



Contents lists available at ScienceDirect

International Journal of Project Management

journal homepage: www.elsevier.com/locate/ijproman

Projecting to promote sustainability transitions through joint value creation

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ARTICLE INFO

Keywords:

Joint value creation
 Program management
 Sustainability transitions
 Interorganizational collaboration
 Circular economy
 Projecting

ABSTRACT

Actors involved in programs that promote sustainability transitions project how future value can be created and protected within the constraints of existing institutions and fields. There is a need to better understand this projecting among versatile organizational actors to support the successful advancement of sustainability transitions. Drawing upon the joint value creation employed in five circular economy programs, we identify three modes of projecting for promoting sustainability transitions: distributing, dispersing, and activating. The modes of projecting relate strongly to how programs are configured. We contribute to the sustainability transitions literature by examining niche-regime interactions through the lens of joint value creation, offering novel insights into programs' unique ways of promoting sustainability transitions. Another contribution is to the literature on value creation in interorganizational projects and programs by revealing different approaches for joint value creation in different modes of projecting.

1. Introduction

Sustainability transitions are fundamental transformation processes that imply a shift of established socio-technical systems around, for example, the production and consumption of energy, transportation, buildings, textiles, and food, to modes that allow long-term availability of natural and physical resources (Geels, 2010; Köhler et al., 2019; Markard et al., 2012). Such transitions are key to addressing environmental problems like climate change and resource depletion, and protecting our world. To purposefully promote sustainability transitions, various programs at local, regional, and national level connect top-down governing of transitions through policymaking with bottom-up efforts such as the stimulation of transitions via sustainable niche innovations (i.e., niches are protective space for path-breaking innovations) (Gasparro et al., 2022; Raven et al., 2010; Rotmans et al., 2001). These programs facilitate niche-regime interactions (i.e., dynamic relationships between niches and the regime) as important channels to leverage the learning and experimentation that is typically developed at the niche-level, and to open-up the entrenched structures (i.e., regimes consisting of shared rules, practices, institutions) of socio-technical systems (i.e., interacting elements fulfilling a societal function, including technologies, actors, institutions). Transitions imply profound

system reconfiguration, and niches can act as protected spaces to experiment with and learn about potential alternatives that could change the way existing systems are structured. Through their projects, programs target the development of transformative outcomes that build, support, expand and mainstream niches, and unlock regimes (Ghosh et al., 2021; Van Bueren & Broekmans, 2013). Programs involve collaboration between heterogeneous actors representing existing regimes of one or multiple socio-technical systems—including knowledge institutes, businesses, and governmental organizations—and other stakeholders, such as local communities. This collaboration is crucial to facilitate transformative change across multiple system levels, including the paradigms that guide the operations of organizations and industries. These multi-stakeholder programs are managed in various ways, but it is unclear how their management can effectively support sustainability transitions (Winch et al., 2023).

One core activity that program actors need to engage in is projecting how the program can promote sustainability transitions through niche-regime interactions. *Projecting* is a dialogic process of articulating a conceptualized, desired future state and sharing it in narratives with others (Winch, 2023, p. 36; Winch & Sergeeva, 2022). Narrating, in turn, may help turn the narrated visions into collective actions (Sergeeva, 2024). Narrating in sustainability transition programs is not

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Received 11 July 2024; Received in revised form 15 February 2025; Accepted 19 February 2025

Available online 23 February 2025

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only operational and outcome-driven. Sustainability transitions scholars have shown that also broader, systemic *storylines* are advanced through collective sensemaking. These storylines can reflect competing ‘discourse coalitions’ (Geels & Verhees, 2011), change over the course of transitions (Roberts and Geels, 2019), legitimize niche innovations (Sovacool & Brossmann, 2014), and destabilize regimes (Roberts, 2017; Geels, 2024). Program actors’ projecting of how to promote sustainability transitions through niche-regime interactions can thus be instrumental in influencing policy and transformation processes within regimes (Hermwille, 2016). A better understanding of how projecting happens in programs can provide insight into how to manage these programs to foster sustainability transitions. It is essential to move beyond the characteristics of individual programs, as well as the niches and regimes they encompass, by adopting a lens that enables theorization of projecting across sustainability programs. This approach facilitates the generation of knowledge that can contribute to the management of diverse programs in various contexts.

One way to understand projecting is through investigating actors’ joint value creation. Joint value creation is the collective process of co-creating value among multiple stakeholders, instead of in traditional customer-firm and firm-supplier dyads (Bridoux & Stoelhorst, 2022; Li et al., 2024). All stakeholders can provide and receive value and are typically driven by a combination of environmental, economic, social and ethical concerns. Joint value creation is key in programs that aim to promote sustainability transitions through niche-regime interaction, because these programs rely on juxtaposing the expectations of future value that fuel niche experimentation with what is of worth to stakeholders at present to trigger adjustments in existing socio-technical regimes (Geels, 2010, 2024; Loorbach et al., 2017). While existing literature has brought insights into how value creation and distribution is managed in complex interorganizational projects (Chi et al., 2022; Gil, 2023; Kier et al., 2023), there is a need to understand how this works in programs where the different actors have to take into account the nonlinearity, multilevel dynamics, coevolution, and emergence that characterize sustainability transitions (Loorbach et al., 2017).

This paper intends to develop an initial understanding of joint value creation in programs that pursue sustainability transitions. We investigate the modes through which actors project for promoting sustainability transitions by collectively creating value across individual, organizational, and systemic contexts. This study thereby meets recent calls for research at the intersection of project management and transition studies and on value creation in contemporary projects and programs (Müller & Locatelli, 2023; Winch et al., 2023). We explore joint value creation in five programs aimed at advancing transitions to a circular economy (henceforth, CE) in The Netherlands. These cover multiple sustainability transitions in various socio-technical systems towards “a regenerative system in which resource input and waste, emission, and energy leakage are minimized by slowing, closing, and narrowing material and energy loops [...] through long-lasting design, maintenance, repair, reuse, remanufacturing, refurbishing, and recycling” (Geissdoerfer et al., 2017, p.759). Programs that contribute to CE transitions are of special interest as actors need to reconceptualize value fundamentally (e.g., what used to be regarded as waste, can also have value). We explain how joint value creation can be understood in terms of projecting to promote these sustainability transitions. We address the following research question: *How do program actors project for promoting circular economy transitions through joint value creation?* Our focus is on interorganizational programs that rely on niche-regime interactions to pursue sustainability transitions.

The paper is structured as follows. We first present an overview of the literature on promoting sustainability transitions and on joint value creation. Then we elaborate on our research context of CE programs—some programs target singular transitions such as towards circular textile production, others multiple transitions such as towards circular plastics and a circular supply chain in construction—and the methods we drew upon for investigating joint value creation. We present

our findings of joint value creation across programs and in terms of projecting. We then discuss how these contribute to the understanding of how programs and projects facilitate and leverage niche-regime interactions for sustainability transitions, as well as the theory development and management of joint value creation in sustainability transition programs. We conclude with suggestions for further research.

2. Literature background

2.1. Promoting sustainability transitions

2.1.1. Sustainability transitions

Sustainability transitions are fundamental transformation processes that require radical shifts of socio-technical systems to address the grand societal challenges that underlie environmental problems like resource depletion, climate change, and loss of biodiversity (Van den Bergh & Bruinsma, 2008; Loorbach & Rotmans, 2010; Köhler et al., 2019). Sustainability transitions are long-term, multi-actor processes that are goal-oriented yet open-ended, nonlinear and uncertain, and full of conflict and struggle because they threaten to disrupt the status quo (Rotmans et al., 2001; Geels, 2024). Transitions typically run through phases of experimentation, stabilization, diffusion, and reconfiguration, while their development and diffusion depend on the economic, political, social, and cultural contexts in specific systems (Geels, 2024). The integrative multi-level perspective (MLP) explains how socio-technical system transitions come about through the interplay between processes at micro-, meso-, and macro-levels (Geels, 2010, 2011, 2019). At the micro-level, niche innovations (in technologies, business models, or social practices) and learning processes may lead to incremental change in system elements and radical system’s change through ‘windows of opportunity’. However, radical niche innovations typically face uphill struggles because incumbent actors in socio-technical systems provide resistance due to lock-in mechanisms including sunk investments, existing economies of scale, routines, and regulations (Geels, 2024). At the meso-level, socio-technical systems and their accompanying regimes (i.e., established shared rules and institutions) may resist disruptive and uncertain sustainability transitions that move away from the existing regimes and are more likely to adapt based on incremental and path-dependent innovations, spurred by the public opinion and changing policies. At the macro-level, the socio-technical landscape that accommodates exogenous developments (gradual changes, for example in demographics and macro-economic trends, and shocks, for example, pandemics and recessions) influences niche innovations and existing regimes (Geels, 2024). While the early transition literature assumed typical actor roles (i.e., pioneering entrepreneurs or activists as niche, and protective incumbent firms, industry associations, as well as users and policymakers as regime), recent literature expands on more diverse actor engagement to find how actor alliances and feedback loops can accelerate sustainability transitions (Geels & Ayoub, 2023; Geels, 2024).

2.1.2. Interorganizational programs as vehicles for promoting transitions

An increasing number of interorganizational programs are initiated to promote sustainability transitions through top-down policymaking and bottom-up innovation. They include projects that incrementally transform the existing society and economy or develop fundamentally new ways for reaching this (Winch, 2022). Many of these programs can be conceptualized as strategic change programs (Martinsuo & Ahola, 2022; Martinsuo et al., 2022), where the program is considered a vehicle for bringing about desired change at the regime-level. Such programs help organizations or groups of organizations in the socio-technical system adapt to uncertainty in their environment by developing and implementing renewed foundations for their activities (Bos-de Vos et al., 2022; Martinsuo et al., 2022). They aim to bring about change in surrounding contexts through executing and integrating results of diverse projects over a substantial period of time. While organizational change programs orient at implementing change within the boundaries of a

single organization (Lehtonen & Martinsuo, 2009), interorganizational change programs focus on changing how multiple organizations operate in parallel to contribute to transforming the socio-technical systems they are part of (Bos-de Vos et al., 2022).

Regardless of their scale and focal orientation, the aims of programs are typically ill-defined and ambiguous (Pellegrielli, 1997; Thiry, 2002). This is especially true for programs promoting sustainability transitions. Actors often have different understandings of sustainability and struggle to envision what a pursued end-state would look like. As such, their shared vision remains ambiguous and a future state cannot be objectively planned and managed (Winch & Sergeeva, 2022). Aims may be modified over time under the influence of changes in the program or its organizational and system-level contexts. Programs typically involve many different stakeholders, including knowledge institutes, businesses, government, and sometimes citizens, who may change over time. As a result, it is highly challenging to project the emergence, design, and implementation of projects throughout their life cycles, and the combination of private advantage and public benefit in future value (Sabini et al., 2019; Winch et al., 2022).

2.2. Projecting

While many project management studies discuss the management of programs generally, recently, increasing attention has been directed at how individuals such as managers and experts act as part of these programs. This advocates individuals as active agents that have an influence on how intended changes are carried out (Winch & Sergeeva, 2022). Actors' agency is also increasingly addressed in the sustainability transitions literature, for example in terms of actor alliances and feedback loops as ways for accelerating sustainability transitions (Geels & Ayoub, 2023; Geels, 2024).

Because individuals make decisions and take action in projects, they may project alternative futures, but they also make sense of the futures moment-by-moment and discuss their sensemaking with each other, with the possibility to change the course of action at any given time (Winch & Sergeeva, 2022). We conceptualize projecting as a dialogic process of envisioning possible futures, anticipating potential outcomes and ways to reach these, and sharing that in narratives with others. Projecting is key to promoting transitions as it is impossible to know up-front when and how niche innovations may incur change in existing regimes nor how the overarching landscape will develop. The process of projecting may be informed by multiple activities for dealing with the future, often based in cognition, deliberation, and purposeful action, such as foreseeing (i.e., preparing to deal with what may come using experience and judgment), forecasting (i.e., predicting likely outcomes through structured, data-driven approaches), and future perfect thinking (i.e., reconstructing paths to ideal, planned outcomes of what might be) (Pitsis et al., 2003). Projecting can also be influenced by experiential activities, such as wayfinding (i.e., enacting the future through sensitivity that allows experiential awareness of future directions) (Comi & Whyte, 2018). Foreseeing and forecasting focus on the present to detect possible developments for the future while allowing room for emergence but risking resistance to change. If applied too rigorously, the goal-oriented and linear focus of future perfect thinking may conflict with the nonlinearity, coevolution, and emergence of sustainability transitions. By narrating (i.e., the process of creating, communicating and sustaining stories and plans of the future), actors can take their chosen agenda forward, regardless of how it came about, and mobilize resources (Winch & Sergeeva, 2022). Narrating makes people develop shared meanings and engage in collective action toward change (Sergeeva, 2024). Furthermore, repeating future state narratives over project and program life cycles helps in stabilizing and performing the desired future state (Sergeeva & Winch, 2021).

It is important to understand how projecting occurs in sustainability programs to gain insight into how programs and actors' collective agency can be effectively managed for promoting transitions. A focus on

projecting for promoting transitions through niche-regime interactions is particularly relevant as these interactions are key to fostering system-level change.

2.3. Joint value creation in sustainability transition programs

2.3.1. A value-centric approach

We base our investigation of projecting on Witkamp et al. (2011). The authors use conflicting and shared values as a way to characterize the interactions between a radical niche and an incumbent regime. For sustainability transitions to move forward, innovation and learning (that typically occur in the niche) need to become adopted by regimes, which will lead to certain 'old' or 'new' values being sacrificed (Witkamp et al., 2011). The authors argue that "the identification of the shared and conflicting values between niche and regime is expected to lead to a better understanding of their (in)compatibility and to a better anticipation of potential future conflicts than considering levels of stability" (Witkamp et al., 2011, p. 671).

Various sensemaking and negotiation challenges emerge, when actors in interorganizational programs engage in identifying shared or conflicting values and try to work with that (Martinsuo, 2023). There is a wealth of knowledge of the value creation that single organizations engage in when moving into a (more) sustainable direction – specifically from a business model perspective (Bocken et al., 2014; Schaltegger et al., 2012). However, also a more elaborate understanding of the value creation that takes place in interorganizational programs aimed at promoting sustainability transitions is needed. Müller and Locatelli (2023, p. 4) emphasize that this understanding is important as projects and programs are key vehicles for sustainability transitions, but we lack insight into "how these projects create and distribute value to stakeholders or which stakeholders capture such value".

In this paper, we specifically focus on joint value creation in sustainability transition programs. We define joint value creation as the multilateral process of creating value in partnerships between several organizations and other stakeholders, such as citizens, where actors pool resources and distribute benefits and costs based on a shared vision of how long term collective interests can be combined with short-term self-interests (Bridoux & Stoelhorst, 2022; Gil & Fu, 2022; Li et al., 2024). Joint value creation focuses on how value is co-created and envisioned to be distributed by a network of stakeholders for the benefits of all (often including society at large) beyond the dyadic interactions between a focal firm and its customers or suppliers. While value co-creation typically refers to dyadic co-creation in which suppliers contribute to the creation of value and customers make use of that value (Fuentes et al., 2019), joint value creation consists of multi-directional value flows between stakeholders who both co-create and capture parts of the value that may accrue over time (Freudenreich et al., 2019). In the context of sustainability transitions, joint value creation is characterized by trade-offs between ethical, social, technological, and market principles.

Sustainability transition programs aim to create value in the short and long term across individual, organizational, field, and societal levels (Daniel, 2022). Value (when seeing it as the result of value creation) is often defined as the relative, subjective representation of the quotient between benefits and costs (Laursen & Svejvig, 2016, p. 737). It differs from a benefit, which can be understood as "the improvement resulting from a change (outcome) that is perceived as positive by one or more stakeholders" (Laursen & Svejvig, 2016, p. 737). Building on Pitelis (2009, p. 1118) we define value in the context of sustainability programs as the perceived worthiness of outcomes of those programs to the socio-economic agents that are exposed to and/or can make use of those outcomes. This individual perception of worth is highly speculative as it is impossible to foresee if and how program outcomes may impact the broader system. It does not only include economic, but also social and environmental dimensions resulting from economic, social and environmental costs and benefits (Martinsuo et al., 2019; Vuorinen &

Martinsuo, 2019). By acknowledging the multidimensional nature of value, we adopt a broad perspective towards joint value creation (Martinsuo & Killen, 2014), which contrasts with value creation studies that solely consider the generation of economic value.

2.3.2. Value creation for promoting sustainability through projects and programs

Empirical research in project management contributes various findings on joint value creation and promoting sustainability in inter-organizational projects or programs, as summarized in Table 1. Some studies report the *interorganizational conditions* of creating value jointly or promoting sustainability, for example, in terms of stakeholders' different expectations (Chi et al., 2022; Yuan, 2017) and power relations (Di Maddaloni & Sabini, 2022; Van Marrewijk & Van den Ende, 2022). Exploratory and case studies in different contexts have revealed the *organizational factors* relevant in creating value jointly or promoting sustainability, especially in terms of governance and contracts (Hjelmbrekke et al., 2017; Lenferink et al., 2013) and project integration and control (Arto et al., 2016; Kivilä et al., 2017). Furthermore, some case studies concentrate on the *interpersonal relations* in joint value creation or sustainability promotion, revealing various practices, processes, and behavioral patterns (Keeyes & Huemann, 2017; Lehtimäki et al., 2023; Pauna et al., 2023; Toukola et al., 2023).

Such findings on joint value creation and sustainability promotion in interorganizational settings pave the way for our study. The studies in Table 1 introduce how value creation takes place in specific delivery projects, or in transition projects, but the pursuit of sustainability and joint value creation tends to be covered in separate studies. Merely the study by Lehtimäki et al. (2023) has indications of connections between project actors' activities and the regime-level sustainability transition. The studies bringing insights into joint value creation (middle column) tend to concentrate on specific delivery projects, the studied projects do not exhibit similar regime-level goals and complexity as sustainability transition programs, and they do not cover (joint) value creation explicitly. Also, the sustainability-focused studies (right column) do not explicitly investigate joint value creation toward sustainability nor system-level transitions (except Lehtimäki et al., 2023). Overall, none of the identified studies cover the idea of projecting and joint value creation to promote sustainability transitions. Further research has been encouraged on the mechanisms that drive sustainability in projects (Lenferink et al., 2013; Yuan, 2017), the interorganizational aspects of sustainability changes (Kivilä et al., 2017; Lehtimäki et al., 2023), and joint decisions and co-development toward sustainability (Pauna et al., 2023).

3. Methods

3.1. Research design and context

A multiple case study (Eisenhardt, 1989; Yin, 2009) was chosen to develop an understanding of joint value creation in programs aimed at promoting sustainability transitions, a setting that is not explained by existing knowledge of value creation. Our case study research strategy enabled investigating the phenomenon of joint value creation in its real-life context with which it is strongly entangled (Yin, 1981, 2009) and discovering overarching patterns across programs, which can influence further research.

We focused on programs that contribute to circular economy transitions in different socio-technical systems in The Netherlands, including transitions towards circular textile production, regenerative agriculture, a circular supply chain in construction, and teaching circular skills in education. The programs all address the more general, underlying transition towards a new, sustainable economy in The Netherlands. The CE represents an alternative to the linear model of operating in the economic system by counteracting the extraction of raw materials for the creation of products and services and their disposal after use

Table 1

Empirical findings on joint value creation and sustainability promotion in interorganizational settings.

Factors	Findings on joint value creation	Findings on promoting sustainability
Interorganizational conditions: stakeholders' versatile concerns and power relations	Chi et al. (2022) found quantitative evidence of <i>shared vision</i> positively influencing value co-creation of clients and main contractors in multiple megaprojects (survey study - China). Van Marrewijk and Van den Ende (2022) found <i>four power-relations</i> in a strategic utility project involving nine organizations: between public and private operators, operators and contractors, top management and shop-floor workers, and project and permanent organizations. The change project was enabled by <i>ordering practices</i> (such as delegating innovations) and constrained by <i>conflicting practices</i> (such as securing employment), and <i>terminating practices</i> (ethnography and intervention study - The Netherlands).	Yuan (2017) found <i>mismatching expectations and concerns</i> about achieving sustainability among key stakeholders of railway projects and proposed <i>ways of building consensus</i> through dialogue and promoting greater balance among sustainability dimensions with measures that different stakeholders can adopt (mixed-methods study including questionnaires and interviews - China). Di Maddaloni and Sabini (2022) found in various industries and projects that <i>external and internal project pressures</i> led to a decoupling of project managers' moral stance and actual practice towards stakeholder engagement. This hindered the projects' social sustainability (mixed methods study - worldwide).
Organizational factors: governance and control	Hjelmbrekke et al. (2017) proposed a <i>governance model</i> that enhances value creation in construction projects by aligning the business model of the design team with the strategic objectives of the client (theoretical framework tested in two construction projects - Norway). Arto et al. (2016) found <i>integration mechanisms</i> that allowed joint value creation activities among multiple organizations in the operations phase of a shopping center. They developed <i>propositions for project management approaches</i> that enhance value creation throughout the project's lifecycle. These were summarized as four themes: 1) coordinating body, 2) external image and internal identity, 3) non-living technical system and living organizational system, 4) competing businesses and value (single case study - Finland).	Lenferink et al. (2013) found that <i>integrated contracts with linked contract stages</i> of design, construction and maintenance, and lifecycle optimization incentives helped to increase inclusiveness for achieving sustainability in five road infrastructure projects (cross-sectional interview and document-based study - The Netherlands). Kivilä et al. (2017) found how the <i>control practices and governance of an alliance contract</i> and its incentive model, planning, performance indicators, regulations, external communication were used as a way to promote economic, environmental, and social sustainability in a tunnel project (single case study - Finland).

(continued on next page)

Table 1 (continued)

Factors	Findings on joint value creation	Findings on promoting sustainability
Interpersonal factors: practices, processes, and behavioral patterns	<p>Keys and Huemann (2017) found in an agriculture intensification project that sustainable development benefits can be co-created with project stakeholders through a <i>process consisting of dimensions of adaptive learning with planning, a shared vision, a goal-driven process, continuous shaping to create shared understanding, re-interpreting and setting targets, aligning expectations of benefits creation vs. capture</i> (single case study - Norway/Africa). Toukola et al. (2023) found in three urban development projects that value was co-created by municipal actors and private companies in <i>processes of zoning, exploring, procuring and negotiating with a more determinative role of the municipality in the first two processes and a significant role for both actors in the latter two</i> (interview study - Finland).</p>	<p>Lehtimäki et al. (2023) found that <i>short-term praxes of bringing actors and contexts together, creating persistent tactics, reflecting, re-evaluating the course of action, catalyzing positive impact loops, fostered long-term strategic change towards urban sustainability in a city organization and its urban living lab context</i> (longitudinal action research - Finland). Pauna et al. (2023) found in a mining project <i>collaborative practices of engaging government stakeholders in the front-end for supporting sustainability in the project: early engagement, continuous interaction (to develop mutual understanding), informal engagement (for guidance and discussions), engagement in technological issues</i> (single case study - Northern Europe).</p>

([Geissdoerfer et al., 2017](#)). This requires actors to collaborate within and between value chains, and to explicitly consider which value is created, how and by whom, how value is destructed and disposed of, as well as how it can be protected, recycled, reused or become obsolete. Joint and re-imagined value creation is at the basis of all activities CE-actors

engage in, explicitly discussed among program actors, and captured in documents. This provides a unique opportunity for studying joint value creation.

We collected data from five CE-programs that are considered leading among the overall CE-efforts in The Netherlands. The five programs focus on establishing productive niche-regime interactions through which the implementation of niche innovations and the reconfiguration of existing socio-technical regimes become strongly entangled. They consist of various types of projects, including exploratory, deployment, incremental improvement, and reorientation projects ([Geels & Locatelli, 2024](#)). We use pseudonyms to retain anonymity and, yet, distinguish programs from each other. The programs can be classified as inter-organizational change programs within existing socio-technical systems, all executed as collaborations between multiple organizations representing academic, business, government, and civil actors. The systems covered by the programs vary significantly in terms of the societal functions, technologies, actors, and institutions involved (see [Table 2](#) for an overview of the systems covered by the programs). As this paper focuses on how actors project for promoting sustainability transitions through joint value creation, we will focus on detailing the programs as the context in which the joint value creation takes place and do not detail the systems in which these programs are embedded. The programs differ in nature, which allows investigating how joint value creation is similar or different in different types of programs ([Eisenhardt, 1989](#)). [Table 2](#) details the nature and singularities of the programs.

During our data analysis (see [Section 3.3](#)) we uncovered that the programs can be classified according to the program configurations types identified by [Pellegrinelli \(1997\)](#) and later used to characterize programs and their management approaches by other authors ([BenMahmoud-Jouini & Charue-Duboc, 2022](#); [Farid & Waldorff, 2022](#); [Miterev et al., 2016](#)). Three programs are portfolio-type programs (NETWORK, BUSINESS, TECH), grouping multiple relatively independent projects with a common theme. One program is goal-oriented (EDUCATE), scoping existing initiatives into small, short duration projects while allowing new projects to emerge. One program is a heartbeat-type program (TRAIN) with a repetitive project delivery process. Program documents, including annual reports and webpages, were used to delineate the scope of programs in terms of the socio-technical systems they cover. It is important to note that some programs focus on the transition of an entire socio-technical system, while others address only a part of a system. For example, the program TECH focuses solely on textile production, whereas NETWORK

Table 2
Overview of programs (based on interviews and program documentation).

Pseudonym	NETWORK	BUSINESS	TECH	EDUCATE	TRAIN
Type of program configuration (Pellegrinelli, 1997)	Portfolio program	Portfolio program	Portfolio program	Goal-oriented program	Heartbeat program
Type of transformation pursued	Incremental	Radical	Radical	Incremental	Incremental
Level of execution	National	National	Regional	National	National
Scope of program	5 systems: agrifood, chemicals, built environment, textile, healthcare	Multiple systems covered by 5 “communities of science” (e.g., regenerative agriculture, energy in the neighborhood)	1 system: textile	1 system: education	16 sectors incl. construction, plastics, consumer goods, and manufacturing
Program goal	Reach the tipping point of 20 % new economy entrepreneurs in 2025 to stimulate and accelerate a market transition.	Initiate publications, projects, and research that accelerate the sustainability of the economy.	Conduct research and feasibility studies about the re-use of textile to demonstrate progress in closing the circle.	Bring synergy, attract partners, take direction in implementing sustainability in education to promote sustainable education.	Stimulate businesses to create (more) circular products and supply chains to set a new market in motion.
Program governance	Foundation, public and private funding, program team of 50–60 people	Foundation, public and private funding, program team of 9 people	Foundation, public and private funding, program team of 6 people	Cooperation, public and private funding, program team of 11 people	Part of a foundation, public and private funding, program team of +/- 5 people

considers the entire textile system. For the TRAIN program, we delineate the sectors covered (as indicated in their annual reports), since it is difficult to determine the exact number of systems addressed. Program documents describe that three programs –two portfolio (NETWORK, BUSINESS) and one heartbeat (TRAIN) program– focus on fostering CE transitions across multiple socio-technical systems, including the built environment, textile, and healthcare. Two programs –one portfolio (TECH) and one goal-oriented program (EDUCATE)– focus on promoting a CE transition in one particular socio-technical system, respectively textile and education. Out of the five programs, one portfolio (NETWORK), one goal-oriented (EDUCATE), and one heartbeat (TRAIN) program adopt incremental approaches towards reaching CE transitions via projects that will transform existing regimes. Two portfolio programs (BUSINESS, TECH) aim to promote CE transitions through radical innovation.

3.2. Data collection

Multiple sources of data were used to collect information of the programs and related CE transitions (Eisenhardt, 1989). Between December 2019 and October 2020, we conducted semi-structured interviews and collected archival materials of the programs as primary data. Twelve interviews were with key actors of the five programs and three with people with a broad understanding of CE initiatives in The Netherlands, including the programs. Two interviewees were involved in two or three programs. Interviewees represented different kinds of organizations that are considered necessary to initiate and foster transition, including government bodies, for profit and non-profit organizations, and knowledge institutes. The interviewees worked for incumbent organizations or collaborated closely with them. Interviews were conducted online due to COVID-19 restrictions, lasting about an hour. The interviews were recorded and transcribed verbatim. We also collected archival materials of the programs, including information on webpages, annual reports, (online) news items, and documents provided by interviewees, such as white papers and reports. Additionally, we attended and observed six meetings related to the topic of value creation in CE-programs, including a train-the-trainer workshop of program TRAIN and a presentation and workshop organized at an important Dutch innovation event by actors of TRAIN. During and outside of these meetings, we had many informal conversations with other people involved in or with knowledge of the five programs, which we documented in field notes. Table 3 presents an overview of the primary data collected.

Table 3
Overview of primary data collected.

	CE transitions generally	NETWORK	BUSINESS	TECH	EDUCATE	TRAIN
Interviews	1: coordinating policymaker of the national government responsible for executing the national CE policy program [Ki3] 2: PhD candidate studying CE initiatives [Ki1] & sustainability manager at a University [Ki2]	1: transition manager within sectors of program [Ki6]	1: director of program [Ki4] (also one of the initiators of TECH, and chair of the board of EDUCATE) 1: scientific member of the program [Ki7] (also chair of the Supervisory Board of TECH)	1: chair [Ki8a] & board member [Ki8b] of the foundation that executes the program 1: project manager of one of the projects [Ki14] 1: program manager of affiliated program [Ki9]	2: project manager of the CE skills theme [Ki10 & Ki14] 1: developer of CE knowledge platform [Ki15]	1: policymaker of national government body [Ki5] 2: trainer of company track & teacher class [Ki12 & 13] 1: trainer of company track [Ki11]
Documents	Annual reports, websites with information and timeline of the national CE policy program and information about three additional CE initiatives related to the studied programs.	Annual reports, website, reports, news articles.	Annual reports, website, reports, news articles.	Websites, reports, news articles of program/hubs/projects.	Annual reports, website, reports, news articles.	Website, reports, white paper, methodology used, slide decks, news articles.

3.3. Data analysis

We jointly analyzed our data in three steps to enhance the validity of our analysis. First, the first author inductively coded the interview transcripts, using AtlasTI as a supporting tool (Saldaña, 2013). First-order descriptive and in-vivo codes were iteratively developed and clustered into second-order codes related to the specifics of the programs (e.g., purpose, funding, organization) and the joint value creation within the program (e.g., anticipated value, realized value, activities, strategies, beliefs). In parallel, the third author developed storylines of the programs and their joint value creation based on the interview transcripts. Through multiple rounds of discussing the initial codes and emerging storylines, codes were revised, further developed, and collaboratively clustered into the overarching categories ‘nature of the program’ and several activities related to joint value creation including *facilitating, connecting, and planning*.

In a second step, the first and third author used the codes and storylines to detail the nature of each program into one overarching table (Miles & Huberman, 1994), including details about program scope, funding, etcetera. Information provided by interviewees and archival materials including annual reports allowed for data triangulation. Table 2 is a summarized and anonymized version of the full analytical table. After discussion among all authors and relating our analysis to the literature, this step resulted in the understanding that three programs can be considered portfolio programs, one program a goal-oriented program, and one program a heartbeat program (see Section 3.1).

In our third step, we focused on better understanding joint value creation. The codes and parts of the storylines that related to joint value creation were used to investigate how joint value creation evolved in the programs, which specific actions and decisions were taken, when, and why. Specifically, we visualized how the programs were driven by and/or drove value creation on an individual, organizational, and system level, as well as how individual, organizational, and system-level beliefs influenced or were influenced by actors’ value creation. Repeated discussions among the first and third author, supported by continuously updated visualizations of the unfolding of joint value creation in each of the five programs (Miles & Huberman, 1994), led to the insight that actors’ actions and decisions could be understood as contributing to processes of joint value creation *initiation* (i.e., how and by whom joint value creation was initiated), *organization* (i.e., how actors organized joint value creation), *execution* (i.e., how creating value jointly was done, with the challenges and opportunities actors experienced), and contextual *embedding* (i.e., how actors integrated results within the system). Based on the identification of these four processes we restructured our program storylines and further developed our understanding of these joint value creation processes within and across cases. We

uncovered that initiating joint value creation could be understood as being bottom-up (driven by individuals and/or organizations) or top-down (pushed by government). Organizing joint value creation could be categorized as planned in detail or emergent. Executing joint value creation differed between action-based (i.e., focused on doing it) and cognition-based (i.e., focused on thinking it out). Finally, embedding joint value creation focused on embedding in one or more socio-technical systems at a local to global scale.

We used the restructured storylines and analytical table of step 2 to arrive at a comprehensive overview of joint value creation in the five programs, which we captured in both visuals and tables. This step revealed three modes of projecting for promoting CE transitions in joint value creation which we labeled *distributing*, *dispersing*, and *activating*. These modes of projecting represent program actors' alternative ways to make sense, anticipate, and take purposeful action toward the program future, they differentiated the programs from one another, and they appeared to be strongly related to respectively the portfolio, goal-oriented, and heartbeat type of program. These results are presented in detail in Section 4, after introducing them more generally. The findings are supported by anonymized quotes from the interviews and documents. Excerpts of the data can be found in Appendix 1 that shows a cross-case comparison of the identified joint value creation and corresponding modes of projecting to promote CE transitions. In 2024, we shared a draft version of this paper with interviewees for validation, gaining new insights into program evolution (via emails and follow-up interviews). This revealed that modes of projecting may shift over time, a topic we propose for future research (see Section 6.3) but do not address here.

4. Findings

4.1. Overview of the modes of projecting and joint value creation

The analysis revealed three alternative modes of projecting for promoting CE transitions through joint value creation: *distributing*, *dispersing*, and *activating*. These expressions highlight the different modes program actors use in making sense and taking action on the anticipated future in CE transitions.

On the one hand, these modes revolve around the projection of specific *program outcomes at multiple levels*. All programs are oriented at creating (or protecting) value for the natural environment. Protecting this ecological value (protecting raw materials, but also biodiversity and climate through reducing CO2 emissions [Ki3]) needs to be economically viable. Therefore, revenue generation and sometimes profitability are considered important program outcomes at the organizational level. These envisioned outcomes represent a major driving force for four of the five programs (except for EDUCATE), next to knowledge development and innovation, which are considered important organizational values to pursue in all five programs.

On the other hand, program actors project based on their *beliefs of how the socio-technical system should operate and react to various landscape developments*. For example, the activities of program NETWORK are built upon the belief that the pursued new economy is inclusive and that its chains of trade are fair [Ki6]. The EDUCATE program relies on the belief that there needs to be an abundance mentality [Ki15] and that sustainable education does not only concern environmental aspects but also social sustainability aspects like equity and inclusiveness [Ki10].

Program actors' joint value creation provides insights into how and why different modes of projecting for promoting CE transitions in programs exist. It can be subdivided into processes of *initiating*, *organizing*, *executing*, and *embedding value creation jointly*, which have different characteristics for different modes of projecting (Table 4). How we

Table 4
Joint value creation and modes of projecting in the studied programs.

Program	NETWORK portfolio program	BUSINESS portfolio program	TECH portfolio program	EDUCATE goal-or. program	TRAIN heartbeat program
Initiating joint value creation	Bottom-up	Bottom-up	Bottom-up	Top-down	Top-down
	- Addressing questions/ challenges of market actors - Initiating isolated projects	- Addressing questions/ challenges of market actors - Initiating isolated projects	- Addressing own CE challenges - Initiating isolated projects	- Leveraging & integrating learnings from existing efforts	- Identifying gap - Designing program
Organizing joint value creation	Planned in detail	Planned in detail	Planned in detail	Emergently	Planned in detail
	- Working towards clear objectives & measuring progress - Using transition theory & methodol. - Developing coalitions - Making agreements & developing trust-based contracting method	- Allowing everyone to collaborate - Addressing very concrete questions - Bringing together different types of people - Making agreements - Aligning interests	- Establishing foundation for non-profit collaboration - Developing ground rules for collaboration	- Initiating pilot projects - Being agile - Involving different actors in the system - Flexibly maneuvering - Setting clearly defined short-term horizons	- Working towards clear objectives and evaluating results - Developing own methodology - Requiring specific types of participants
Executing joint value creation	Action-based	Action-based	Action-based	Action-based	Cognition-based
	- Aligning goals & values - Setting deadlines - Adapting based on emerging situation	- Connecting parties and pulling out - Not being guided by money - Organizing more than own value chain	- Aligning interests - Educating users - Developing innovative technology	- Monitoring pilot projects - Scanning the environment - Learning-by-doing - Discovering values & interests on-the-go - Giving freedom	- Raising awareness among participants - Using own methodology to consider value loss - Cognitively redesigning value chain
Embedding joint value creation	In specific system(s)	In specific system(s)	In one system	Locally in one system	Globally across systems
	- Anticipating scaling & going along in opportunities - Sharing knowledge with competitors	- Showcasing examples - Setting up other initiatives based on identified gaps/ challenges	- Setting long-term goal - Anticipating scaling & going along in opportunities - Sharing knowledge with competitors	- Embedding results into regular regime operations	- Presenting at major industry events - Organizing tracks across systems and countries - Training educators
Mode of projecting	Distributing	Distributing + Dispersing	Distributing	Dispersing	Activating

arrived at these processes has been explained in Section 3.3. The order in which the processes are presented does not imply any sequence. Processes also occurred simultaneously or in other orders. For example, embedding joint value creation is often a reason why programs are initiated and thus a key process throughout the course of many programs. We use illustrative program vignettes with empirical background to convey how and why joint value creation differs across programs and explain how we understand this in terms of projecting for promoting CE transitions.

4.2. Projecting for promoting CE transitions through distributing

A first mode of projecting was found in the three portfolio-type programs NETWORK, BUSINESS, and TECH. We label it *distributing*. It is based on bottom-up initiation, detailedly planned organization, action-based execution, and local embedding of joint value creation within multiple, isolated niche projects in specific systems (Table 4). These projects stimulate a further diffusion of CE practices within and across systems by actively allowing the adoption of innovations by competitors and actors in other socio-technical systems. Actors work towards one defined future via rigorous planning and monitoring, and (slightly) adapt their path at specific moments in time in response to emergent challenges and opportunities. They take active roles as change agents promoting the transition. The vignette of the NETWORK program illustrates the distributing mode of projecting.

4.2.1. Towards circular textile: The network program

In response to the collapse of the Rana Plaza Factory (Bangladesh) in 2013, the Dutch government developed an agenda for stimulating a transition towards circular textile production. Program NETWORK was a key partner from the start. Coordination through this program was considered useful as the extensive business network affiliated with the program allowed for smooth connections between actors in the value chain and cross-system collaboration which can both fuel change at the system level. Based on sector developments, NETWORK decided to pilot a project on circular workwear for the healthcare system.

The niche-level pilot project was set up and executed using the transition framework developed by a leading research institute in the field of sustainability transitions. The underlying idea of this framework is that a share of twenty percent representing frontrunners will create a tipping point, a moment in which the situation starts to sway, through which the transition of a market is stimulated. Collaborating is key to realizing this tipping point. The notion “coalition of the willing” is used to denote the partners engaged in early-stage niche-experimentation. The program manager of NETWORK mentioned carefully selecting actors to collaborate with to “find the right energy and the right decisiveness” but also “the right charisma and the right influence from a group of change agents who can do that take-off phase together” [Ki6].

Program NETWORK performed an active, coordinating role throughout the collaboration process. For the niche-pilot, a group of incumbents from two systems was carefully brought together: four hospitals and four textile producers, to which four experts were added. The program’s manager meticulously assembled this group of actors, believing they could help solve each other’s problems and facilitate regime-level change. The program guided the collaboration to put words into action and move beyond good intentions. The program’s manager spoke about the joint value creation as “a kind of marriage with highs and lows” that needs a process facilitator to survive [Ki6]. Rather than signing non-disclosure agreements (NDAs) the cross-system collaboration relied on a trust-based contracting model that the team developed over time.

Two pilot collections were realized and showcased at an established healthcare event deliberately picked by the team as it would set a deadline in one year. It also served as a way to start translating niche experiences into system reconfiguration efforts as it allowed the team to present the first pieces of the collections on stage to CEOs of clothing-

producing firms, and management and board-level at hospitals, as well as sustainability coordinators (people with influence). During the event, a major hurdle became clear: the coalition had placed itself outside the market with its circular innovation, as hospitals are bound by tender procedures and could only go for circular textiles if competing firms would be able to produce textiles in a circular way. The process accelerated when the national buyer of industrial clothing—responsible for procuring uniforms for the national army—attended the clothing demonstration and became enthusiastic. By including a gradual circular package of requirements into the tendering procedure of the Dutch government, potential clothing suppliers were challenged to engage with circular materials to be able to tender and uphold a competitive advantage. The integration of knowledge and technology from the pilot project into government regime-level procedures—such as their purchasing policy, which challenges the market to recycle (Duurzaamheid.nl, 2019)—significantly accelerated the pilot’s progress and triggered the broader adoption of textile innovations beyond the textile and healthcare systems.

4.2.2. Joint value creation in portfolio-type programs

Joint value creation in the portfolio-type programs is initiated bottom-up through facilitating CE market ambitions. Program actors *initiate joint value creation in response to questions or challenges* that specific organizations (BUSINESS), groups of organizations (TECH), or industries (NETWORK) who are (or want to become) leading in sustainable (or specifically circular) entrepreneurship, encounter in attempting to move into a more sustainable direction. Joint value creation is *initiated in isolated projects*. These start at different moments after the programs have been initiated, and have different time spans. The NETWORK and BUSINESS program actors initiate a relatively large number of projects in multiple systems (e.g. BUSINESS initiates >100 projects per year) based on requests of organizations that are affiliated with the program. The TECH actors initiate joint value creation to address the challenges of the textile production system in a relatively small number of projects across four hubs. The hubs are located in different areas of The Netherlands and each have a different objective. Organizations are intrinsically motivated, but also act upon societal trends, regulatory developments (e.g., CE requirements imposed by the national government), and customer expectations.

Joint value creation is organized in detail through planning, coordinating, and monitoring. On the program level, actors *work towards objectives* that are specific, measurable, and time-bound. For example, in NETWORK, actors collaborate on reaching the tipping point of 20 % new economy entrepreneurs in 2025 and *measure progress* towards this. On the project level, interviewees spoke about *using existing transition theories and methodologies and purposefully planning out with whom to create value*. For example, they consciously set up coalitions consisting of individuals and organizations interested in change. The organizations involved were organizations that could afford to experiment alongside their regular activities. There were also types of organizations, like industry associations, that were deliberately excluded as they were expected to frustrate the process. NETWORK’s manager referred to them as “delaying institutions” and mentioned *making agreements with individuals* of such organizations on being involved without representing their organization’s interests [Ki6]. The detailed organization of joint value creation ensures that value creation efforts target the system level, driven by strongly motivated individuals. Organizational level value is deliberately taken out of the equation, as in the circular workwear project of NETWORK, by *developing a “conscious contracting” method* that allows actors to collaborate on the basis of trust. In TECH, program actors set up a foundation to stimulate broad collaboration with all kinds of relevant actors and ensure that collaboration will happen on a non-profit basis. While organizational level values like knowledge development and innovation play a crucial driving role, the joint value creation is organized in a way that profit cannot be an incentive.

In the portfolio-type programs, joint value creation is executed

action-based through small-scale testing in niche-level projects. Program actors engage in *aligning goals and values* as concretely and in as much detail as possible. In the circular workwear project of NETWORK, actors worked on pilot collections and *set a strict deadline* for presenting these within the year at an important national healthcare event. This incentivized participants to move beyond cognitively envisioning value to actually creating it. The carefully planned and monitored path of joint value creation was *adapted based on an emerging situation* of an expected buyer who wished to push the innovation forward.

Joint value creation is embedded in one or two socio-technical systems through searching for and responding to scaling opportunities. Hurdles in executing joint value creation lead program participants to *anticipate how to scale the value creation* within the system(s) or to *go along in opportunities that allow efforts to become integrated in the wider system*. For example, interviewees of program TECH recognized that they needed a bigger volume for recycling to make it economically viable. As a result, they were considering how to expand to the European level. Actors of the circular workwear project (NETWORK) *openly shared knowledge with competitors*, which enabled the military and other large buyers of workwear like hospitals to request circular textile in their tenders. This allowed circular textiles to be implemented in the corresponding systems. It illustrates how the scope (in terms of stakeholders involved and outcomes pursued) and scale (from local or regional efforts to efforts at the EU or global levels) of the joint value creation grew over time. It also underlines the emphasis that was put on creating and protecting value at the system level, based on the team's belief that organizations should share knowledge and expertise for a better society rather than using it for their own competitive advantage.

4.3. Projecting for promoting CE transitions through dispersing

A second mode of projecting for promoting sustainability transitions is labeled *dispersing*. This mode of projecting is used in the goal-oriented program EDUCATE. It consists of top-down initiation, emergent organization, and action-based execution of joint value creation in multiple, connected parallel projects to feed into each other and become embedded within the larger system through connecting to existing institutional infrastructures (Table 4). In EDUCATE, niche-level pilots with CE knowledge owners, talent innovation pools in schools, and master classes that match young professionals and students, all lead to knowledge that is shared on a platform accessible to interested stakeholders to leverage the knowledge. The learning is projected to spill over from a digital ecosystem to a better-equipped, physical education system. Actors work towards multiple possible futures through learning-by-doing, resulting in the joint value creation to evolve in highly emergent ways. By connecting to existing infrastructures, actors stimulate and facilitate others in bringing the transition further. The following vignette of the EDUCATE program illustrates the dispersing mode of projecting.

4.3.1. Integrating sustainability in education: The educate program

The program EDUCATE was initiated based on the observations of companies involved in BUSINESS that organizing circular value chains would require different kinds of future workers with different skills. It can be considered a spin-off of BUSINESS, with its director being one of the initiators. EDUCATE received government funding for four years to investigate how to structurally integrate sustainability into the Dutch educational system and facilitate this.

The program focuses on several themes, including one on circular skills development. The theme's project manager explained how they had broadened the government's request to focus on circular skills for vocational education to "all education from toddlers to professionals" [Ki10]. Within the circular skills theme, three work packages are executed simultaneously. Two are at the niche-level, with one focusing on research and one on executing pilot projects. A third work package targets regime-level change and focuses on connecting niche efforts with the broader education system. The work packages have clearly defined,

short time horizons, for example, one year. The interconnectedness of the work packages allows for continuous learning-by-doing and flexibly maneuvering within a continuously changing environment. The project manager spoke about "working on a task that is still largely unknown" and "a route towards it [that] is also still unknown". The interviewee considered it important to "be as agile as possible so that you can switch gears in your process on your findings and change course completely when necessary" [Ki10].

4.3.2. Joint value creation in a goal-oriented program

Within the goal-oriented program EDUCATE, joint value creation is initiated top-down through expanding on existing initiatives. Program actors *bring together learnings of other CE initiatives* regarding what is needed to push CE transitions further in multiple, interrelated niche-projects. The skills project manager explained how the EDUCATE program performs an integrating role by *leveraging these learnings* and "trying to *create an overview from fragmented projects*". The manager envisioned that this integrating role –which the interviewee also described as "trying to unite the education side"– would contribute to reaching the desired transition of the socio-technical system [Ki10]. Program BUSINESS adopts a similar integrating role (next to the facilitating role they have in addressing innovative questions and ideas of companies). Its director explained how the program uses the multiple, distributed project-based joint value creation paths that are oriented at niche innovations to initiate paths that would be able to reach transformations in socio-technical systems [Ki14]. This illustrates how certain programs may adopt multiple approaches of projecting for promoting transitions.

Joint value creation is organized emergently through continuous adaptation. *Pilot projects* represent multiple simultaneously running value creation paths, *involving different actors from the education system*. The program EDUCATE is very open and inviting to potentially large numbers of educators and schools to lightly connect, including schools for whom the joint value creation may lead to new knowledge, or education advisors who see business opportunities in the collaboration. Program actors act flexibly upon emerging opportunities to connect niche experiences and system actors, institutions, and rules. This is supported by *setting clearly defined, short-term horizons* for joint value creation in pilot projects (for example, one year). This short-term focus allows for obtaining quick results, learning, and steering whenever adequate responses to a continuously emerging situation are needed. One actor who is developing the CE knowledge platform that would potentially become integrated into the EDUCATE program mentioned to work on different "test balloons", which are either fed or disregarded based on the results they generate [Ki15].

Joint value creation in niche projects is executed action-based through learning-by-doing by incumbent organizations affiliated with the EDUCATE program. This is *monitored* by the program's management team. Program actors *scan the environment to identify the actors that are already embedding sustainability in education*, with the aim to facilitate their operations and support the integration of their pilots, potentially lightly optimized, in other education contexts. A learning-by-doing approach serves to *experiment while researching*. Rather than aligning values up front, as in the portfolio-type programs, program actors find it important to *discover on-the-go what everyone finds important and is interested in*. Individuals and organizations involved in joint value creation are *given quite some leeway in the ways and the scope* of their value creation.

In EDUCATE, joint value creation is embedded locally in the education system through connecting to existing institutional infrastructures. The learning-by-doing approach and autonomy that affiliated incumbent organizations have in executing pilots in their own ways, are considered important by the program team to embed the activities within the education system. The skills' project manager argued that the counterintuitive and "bit messy" approach of directly piloting in practice before having proper research insights, allows putting

everything they find “immediately [...] into a living lab to calibrate it”. This “makes it possible to learn lessons in the short term and to implement them in the structure” [Ki10]. The interviewee mentioned how more schools become interested when they see pilot projects that other schools are engaged in. The project manager argued that teachers are more inclined to adopt program results when they get to know of them through their usual teachers’ training. This shows a focus on *embedding achieved results into regular regime operations*. The dispersing mode of projecting targets purposeful connections and network expansion at a local scale to reach system-level transition. This approach might only work when the network is already woven, like in Dutch education.

4.4. Projecting for promoting CE transitions through activating

The third mode of projecting, labeled activating, occurred in the heartbeat-type program TRAIN. It is characterized by top-down initiation of joint value creation, which is a carefully planned, repetitive task that remains cognitive and is spread out rather opportunistically across multiple socio-technical systems and the globe (Table 4). Actors set up many reorientation projects to strategically shift incumbents towards new technologies and business models. They also set up a supporting infrastructure to ensure that at least some of the initiatives will promote the transition. The following vignette of the TRAIN program illustrates the activating mode of projecting.

4.4.1. Encouraging firms to adopt CE practices: the TRAIN program

Based on academic research into circular product design and how to organize this within the value chain, program TRAIN brings a three-day CE learning track to manufacturing companies. They have a similar track for creative professionals.

Starting off inviting companies to join, TRAIN now relies on its extensive network to gain participants for a track. Each track has the same set-up and typically focuses on a specific sector, for example, plastics production or construction. The track is facilitated by an affiliate trainer, who works for a company involved in some sort of CE practices (consultancy, design, etc.) and has in-depth knowledge about the sector the track focuses on. The TRAIN program tries to organize a track in such a way that multiple companies from a system’s value chain participate in it, allowing them to help redesign each other’s value creation. Of each company, two people are involved in the track: one person responsible for the finances and one in charge of technical development. This is deemed important by the program actors to facilitate possible adoption of the CE practices explored in the track within the company context.

After having worked with large companies that are motivated to pursue more circular value creation, TRAIN is specifically targeting a broader group of companies, including small and medium-sized enterprises that are not actively pursuing CE practices. This appears to be quite a challenge as many companies do not see value in it or do not want to spend time on following a track. A spin-off of the regular CE track is the train-the-trainer pilot consisting of a presentation and workshop. Here, the methodology and background story are shared with educators in higher education and universities. With this, TRAIN helps others in bringing the knowledge into education and stimulating CE transitions in multiple systems through educating the next generation of workforce and managers.

4.4.2. Joint value creation in a heartbeat program

Joint value creation within the heartbeat-type TRAIN program is initiated top-down through identifying organizations to stimulate. A policymaker explained how the Dutch government saw a gap in stimulating CE transitions through new product design rather than only making existing business processes more circular [Ki5]. To fill this gap, all kinds of manufacturing companies needed to become familiar with CE principles and design opportunities. The *identification of this gap* originated in CE research and was fuelled by CE ambitions within the market. The policymaker described it as “achieving more sustainability

by stimulating producers to design circular products” [Ki5]. The TRAIN program was designed to become an influential training model that could act as an eye-opener within incumbent organizations. Multiple interviewees described the ambition of having a large part of the business community participate, so that they could learn what they should and can do to work towards a more circular economy. While the portfolio-type programs NETWORK, BUSINESS and TECH largely work with CE pioneers from the industry, program TRAIN particularly aims to reach followers and laggards to speed up CE transitions. During the train-the-trainer workshop, a CE trainer referred to the program as “missionary work”, that is “very much dependent on the drive, the conviction, and the will of individuals” [Ki12]. The program aspires to *fuel such a personal CE drive among members of companies*. Successful examples of pioneers play an important role in this, but are still scarce.

Joint value creation within TRAIN is organized in detail through planning, coordinating, and evaluation. Program actors of TRAIN have a clear idea about who should be involved in joint value creation for it to succeed. They try to *combine organizations from the same value chain into a track*, to allow for co-designing a circular value chain. They also *require the attendance from two people of an organization: someone in charge of finances and someone who can implement technical changes*. TRAIN has a *concrete program objective expressed* in the number of organizations to reach per year [annual reports, slide decks].

Joint value creation within the TRAIN program is executed cognition-based through redesigning the value chain. A track focuses on *making participants aware of and allowing them to anticipate joint value creation with others in the value chain*. This is done through *cognitive experimentation, using the TRAIN methodology*. Participants are challenged to redesign the value chain based on an exploration of where value is created and lost, which allows exploring possibilities for ecological and economic value optimization. TRAIN also creates value itself, mostly social: groups of like-minded people or people in the same roles in the same or different industries learn together. This Community of Practice may contribute to infusing existing regime practices with the newly gained CE mindset and strategies, thereby fueling incremental change.

The heartbeat-type program stimulates joint value creation to become embedded globally across systems through replicating tracks. Actors of the TRAIN program work towards having a multiplier effect through spreading knowledge and insights, partially based on word of mouth, but also through *presenting at major industry events*. The program counts on the willingness of individuals who participate in a track and then implement what they have learned in their own organizational context. Program actors know that this willingness is difficult to create and will only emerge for a small percentage of companies that participated. Therefore, they *organize tracks in a large number of sectors* (16 in 2019) *and countries*. On top of this, they are also *training educators*, who can diffuse the CE principles among a new generation of company managers and employees. This shows a mode of projecting based on activating a widely spread (geographically and system-wise), large number of companies and institutions, aiming to further densify the network over time.

5. Discussion

5.1. Three modes of projecting for promoting transitions

Distributing, dispersing, and activating were identified as the three modes of projecting, differentiated through the way stakeholders jointly make sense, anticipate, and take action to promote CE transitions and create a jointly desirable future. The findings offer novel ideas on the alternative shapes and natures of future-oriented projecting, while also lending support to the idea of projecting through narratives (Sergeeva, 2024; Sergeeva & Winch, 2021; Winch & Sergeeva, 2022). Especially, our results featured examples of how niche-level small-scale experimentation was connected with regime-level narratives and rules, in a

repeated and cyclical interplay that evolved and varied depending on how new stakeholders joined and how the stakeholders proceeded in their joint value creation. The evolving, cyclical interplay between narrating, experimenting, and adding new stakeholders to niche-level experiments offers novel insight on the lived experiences of future making (Fig. 4 in Winch & Sergeeva, 2022).

The results give shape to the different ways to create value jointly in CE programs, whereby the differentiation of value creation between different program types supplements the differentiation of program managers' competences (Miterev et al., 2016). Fig. 1 illustrates the key differences between the modes of projecting identified in the studied programs.

Distributing-type joint value creation was shown to occur in portfolio-type CE programs, and it depends on establishing niche-regime interactions between isolated projects within a specific socio-technical system or across two or three, via industry actors representing different parts of the value chain. These niche-regime interactions are organized and executed in detail. Projecting the promotion of sustainability transitions involves rigorous planning and monitoring by program actors, but also seizing the opportunities stemming from emerging uncertainty. Regardless of which behavior they engage in, program actors envision working towards one defined future (Winch & Sergeeva, 2022), which they (slightly) adapt at specific moments in time, evidencing the continuity of strategic alignment in a portfolio of projects over time (Martinsuo & Anttila, 2022). In this mode, program actors share resources with others, to allow circular practices to become more embedded, which is highly dependent on actors' willingness to share. Scaling from local to EU or even global level are considered key to reaching a critical mass and enabling change along the entire value chain.

Dispersing-type joint value creation appeared in the goal-oriented (and one portfolio-type) program and involves promoting CE transitions through establishing a growing number of niche-regime interactions within one socio-technical system. These interactions are established rather opportunistically via multiple niche projects that feed into each other. The interactions were described by participants as evolving in highly emergent ways, leading to CE mindsets and CE practices, and contributing to gradually changing regimes within the system. The dispersing mode of projecting involves learning-by-doing and working towards multiple possible futures (Winch & Sergeeva, 2022), and requires actors to renegotiate the shared goals when the program proceeds. In this mode, which in our study showed intended scaling inward at the local, regional and national level rather than outward towards EU and global level, program actors facilitate others in

bringing CE transitions further, showing examples of project-to-program and project-to-multiple parent organizations.

Activating, as pursued in the heartbeat type program (Pellegrinelli, 1997), can be seen as spreading a wide net of replicated projects that encourage niche-regime interactions across many socio-technical systems. Participants expected that some of these will lead to change in existing regimes while others will not. This explains why the national level heartbeat program of our study broadened its focus to the EU and global scale. This mode of projecting involves special attention to the infrastructure for spreading (in our case the methodology, key organizations, and relevant members of organizations to reach), and less to the projects themselves. This draws attention to the institutional structures and mechanisms that enable the CE projects to be implemented and diffused (Morris & Geraldi, 2011), and leaves space for the renewal of those structures through the constant re-interpretation of what CE transitions entail in each specific project and its context.

5.2. Joint value creation in sustainability transition programs

Our results offer new understanding of joint value creation in interorganizational programs pursuing sustainability transitions. We thereby respond to recent calls for research on how project and program management and sustainability transitions relate (Winch et al., 2023) and more generally to better understand project management for grand challenges (Ika & Munro, 2022). By showing the different modes of projecting that programs and their members use to contribute to promoting transitions, and how this is supported by processes of *initiating, organizing, executing, and embedding* joint value creation, we offer empirical evidence of how program actors seek to enact and intensify their agency in pushing transitions forward via joint value creation. Our results provide insights into how program actors project for achieving significant changes in mindsets and strategic commitments among diverse actors, which are essential for accelerating transitions (Geels & Ayoub, 2023). We show that projecting within sustainability transition programs is highly action-based, where actions enable actors to bring a desired future closer by adapting to ongoing contextual developments. Our results stress the importance of paying attention to joint value creation within and between the boundaries of organizations as a mechanism for stimulating the upscaling of innovations and for understanding how sustainability transitions are promoted bottom-up (Kohler et al., 2019).

Tracing the narratives through which initiating, organizing, executing, and embedding of joint value creation is shaped in programs (Green & Sergeeva, 2019), we bring detailed insight into how actors

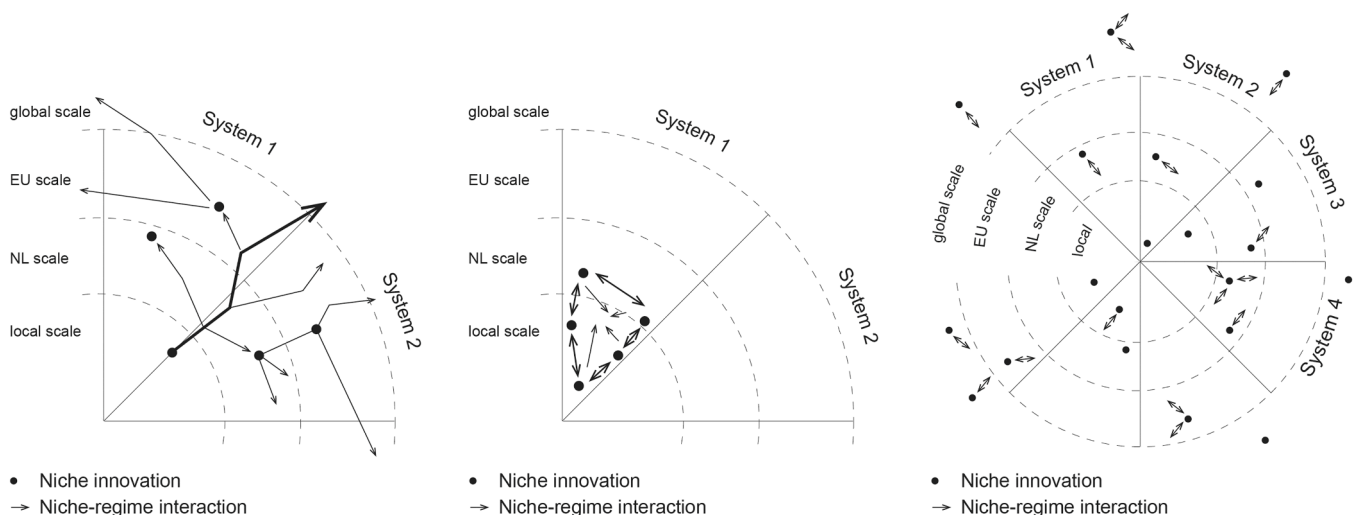


Fig. 1. The different modes of projecting.

project for realizing transformative outcomes via niche-regime interactions (Ghosh et al., 2021), while simultaneously being guided by these projections in their value creation. Focusing on joint value creation in programs connecting niches and regimes increases the understanding of how narratives become intertwined rather than actors independently shaping their own narratives and advancing potentially competing discourses to push their agendas (Roberts, 2017; Geels & Verhees, 2011). We complement research on sustainability-oriented projects (Di Maddaloni & Sabini, 2022; Keeys & Huemann, 2017; Kivilä et al., 2017) by showing revelatory evidence of joint value creation in transition programs that tie actors from diverse organizations together to contribute to promoting sustainability transitions at organizational, interorganizational, and system level. Where Lehtimäki et al. (2023) offer one example on the short-term praxes serving the longer-term sustainability transition goals, our findings add the viewpoints of continuous projecting and joint value creation in broader programs with a focus on niche-regime interactions.

Our empirically grounded understanding of joint value creation in CE programs elaborates and adds to existing work on value creation in the field of program management (Farid & Waldorff, 2022; Martinsuo & Hoverfält, 2018) and project management (Arto et al., 2016; Zerjav et al., 2021). We investigated joint value creation through a multi-actor and multi-level lens, covering the perspectives of academic, business, government, and civic stakeholders and how they address value creation at individual, organizational, and system level. This adds to the growing body of work that emphasizes understanding value creation by all stakeholders and beyond the single level of analysis (Toukola et al., 2023; Zerjav, 2021). The results show that value is jointly created in many different ways that all have unique opportunities and challenges in various stages of the program. Due to the extremely complex and uncertain nature of the task, opportunities and challenges cannot all be anticipated and overseen. Our study empirically underlines why such complex programs cannot and should not be managed objectively (Winch & Sergeeva, 2022), as different programs involve different modes of projecting for the future that require different approaches to the management of joint value creation. However, our results also suggest that the modes of projecting and joint value creation that support these may be strongly related to the typology of portfolio, goal-oriented, and heartbeat programs (Pellegrinelli, 1997). This could offer input for managing joint value creation more deliberately within programs.

6. Conclusion

6.1. Theoretical contributions

This paper inquired: *How do program actors project for promoting circular economy transitions through joint value creation?* We revealed that programs employed different modes of projecting for promoting transitions (*distributing, dispersing, and activating*, Fig. 1) and that modes of projecting are differentiated by program types (portfolio, goal-oriented, heartbeat). Our paper provides several contributions to the debate on the relation between transition studies and project/program management. A first contribution is to the nascent literature on projecting for sustainability transitions by identifying these three modes of projecting and providing detailed insight into the joint value creation in them. Second, we expand existing knowledge of value creation in interorganizational projects and programs and sustainability transitions by disentangling joint value creation in programs promoting sustainability transitions as consisting of processes of initiating, organizing, executing, and embedding joint value creation. Those differ across program types in line with programs' dominant modes of projecting. Third, we contribute to the literature of sustainability transitions by showing empirically that niche-regime interactions can be understood as joint value creation supporting different modes of projecting to promote sustainability transitions. Such a lens helps to understand how niche-regime interactions vary across program types and shows the

importance of further investigating how program management can support joint value creation across individual, organizational, and systemic contexts.

6.2. Managerial implications

Our results offer two crucial insights for managers and participants of sustainability transition programs. First, by explaining joint value creation as consisting of initiating, organizing, executing, and embedding processes and providing details of how these processes differ across programs, we offer a framework that allows program actors to understand joint value creation in their program, uncover missing pieces or potential disruptions, and better manage joint value creation within their program. Second, by showing how joint value creation, program type, and actors' modes of projecting for promoting transitions relate, we provide program actors with knowledge to develop a more deliberate approach towards promoting sustainability transitions with their program. By understanding the nature of their program and the associated possibilities for initiating, organizing, executing, and embedding joint value creation, program actors can pursue modes for promoting sustainability transitions that fit their programs.

6.3. Limitations and further research

Some validity limitations stem from the choice of focusing on circular economy programs as examples of sustainability transitions, and the choice of case programs. We have attempted to characterize the nature of the programs carefully, to facilitate readers' interpretation and possible knowledge transfer to other sustainability projects and programs. The case programs stem from one country, during a limited period of time. It is likely that the institutional and political conditions in other countries may support other types of programs. The data access varied somewhat between the programs, implying some differences in the depth of program-specific knowledge. This causes limitations to the validity of our findings.

Further research with a broader sample of programs is needed to reinforce the findings on modes of projecting, to identify potential additional modes, and to examine the salience of certain modes. In addition, we recommend future research to explore how joint value creation in programs evolves over time, and how this evolution may influence the modes of projecting and program configurations, as suggested by our participants during validation of our findings. Given the possibility that modes of projecting and program configurations may change over time, we suggest employing observation as part of an ethnographic approach to capture both program participants' and researchers' perspectives on how joint value creation and projecting happen in action. It would also be interesting to investigate how different modes of projecting may require different competences of program managers and program members. Such an understanding could stimulate building unique capabilities within different types of programs and over time to purposefully curate actor alliances and feedback loops to accelerate transitions (Geels & Ayoub, 2023).

Funding information

This work was supported by The Netherlands Organisation for Scientific Research (NWO) [KI.18.052, 2019], and two industry partners.

CRedit authorship contribution statement

Marina Bos-de Vos: Writing – review & editing, Writing – original draft, Visualization, Validation, Project administration, Methodology, Investigation, Funding acquisition, Formal analysis, Data curation, Conceptualization. **Miia Martinsuo:** Writing – review & editing, Writing – original draft, Conceptualization. **Ellen Loots:** Writing – review & editing, Writing – original draft, Validation, Methodology,

Investigation, Funding acquisition, Formal analysis, Data curation, Conceptualization.

Declaration of competing interest

None.

Acknowledgments

We express our gratitude to the programs, interviewees, and other people involved in our study for sharing their practices, experiences, and insights. We are grateful to the special collection editors, three anonymous reviewers, and the organizers and reviewers of the EURAM 2024 track on Project and Society for their invaluable feedback on our paper. We also thank the participants of the Projecting for Sustainability Transitions PDW and the Tampere University Center for Research on Project and Service Business (CROPS) paper development workshop for the helpful discussions, comments, and suggestions to earlier versions of this paper. Finally, we are deeply honored and grateful to the Project Organising Strategic Interest Group at EURAM 2024 for granting us the PMI Best Paper Award, and to the European Academy of Management (EURAM) for the prestigious honor of awarding us the EURAM 2024 Best Paper Award. This recognition inspires us to further advance our research on joint value creation within programs aimed at fostering societal transitions.

Supplementary materials

Supplementary material associated with this article can be found, in the online version, at [doi:10.1016/j.ijproman.2025.102692](https://doi.org/10.1016/j.ijproman.2025.102692).

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