on citizen participation and civil society, there is limited progress in involving citizen groups (Roman, Varga, Cvijanivić, and Reid, 2020).

While strengthening democracy is stressed, the helix models take the nature of government and political decision making as a given. Also, citizen participation seems to be mostly about awareness and involvement in decision making and

does not pose a responsibility or task in e.g., self-organising to adjust lifestyles or raising kids with sustainability values.

Case: Concrete recycling

An early example of a circularity campaign in the municipality of Groningen, the Netherlands, was about circular concrete for building purposes. The project was triggered by a concrete recycling company on one side of a canal, unable to supply to the concrete plant on the other side of the canal. They complained that all recycled concrete was ordered by road constructors, which in their view was downcycling valuable building material. Designing a campaign resulted after two years of delays in a covenant, stating promises by local government and supply and demand actors, to keep concrete from demolition clean and reuse it as an ingredient of fresh concrete. The regional concrete knowledge centre participated in the project to monitor concrete quality (Vereniging Noorden Duurzaam, 2013). The covenant resulted in a near 20% drop in gravel import to the municipality for a year or two. Eventually, gravel suppliers outside the municipality lowered their prices to counter their decreasing turnover, in which they succeeded. However, in the meantime, the concept of a 'concrete chain table' was copied to three provinces and was developed independently in seven cities throughout the Netherlands. Most tables still exist and started many new efforts for concrete circularity.

The concrete recycling effort started bottom-up with a partially expanded value set, without a social component. The actor set was almost complete, only education was missing. As local government was involved and an industry-wide covenant was reached, this effort can be considered both bottom-up and top-down. The covenant was an intuitive coordination mechanism, together with process guidance provided by Noorden Duurzaam's predecessor. This case shows that the combination of integrative, scalable and intuitive coordination, even when acceptance initially is low, may correlate with fast proliferation.

Case: Food council

In the USA, Canada, the UK and Germany, many food councils are active. Following a congress about network building between food councils, a guide was published on how to set up such a council, calling for food democracy and systemic coordination (Thurn, Oertel, and Pohl, 2018). Research in Luxembourg showed that people see the creation of a democratic Food policy council as an

opportunity for positive developments toward a sustainable and equitable food system transition (Pax and Reckinger, 2022). The researchers suggest forming a national Food policy council as a platform for independent cooperation among equal partners from the three sectors of Luxembourg's food system: policy and administration, research and civil society; production, transformation, gastronomy, and trade. This idea was picked up by government and has been included in a draft policy and law texts. Both the German and the Luxembourg research show that food councils are viable and are gaining momentum.

Similar to the concrete chain tables, food councils are integrative and intuitive meeting points of top-down and bottom-up efforts. The coordination features a fully expanded value set ('sustainable and equitable') and a complete actor set as well, although education involvement is not mentioned. Scalability and proliferation are demonstrated by the idea of a national food council.

Conclusion: circularity requires new coordination on a societal scale

Both examples shed some light on a context in which the strive to realise sustainable regional development is visible. However, they also highlight that this strive is hampered bya lack of coordination across (1) multiple actors operating at different levels of society, and (2) multiple values simultaneously. Current coordination structures either are unable to handle the complexities that come along with addressing multiple values or do not allow for coordination across a variety of actors.

We have no pretensions that the set of examples is representative of all efforts for a circular economy. However, we argue that they bring to the fore sufficient variation in terms of the criteria set. They are more and less multi-value, multi-actor, integrative, scalable, diplomatic and intuitive. At first sight, there even seems to be a positive correlation between the fulfilment of the criteria and transition progress or impact. This gives some hope that the chosen criteria may predict success or even guide us to successful coordination methods. On the other hand, none of the examples shows rapid vertical deployment or hyped horizontal proliferation, even when the effort would get high marks in the assessment. Could there be a common cause? That is what we will lookout for in the next section.

Exploring task democracy as a coordination strategy

The problem of liberal democracy

We are on a search for new pathways to drastically speed up circularity. Thus far we avoided the complexity trap caused by the expansion of values and actors. We concluded that conjunction is needed between bottom-up initiatives and a new type of society level coordination. In this section, we concentrate on coordination. We investigate the **task democracy** concept that is being developed by the Noorden Duurzaam association (Bootsma, 2022)[1]. Before presenting this approach, we elaborate on why current political arenas and the decision-making taking place within may chiefly be unfit to initiate and guide us through the transition towards a sustainable society.

About half of the world's countries are electoral or liberal democracies (Roser and Herre, 2013). These countries have parliaments where political parties establish or control government. During elections, these parties compete for seats by seducing voters with their ideas. The seduction itself is done by making attractive promises and asking for as few sacrifices as possible to be trustworthy. This is smart because policy promises are generally the least costly way for parties to secure electoral support (Strom, 1990). Parties differ in the kind of promises made and sacrifices asked so voters have a real choice. All is well as long as promises made will pay off to us, within the next term or the foreseeable future. Things get different when they do not, for instance when sacrifices are asked for future generations, for ecosystems we cannot see or for people elsewhere on the planet. In those cases, **imposing costs without a clear view of the pay-offs has the risk of losing votes**. As a result, most or all parties are

[1]The Noorden Duurzaam association is a regional think tank for sustainable development in the North of The Netherlands. Established in 2013, the association gradually expanded its field of interest from sustainable product design and circular economy into political transition management, coordination theory and experiments. The task democracy theory and concept is under active joint development by Noord Duurzaam and several governments, universities, NGO's and consultancies in The Netherlands. Knowledge is shared as open source. Task democracy resembles the well-known helix models but has a different background and purpose. While helix models are innovation and business centred and are used to build collaboration networks, the task democracy model is transition and society centred and is intended for political collaboration to realise transition campaigns.

reluctant to ask for sacrifices for sustainability, even while sustainability is widely considered a core value. This collective bias creates a blind spot in societies. We consider our destructive lifestyle as normal and claim it as a right, while at the same time we are willing to turn down our energy consumption when democracy, another core value, is at stake at Europe's borders. The difference: sustainability is about elsewhere and later; democracy is about here and now (see also de Geus, 2001).

This indicates that **ideological competition results in failing leadership for sustainability**. Liberal and electoral democratic political systems tend to postpone necessary sustainability transitions until too late. As the behaviour of the system has not changed much during half a century of scientific warnings about dangerous climate change (e.g., IPCC, 2022), it probably will not fix itself; this is bad news. Some consolation is that other political systems are not doing any better. It seems that in our search for new pathways for circularity we can strikethrough ideological competition as a coordination mechanism, as it is a common cause of dangerous delays. Yet, do we have an alternative?

An alternative way of coordinating

Back in the 13th century, among the best places to be in Europe were the North of Italy and the coastal area of the Netherlands (Prak, 2018). Both areas had growing populations, emerging cities and prosperous economies. In the Netherlands, however, about every 15 years massive storms and floods would take heavy tolls. The ultimate response was building and maintaining dykes, by that time a project of unprecedented proportions. It required contributions from landowners in the area that needed protection. As all landowners had an obligation to maintain their piece of the dyke, all had access to the general assembly of their local water authority, where dyke wardens were elected, conflicts were settled and tasks were assigned. Division of tasks was a key to success. Farmers needed to keep their waterways clear. Villagers needed to help build dykes. Rich landowners, often citizens, had to pay for the project (Soens, 2006). In coordinating these efforts, competition between the three actor groups was of no use, as eliminating one would jeopardise the undertaking. Mutual dependency, **collaboration and task division** were more important. Eventually, this resulted in democratic water authorities with boards consisting of actor sections having fixed seats, representing interest groups, or better: task groups. Elections were held within each sector. This coordination system is still in operation and has survived power shifts, turmoil and wars. Surprisingly, this type

of democracy has no name. The water authorities in The Netherlands are referred to as 'functional democracies' but only to indicate they serve a specific public function, i.e., water management. The Noorden Duurzaam association reverse engineered and reconstructed this system to find out whether it is up to the existential threats of the 21st century, and named it 'task democracy'.

The redesigned theory of task democracy consists of a sector model, a process model and a maturity model (Bootsma, 2022). The **actor model** holds five societal sectors collectively responsible for sustainable development: science, citizens, government, businesses and societal provisions. They each have indispensable, unique and non-transferable transition tasks, as indicated in **Fout! Verwijzingsbron niet gevonden.**. They coordinate their efforts in a task democratic board, council or chamber of parliament.

Actor groups	**Sustainability transition tasks**
Scientists - in academia, NGOs, government, businesses or independent	Measure economic, ecological and social capital, predict the future, identify development pathways
Citizens - age groups, social classes, ethnical groups, professions, gender groups	Collectively adjust lifestyle, raise new generations with sustainability values
Administration - parliaments, government, authorities, agencies, judicature	Forbid or tax what is unsustainable, encourage and subsidise what is sustainable, ensure a level playing field
Businesses–self-employed, SME, business parks, branch associations, big business, multinationals	Innovate products, business models and organisation models for sustainability impact
Societal provisions - health care, education, sports, culture, life view	Inspire people, qualify students, build and connect communities, and include everyone.

Table 1 Task democratic sector model

Mutual dependency, in-transferability of tasks and thus lack of internal competition create equality between the actor groups. Only joint effort will yield results. To strengthen and secure this basis for solidarity and collaboration, the five actor groups must have equal rights in a task democratic board or assembly. Therefore, even when the groups would have unequal numbers of representatives, the groups have equal voting power. Any other ratio would create continuous debate and would be detrimental to solidarity, ownership and willingness to participate and contribute.

A task democratic parliament or board has, according to a cyclic **process model**, three main tasks. The first is prioritising sustainability issues by voting, to set an agenda. Second is developing and realising society-wide campaigns, in which

each sector mobilises its members and in which sectors compensate each other rather than compromise the shared objective. Third is collecting data to be able to adjust and provide input for agenda setting and campaign design.

Task democracy may be applied small scale in for instance foundations, cooperatives and district councils. On a larger scale, it may be used as a design pattern for an additional permanent chamber of the municipal or province council or national parliament. This would create a new duality: ideological democratic chambers focusing on here and now matters; task democratic chambers preparing campaigns for elsewhere and later. The impact of this duality may be similar to that of the recent implementation of citizen fora in e.g. Ireland, where a citizen forum paved the way for new legislation (Hendriks, Jacobs, and Michels, 2021).

Resultsso far

Roleplay experiments have shown the model may evoke a change of attitude among participants. In the absence of ideological competition, and given sectoral interdependence, task division and collaboration appear to emerge more naturally. Currently, several experiments are designed, including applications for local circular economy and for municipal districts, where council structures are not prescribed by legislation. Proposals, however, meet resistance as well: council members may fear a loss of power when more sectors are involved; local politicians may hesitate to experiment with the unknown; civil servants may compare stronger district democracy with easier managing bilateral relations.

Current proposals for getting started with task democracy involve debate, role play, simulation and offline testing on real cases. Other options are writing up statutes including meeting rules, developing formal relations with other institutes, appointing an independent chairperson, installing a core team or presidency, organising internal and external communication, et cetera.

To summarise, task democracy is an attempt at an integrated governance approach for sustainable development, in an early stage of development. It builds on collaboration and task division, rather than competition. As a concept for coordination, it covers all of the value-actor matrix, involving actors from all societal sectors and inviting them to work on economic, social and ecological issues. The core question in our search for pathways, however, is whether it will

help fix the common cause of the slow transition to circularity. In the next section, we explore this.

Towards a new framework: “Task democracy” for regional circular economy

In this section, we customise the theory of task democracy for use in circular economy transitions, with fast proliferation in mind. That may well turn out to be overly ambitious, but since urgencies make rapid change important, the fast track is worth exploring.

The circular economy framework we want to construct from the task democracy theory needs to be, following the criteria set above, integrative, scalable, diplomatic and intuitive. We discuss these requirements separately.

Integration of bottom-up and top-down efforts in the task democracy theory can be established, among other factors, during the collective design of transition campaigns. To illustrate this, we present a brainstorm canvas, see **Fout! Verwijzingsbron niet gevonden.**. The brainstorm of a task democratic campaign design team, consisting of participants from five sectors, starts with an objective (top left corner), shared values (centre) and a territorial domain (top right corner). Then, in three steps the campaign is designed. At first, actors are written down outside the coloured circle. Second, their possible bottom-up campaign contributions are written down inside the circle. Third, arrows are drawn to indicate supportive relations between contributions. Working this way, the team sees synergy emerging, in a process that creates ownership. Following the brainstorm, the campaign design is cleaned up and presented by sector representatives to their constituency, to get feedback and support. Once the design has stabilised the campaign can be kicked off. At Noorden Duurzaam, this process was developed for circularity projects in the first place. We include it in the framework as it is.

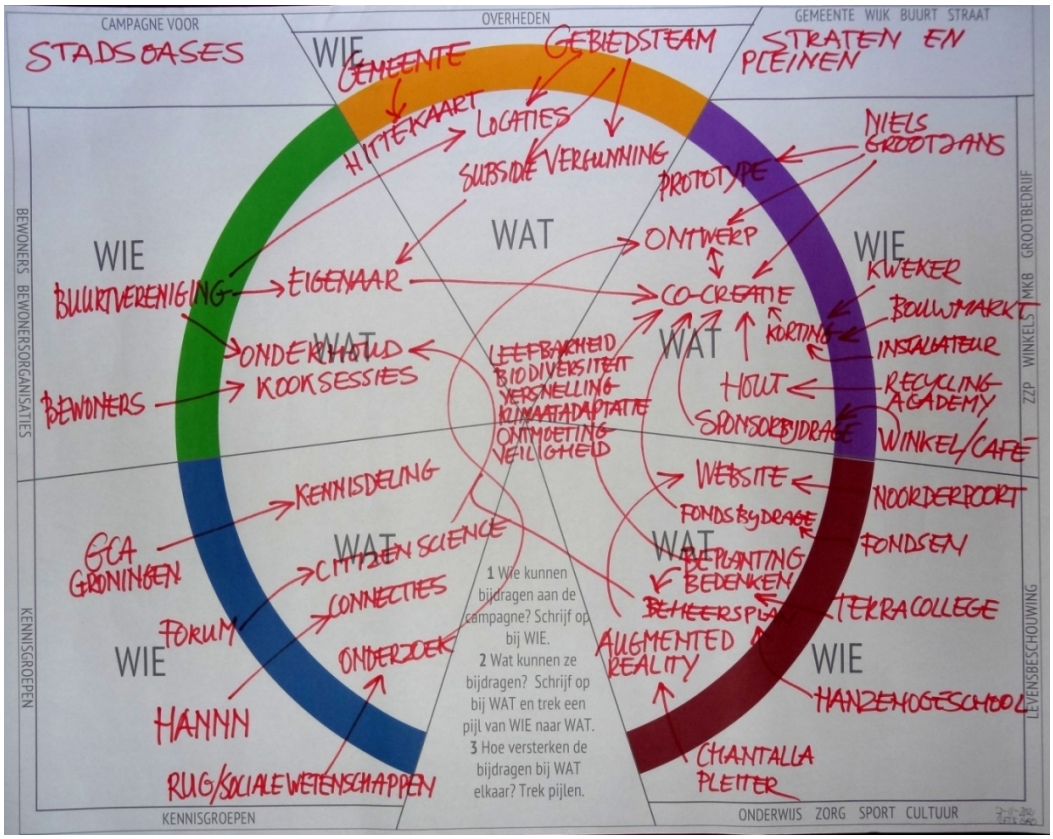

Figure 2 Task democratic brainstorm canvas

Scalability in circular product chain coordination needs special attention, as in a globalised economy, larger geographical scales often include more sections of product chains. For instance: on a local scale, often retail and consumers are found; on a regional scale, logistics and recycling may be added; on a larger scale wholesale and manufacturing can come into play; globally often mineral resources join in. A framework for the coordination of circularity can therefore not require all chain sections to be present or active at all levels. In customising the task democracy model, this means that filling in the five-sector model is not circumstantial, not conceptual. In a municipality, for instance, a product chain may involve (1) local experts, (2) a local consumer group, (3) the municipality, (4) a product family committee of the local business network, (5) the collective of local education.

We used the term **diplomacy** to indicate reconciliation of the ideological and sectoral dimensions in organising transitions. While this is a central matter in the all-encompassing concept of sustainable development, it is slightly less complex in a circular economy, which has sectoral division lines by nature, just like task

democracy. Customising task democracy for a circular economy is therefore pretty straightforward. On the other hand, sectoral agreements may, as we saw, have trouble getting accepted in politics. Here, the added value of task democracy is that it transforms product chains from business centred phenomena to society-wide phenomena, through an actor model that guarantees equal influence to science, citizens, administration, businesses and societal provisions. Solid democracy brings organised product chains on par with parliaments and governments of their scale, where tax money is converted into transition budgets and where legislation comes from.

From the ingredients we have seen so far, a new and hopefully **intuitive** framework for a circular economy can be constructed. The framework is presented below in the shape of a manifesto, a set of statements that may be squeezed into a one-page table for overview and easy access. The set is structured as a narrative and starts with challenges, objectives and values, runs through actors and organisation, and arrives via process and methods at practical aspects of institutionalising.

Task democratic circular economy manifesto			
1.	Global challenge	Mankind faces existential threats: massive disruption of society as a result of climate change, pollution, resource depletion and injustice.	
2.	Global goals	The UN calls for sustainable development, which is SDG 12 (Sustainable Consumption And Production) includes a circular economy. Taking action is urgent.	
3.	Product chain	In this manifesto we consider the product family of _____, *[Fill in a product family. On local level, choose from food, clothing, cosmetics, housing, electronics, etc. On regional and higher levels, focus may be on smaller product groups, like plastics, or plastics families]*	
4.	Administrative territory	in the administrative territory _____. *[Fill in your area here, in a local to global range].*	
5.	Actor groups	We are actors in this product chain: scientists, citizens, administrators, businesses and societal provisions. We have the following indispensable, unique and non-transferable transition tasks in organising necessary transitions:	
6.	Scientists	In academia, NGOs, government, businesses or independent.	We measure economic, ecological and social capital, predict the future, and identify development pathways.
7.	Citizens	Age groups, social classes, ethnical groups, professions, and gender groups.	We collectively adjust lifestyle and raise new generations with sustainability values.
8.	Administration	Parliaments, government, authorities, agencies, judicature.	We forbid or tax what is unsustainable, encourage and subsidise what is sustainable, and ensure a level playing field.
9.	Businesses	Self-employed, SME, business parks, branch associations, big	We innovate products, business models and organisation models for

	business, multinationals	sustainability impact.
10. Societal provisions	Health care, education, sports, culture, life view.	We inspire people, qualify students, build and connect communities, and include everyone.
11. Coordination	In these tasks, we as actor groups are mutually dependent. We want to coordinate our efforts, building on shared values of sustainability, democracy and solidarity.	
12. Product council	Together, we establish a permanent democratic product council in which our five actor groups have equal voting power. Each group appoints elected representatives. The council has an independent chairperson. Meetings and archives are open to the public and the press.	
13. Organisation	The council is governed by a statute that details this manifesto and establishes a presidency, a secretariat and internal rulings.	
14. Core tasks	The council has three core tasks: democratically prioritising sustainability issues of our product chain; organising society-wide transition campaigns in our administrative area, and collecting and sharing data to learn and adjust.	
15. Transition method	The council's main output is transition campaigns for circularity and sustainability in our product chain, designed by campaign teams in which our five actor groups participate. The teams brainstorm to find synergy in combining voluntary actor group contributions, including government funding. Each actor group gathers feedback on campaign plans from their constituency and asks for support and participation. Campaigns are kicked off publicly and are monitored by the council.	
16. Campaign topics	Campaigns may focus on for instance fundamental and applied research, public awareness of the need for circularity, chain transparency, consumer self-organisation, level playing field, standardisation, legislation and taxes, circular product and process design, recycling logistics, circular business models, integration in education curricula.	
17. Connectivity and proliferation	The council is supported by a peer council in the encompassing area, supports peer councils in sub-area and maintains contacts with peer councils in neighbouring areas. If peer councils are absent, the council may help initiate these.	
18. Council status	The council asks for recognition by the highest democratic institution of our administrative area - being one of five founders of the council. The recognition should entitle to government facilitation of the council and sharing of administrative information.	
19. Finance	The council has an organisation budget and a transition budget. Both budgets are fed by voluntary contributions from the five actor groups, depending on their carrying capacity. In absence of a transition budget, transition campaigns seek their funding from the five actor groups.	
20. Origin	This manifesto is derived from the Task democratic circular economy manifesto v1.0, 2022, published at the NBM2022 congress in Rome. Reuse is allowed and advised, under a CC-BY-SA license.	

Table 2 Manifesto for regional circular economy policy

Conclusions and new things to learn

The limitations: big steps, little research, political neutral?

In this paper, we highlighted the growing urgency of sustainability transitions in general and circularity transitions in particular. In search of new pathways, we analysed the lack of change as a wicked problem. We presented a value-actor matrix that illustrates a two-dimensional increase in complexity. That made us see societal coordination as the main problem of circularity transitions. We defined four criteria for new coordination models: integration, scalability, diplomacy and intuitiveness. Using these to review several cases brought up a common cause of the lack of change. Next, we investigated a potential coordination model to resolve the issue of societal coordination: the theory of task democracy. We customised it for a circular economy, in the shape of an open-source manifesto.

While this approach produces a thinkable pathway, it has quite a few limitations. We have taken big steps to arrive at a conceptualisation that can be tested and falsified or improved in practice. The intermediate assumptions, like the four criteria and the task democracy theory, are arguably speculative and provide no ground for hard conclusions yet. Still, given the urgency of sustainability, shortcuts to experimenting may help detect and denounce alternative pathways for transition, thus accelerating knowledge development and ultimately creating necessary change.

Further research could fill in on assumptions in this paper. These include lack of change, which needs more academic and public attention; the value-actor matrix; the intermediate conclusion that coordination is the main problem; the four criteria for societal coordination of circularity; the role of small wins and visionary leadership; the task democracy theory and finally the translation into a working model for product chain councils. We invite researchers, policymakers and practitioners to get in touch.

Disclaimer

This paper partly builds on work in progress on the task democracy concept, developed by the Noorden Duurzaam association, a Dutch non-profit NGO. This concept is developed as an open-source concept and may be used freely under the Creative Commons 4.0 license CC-BY-SA. Peter Bootsma and Niels Faber, both authors of this paper, are board members of the Noorden Duurzaam association. Board membership of Noorden Duurzaam is an unpaid position. None of the authors received any payment or rewards for the creation of this work.

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