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Demolishers or 'material experts'? Project actors negotiating changing roles in sustainable projects

Manon Eikelenboom [a], Mieke Oosterlee [a], Alfons van Marrewijk [a,b,c,*]

[a] *Vrije Universiteit Amsterdam, Faculty of Social Sciences, De Boelelaan 1105, 1081 HV Amsterdam, the Netherlands*
[b] *Delft University of Technology, Faculty of Architecture and the Built Environment, Julianalaan 134, 2628 BL Delft, The Netherlands*
[c] *BI Norwegian Business School Oslo, Department of Leadership and Organizational Behaviour, Nydalsveien 37, 0484 Oslo, Norway*

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ABSTRACT

For projects to contribute to sustainability transitions, traditional roles of project actors need to be challenged. This paper focus on the changing role of demolishers in circular construction projects. We explore the role changes needed and the tactics adopted to negotiate these changes. Therefore, we collected data across 10 demolishers and two construction projects in the Netherlands. We identified required changes related to task, timing, position, and image. The studied demolishers adopted six different tactics to negotiate these changes. These findings contribute to the sustainability transitions literature by highlighting the important function of projects in operationalizing role changes and enabling change in the roles of incumbent actors. Furthermore, the results contribute to the debate on roles in sustainable projects, and on the roles of demolishers in particular, showing the different elements and non-linear nature of role change, including the unique challenges and tactics adopted by demolishers to negotiate these changes.

1. Introduction

Recently, interest in the relationship between sustainability transitions and project management has increased (Locatelli et al., 2023; Martens & Carvalho, 2017; Papadonikolaki et al., 2023; Winch et al., 2023). Scholars have asked for active responses of project management to sustainability challenges, such as transition to circular construction (Charef & Lu, 2021), as the physical assets and capital goods underpinning these transitions are principally delivered through projects (Sydow et al., 2004; Winch et al., 2023). Projects can be helpful in constructing sustainable assets and goods (Huemann & Silvius, 2017) and function as spaces for experimentation (Van Marrewijk & Van den Ende, 2022). When project outputs are transferred to other projects, project portfolios and programmes, the functional operations of an unsustainable regime can be reconfigured (Daniel, 2022).

In order for projects to construct sustainable assets and contribute to sustainability transitions, the traditional roles of and hierarchic relations between project actors need to be challenged (Bos-de Vos et al., 2019; Sergeeva, 2022). Whyte et al. (2022), for example, show that project leaders have to change their role to address ecological concerns. Few studies have zoomed in on this process of role change and showed that role change is often difficult to achieve, involving a negotiation process among the involved project actors (Bos-de Vos et al., 2019; Wittmayer et al., 2017). For example, Wittmayer et al. (2017) show that municipalities need to negotiate and collaborate with community members in order to move from a focus on helping clients, towards a coaching role in sustainable community projects. Notwithstanding the need for role change, project studies have mainly focused on fixed project roles (Blomquist & Müller, 2006), on identifying diverse roles in projects (Zwikael & Meredith, 2018), and on stable role structures (Bechky, 2006). Consequently, not much is known about what changes in the roles of sustainable project actors are needed and how these are negotiated, as being asked for by others (Whyte et al., 2022; Wittmayer et al., 2017).

We address this gap by focusing on the role change of circular construction project actors. Circular construction is here defined as the adoption of a lifecycle approach that optimizes the useful lifetime of constructions, integrates the end-of-life phase in the design and uses new ownership models where materials are only temporarily stored in a construction (Leising et al., 2018). As the construction sector is one of the most resource-intensive sectors (UNEP, 2021), the transition to circular construction is of utmost importance and can reduce negative environmental impacts during the harvesting, manufacturing, production, use and reuse of constructions (Ghaffar et al., 2020; Kooter et al.,

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2021). However, the adoption of circular construction innovations only develops at a slow speed and the conventional construction regime, referring to the way buildings are commonly designed, built, and regulated, remains dominant (Ghaffar et al., 2020; Leising et al., 2018). Inter-organizational circular construction projects play an important role in the transition to circular construction by enabling diverse actors to align and experiment with circular innovations (Leising et al., 2018).

The most striking example of role change in circular construction projects is experienced by demolishers (Giorgi et al., 2022; Koch-Ørvad et al., 2019). Traditionally, being the last in line after the end-of-life time of a building or infrastructure, demolishers now have to become partners by providing reusable materials at a project's start (Giorgi et al., 2022; Köhler et al., 2022). However, unfair and opportunistic contractual practices, established hierarchies, intimidation, and discrimination towards various 'out-groups' in the construction sector (Clegg et al., 2023) pose a major obstacle to the radical transformation of the role of demolishers. This toxic behaviour stimulates actors in the construction sector to collectively stick to well-known traditional roles and routines (Clegg et al., 2023). Therefore, actors, among which demolishers, experience difficulties negotiating their new sustainability roles and change role structures in inter-organizational construction projects (Gluch & Månsson, 2021). While the importance of the role change of demolishers, to close structural holes between project design and the end-of-life of buildings, has been emphasized (Giorgi et al., 2022; Wijewickrama et al., 2021), researchers have mainly focussed on the roles of other project actors such as clients and architects (Bos-de Vos et al., 2019; Dokter et al., 2021). Therefore, little is known about the needed changes in the roles of demolishers, including how these changes can be achieved.

We will focus on the following research question in this study: *which role changes are needed of demolishers in circular construction projects and how do demolishers negotiate these changes with other project actors?* To answer this question, we adopted a qualitative, interpretative approach (Yanow & Schwartz-Shea, 2006) which included interviews, observations among ten different demolishers and two cases of circular construction projects. The findings contribute to the sustainability transitions literature (Daniel, 2022; Gasparro et al., 2022; Winch et al., 2023; Wittmayer et al., 2017) by highlighting the important function of projects in operationalizing role changes and enabling change in the roles of incumbent actors. The results of this study furthermore contribute to the debate on roles in sustainable projects (Bos-de Vos et al., 2019; Dokter et al., 2021; Whyte et al., 2022), and on the roles of demolishers in particular (Giorgi et al., 2022; Ruiz et al., 2020), by illuminating the different elements and non-linear nature of role change, including the unique challenges and tactics adopted by demolishers to negotiate these changes.

The remainder of the paper is structured as follows. First, we discuss the literature on sustainability transitions and sustainable projects, including circular construction projects. Thereafter, we discuss role theory and how it has been adopted in both project management and sustainability transitions literature. In the methods section, we highlight the selected circular construction projects and elaborate on the data collection methods. Afterwards, we present our results highlighting how the role of demolishers needs to change in circular construction projects according to the respondents, including the challenges and tactics involved in negotiating this change. Finally, we discuss our results in light of sustainable project management and sustainability transitions literature.

2. Literature

2.1. Sustainability transitions and sustainable projects: a promising connection

In order to explore how sustainable projects can be managed, studies have connected the fields of sustainability and project management (Huemann & Silvius, 2017; Martens & Carvalho, 2017; Sabini et al., 2019; Silvius & Schipper, 2014; Winch et al., 2023). These studies have for instance focused on what project managers ought to do to make their projects sustainable (Silvius & Schipper, 2014) and on the stresses project managers face when addressing sustainable objectives and becoming sustainable (Sabini & Alderman, 2021). Based upon an exploration of relevant literature on sustainability and projects, Huemann and Silvius (2017) distinguish between those studies that see a project as a tool to deliver a sustainable good or service catalysing sustainability transitions (sustainability 'by' the project), and those studies that see projects being delivered following sustainable processes bringing more sustainable ways of conducting and delivering projects (sustainability 'of' the project). However, as the delivery of the project is also shaped by the delivery process, it has been acknowledged that the two sides interact (Labuschagne & Brent, 2005). An example of the first kind is the paper of Kooter et al. (2021) showing the indicators for successful circular projects. An example of the second kind is the study of Fernández-Sánchez and Rodríguez-López (2010) who developed a methodology to identify, classify and prioritise sustainability indicators of a project based on risk management standards.

Sustainability transition and project management scholars have further explored how sustainable projects can assist in accelerating sustainability transitions (Daniel, 2022). Sustainability transitions are here understood as "long-term, multi-dimensional, and fundamental transformation processes through which established socio-technical systems shift to more sustainable modes of production and consumption" (Markard et al., 2012, p. 956). According to the multi-level perspective (MLP), these transitions are caused by a dynamic interplay of processes within and between three different levels: niche (protected spaces in which radical innovations can develop), regime (the dominant order in a societal system, including dominant technologies, institutions, routines and cultures) and landscape (societal developments, including external factors and pressures) (Geels, 2002). Transitions are multi-actor processes, involving fundamental changes in the roles, interactions and relationships between social groups (Wittmayer et al., 2017). Sustainable projects can contribute to sustainability transitions by interrupting existing situations and enabling the exploration of new ways to meet societal needs, such as the need for energy, mobility, or health care, through the interaction of diverse actors (Sengers et al., 2019; Whyte & Mottee, 2022). Sustainability transition scholars have therefore recognized that project-type endeavours, such as experiments, demonstrations, trials and pilots, play a critical role in sustainability transitions (Nylén, 2021; Winch et al., 2023).

Recently, efforts have been made to further conceptualize the role of projects in sustainability transitions, building on the multi-level perspective (MLP). For example, Gasparro et al. (2022) conceptualise projects, and vanguard projects in particular, as spaces where technological innovations can develop and take hold within the regime and, ultimately, the landscape. This can be achieved through transition intermediation, which the authors define as a process where core and external actors and resources align and organize in ways that enable the translation of objectives, actions and project outcomes across the analytical levels of the transition (niche, regime and landscape) (Gasparro et al., 2022). Daniel (2022) adopts a different approach, combining the MLP with the multi-level project approach. Here project organization is broken down into three levels: 1) the micro/niche level, where project members and teams focus on effectively delivering project outputs, 2) the *meso*/regime level, where project owners combine project outcomes in project programmes or portfolios, and 3) the macro/landscape level including systems driving the value priorities of project stakeholders. When the outputs of projects are transferred to other projects, project portfolios and programmes, the functional operations of the regime and value priorities of project stakeholders can be reconfigured in line with the sustainability transition (Daniel, 2022).

2.2. Circular construction projects

Academic interest in circular construction projects has recently increased (Charef & Lu, 2021; Kooter et al., 2021; Leising et al., 2018; Wuni, 2023). Circular construction projects largely overlap with non-circular construction projects, but differ in ambitions to reduce greenhouse gas emissions and waste during the building and demolition phases and in enabling design-for-disassembly to close material loops and reduce energy usage (Sanchez & Haas, 2018). Due to these ambitions, circular construction projects follow a reverse logistic process, including deconstruction, product reuse, waste distribution, and material reprocessing, different from the forward logistic process, including design, manufacturing, construction, and operations, followed in non-circular construction projects (Ding et al., 2023). Furthermore, circular construction projects call for a holistic approach among stakeholders to foster an understanding of the entire life cycle of buildings (Leising et al., 2018). Circular construction projects are thus inter-organizational projects (Van Marrewijk & Van den Ende, 2022), requiring the involvement of different organizations such as clients, architects, constructors and demolishers to close material and resource cycles (Ding et al., 2023). Actors in circular construction projects largely overlap with those in non-circular construction projects. Incidentally, new actors can enter the scene, for example when delivering new bio based construction material or recycled old bricks (Koch-Ørvad et al., 2019). More important, the traditional roles and relationships between actors in circular construction projects change (Bos-de Vos et al., 2019; Kooter et al., 2021). For example, Dokter et al. (2021) highlight the changing role of architects in circular construction projects; shifting their focus from designing a singular building to the creation of systems.

The transition from non-circular to circular construction has been described as a laborious process in the literature (Charef & Lu, 2021) due to several challenges including social challenges such as fragmented value chains, risk avoidance and laborious collaboration (Hart et al., 2019; Kooter et al., 2021; Leising et al., 2018), technical challenges due to the long lifespan and complex design of constructions (Munaro et al., 2020), financial challenges such as unclear financial cases and high start-up costs (Adams et al., 2017; Hart et al., 2019), and regulatory challenges such as hindering laws and a lack of quality standards (Hart et al., 2019). Winch et al. (2023) for example, see little room for manoeuvre for clients to allow suppliers to introduce innovative zero-carbon technologies. Circular construction projects can accelerate the transition to circular construction, by enabling construction sector actors to collaboratively experiment with circular innovations, develop their knowledge base and adjust their practices and routines (Sengers et al., 2019). These projects can for example offer spaces for reflection, were practices, such as contracting, communicating and monitoring practices, can be critically evaluated and new practices can be initiated and tested (Eikelenboom & van Marrewijk, 2023).

To conclude, projects assisting project actors in reflecting on and changing established practices can be important for the transition to a circular construction sector. Particularly when new circular project practices are transferred to other projects and other transition levels such as project programmes and tender procedures. Whyte and Mottee (2022) therefore emphasize to not see circular projects as islands, but as deeply interconnected with existing and future contexts. For example, Papadonikolaki et al. (2023) show that megaprojects are not always peripheral outsiders, but can also function as protected innovative niches at the centre of an organizational field with their effects rippling outward towards its periphery.

2.3. Role change in project management and sustainability transitions literature

Roles have an important function in inter-organizational projects as mechanisms to coordinate the interaction of diverse collaborating professionals (Bechky, 2006). Role structures are assumed to be relatively stable with role negotiations taking place in a stabilized structural context, enabling actors to deal with the uncertainty accompanied with temporary projects (Bechky, 2006; Van Marrewijk et al., 2016). Bechky (2006) defines a role structure as a shared understanding of actors' roles and their respective expertise and responsibilities. The author shows that the enactment of role structures in successive projects and mundane acts, such as role-oriented joking, enthusiastic thanking and polite admonishing, can enable role coordination in temporary projects. Project management literature has dominantly focussed upon the traditional roles of project owner, project manager, contract manager, stakeholder manager, and technical manager (Andersen, 2012; Blomquist & Müller, 2006). These traditional roles are sometimes changing, for example from a traditional to agile project manager, requiring managers to both learn and unlearn skills (Tripathi & Goyal, 2014). Furthermore, scholars (f.e. Ebbers & Wijnberg, 2017; Van Marrewijk et al., 2016) have indicated that projects may involve political struggles, conflicts and ambiguities over roles and role structures, leading to constant negotiations over roles, responsibilities and relations.

Ongoing societal developments, such as the entrance of new sustainability specialists (Gluch & Månsson, 2021), have increased competition and negotiation over roles and sparked academic interest in role change (Bos-de Vos et al., 2019). For example, Sergeeva (2022) shows how project actors reflect upon their work identities and emerging roles as sustainability professionals through storytelling. Sustainability transition scholars have also shown that, as sustainability transitions unfold, relationships between actors may change, new roles emerge, and different roles may need to be taken (Farla et al., 2012; Mossberg et al., 2018; Wittmayer et al., 2017). Wittmayer et al. (2017) describe roles as a set of recognizable activities and attitudes used by an actor to address recurring situations. This suggests that roles can be described as ideal-types. However, the authors also emphasize that roles are socially constructed and therefore open to negotiation and change (Wittmayer et al., 2017). According to Turner (1990), roles can change in multiple ways; a new role can be created, an established role can be dissolved, a role can change quantitatively (e.g., addition or subtraction of duties or rights, gain or loss in power), or a role can change qualitatively (e.g., substitution of elements, reinterpretation of meaning, change in prominence of different elements). Roles can thus be seen as vehicles for mediating and negotiating meaning in transition processes, while also being (re)constructed through them (Bos-de Vos et al., 2019; Wittmayer et al., 2017). Wittmayer et al. (2017) therefore argue that transition processes involve a continuous searching, learning and experimenting process through which roles are (re-) negotiated over a period of time. In a similar vein, Mossberg et al. (2018) show that transition processes involve a dynamic role-assuming process in which different actors can assume different roles in the various phases of a transition process. This also means that actors may play conflicting roles in transition processes, for instance by playing the role of an institutional actor in one context whilst seeking to change those institutions in another context as part of another, more transformative role (De Haan & Rotmans, 2018; Jørgensen, 2012). In the multi-actor processes of sustainability transitions, fundamental changes in the roles of actors and their relations with each other are thus vital (Geels & Schot, 2010; Wittmayer et al., 2017).

Both project management and sustainability transition researchers have shown that role change is often difficult to achieve and involves a continuous negotiation process among the diverse actors involved (Bos-de Vos et al., 2019; Van Marrewijk et al., 2016; Wittmayer et al., 2017). Bos-de Vos et al. (2019) focus, for example, on the continuous discussions about the role boundaries of architects, which the authors define as; 'demarcations between dichotomous or mutually exclusive entities or 'permeable membranes' that allow some demarcation between one's situation and that of others' (Bos-de Vos et al., 2019, p. 130). The authors identify three forms of negotiation over role boundaries performed by architects, including reinstating roles, bending roles and pioneering roles. These negotiations are often accompanied by

frictions between actors, for instance regarding the tasks that fall within their jurisdiction (Bos-de Vos et al., 2019). Role negotiations are closely tied to the distribution of power and involve continuous conflicts between actors over existing and new role structures that shift power relations (Simpson & Carroll, 2008). We understand power here as a social relation, produced and reproduced through the everyday practices of project actors (Clegg, 1989). Hagbert and Malmqvist (2019) show for example that it is difficult for community actors to be recognized and fulfil their new role in sustainable housing projects, due to the reproduction of existing power relations.

Research has also highlighted the need for change in the role of demolishers in circular construction projects, as demolishers need to take more responsibility in these projects due to the focus on closing material loops (Koch-Ørvad et al., 2019; Kooter et al., 2021). Traditionally, demolishers are involved in construction projects as subcontractors of the constructor, responsible for demolition activities and the transportation of materials from the construction site, often to landfill (Coelho & De Brito, 2012). This conventional demolition method involves the use of explosives and top-down demolition procedures, generating a huge waste of materials (Ding et al., 2016). In their systematic literature review, Ruiz et al. (2020) show that conventional demolition is still the most widespread technique for the end-of-life of buildings, mostly due to low costs, time constraints and the influence of other stakeholders. Therefore, demolishers have to develop new business models to reposition themselves in circular construction projects (Koch-Ørvad et al., 2019). Furthermore, it been argued that increased knowledge sharing and communication between project actors, including architects, constructors, manufacturers and demolishers, is needed at the start of circular construction projects to enable the recovery of material resources (Giorgi et al., 2022; Köhler et al., 2022).

To conclude, while project studies have traditionally focussed on stable role structures, recent insights have increased emphasis on role change, especially in the context of sustainability transitions. This is also relevant in circular construction projects, where demolishers need to change their role to enable the closing of material loops. Achieving role change is often challenging and involves frictions, power struggles and negotiations among the diverse actors involved.

3. Method

The study explores the role changes of demolishers needed in circular construction projects and how they negotiate these changes with other project actors. Negotiation over role changes is a sensitive and context specific topic that best can be studied in an everyday organizational setting. Qualitative, interpretative research is well suited for such a study, as it explores actors' sensemaking and interpretations (Yanow & Schwartz-Shea, 2006). Our reasoning here is both deductive and inductive (Locke et al., 2015). We started from theory exploring role changes in the circular construction sector and found four different required changes for demolishers. We then chose for an inductive approach in letting the empirical material of two typical circular construction projects, embedded in a real-life context, push back against our preconceived understanding of the required changes. This approach enabled us to get a more in-depth understanding of the everyday organizational life, challenges and negotiation tactics of demolishers. By continuously moving back and forth between demolishers' role assumptions and required role changes we theoretically and empirically grounded our reasoning (Locke et al., 2015).

3.1. Case selection and description

We selected two cases, project 1 and 2, following three selection criteria. First, the projects needed to have clear circular ambitions specified in their project descriptions. Second, a demolisher had to be involved during the project to help fulfil the circular ambitions. And third, in the projects a different approach towards the involvement of the demolisher (e.g., as a subcontractor or a central actor) had to be adopted to create more variance and divergence in the data (Eisenhardt, 1989).

Project 1 focusses on the demolition of a 10-year-old building and the construction of a new office building commissioned by a large municipality in the centre of the Netherlands (May 2021 – September 2023). The main contractor, a medium-sized constructor, co-owned the old building which was (partly) designed for disassembly. The project, also involving an architect, engineer, and steel manufacturer aimed to disassemble as many materials as possible and reuse them in the new office building. Other circular project ambitions involved; adopting modular construction techniques in the new building and reusing materials from other sources when the old building was unable to deliver. However, the client, the municipality, failed to fund the disassembly process and mainly selected a demolisher based on their lowest price offering. Despite this, the selected demolisher had high circular ambitions itself. For example, the organization recently set up a new circular demolishing department and hired several new employees for developing, marketing and conducting circular activities (for example operating its material hub).

Project 2 focusses on the circular construction of a visitor centre in a solar park in the north of the Netherlands, commissioned by the companies owning the solar park and the local municipality (October 2022 - May 2024). The tender process was won by a consortium which consisted of an (small-sized) architect and a (small-sized) demolisher, who had worked together before, joined by a (medium-sized) constructor. The team also involved a designer who worked at the start of the project with the commissioning companies and municipality to develop the initial idea and tender. The project included high circular ambitions; the reuse of at least 90 % old materials from a nearby business park. Other sustainable ambitions included; energy neutrality (meaning that all energy used in the building had to be created by the solar park) and adopting modular construction techniques. As the main provider of reused materials, the demolisher had an important position in the project. This demolisher was a frontrunner in circular demolishing, being involved in multiple circular construction projects, developing new circular practices and collaborations with other stakeholders, and sharing new insights on circular practices at conferences and during meetings.

3.2. Data collection

Data was collected through in-depth interviews, observations and documents (see Table 1). Before starting the data collection process, informed consent from the participants, outlining the goals and data management procedures of the study and ensuring individual anonymity, was obtained. First, 18 in-depth semi-structured interviews were conducted with individuals across ten different demolishers and the demolisher association in the Netherlands. We selected the demolishers based on their circular ambitions and engagement in circular construction projects, as described on their company websites. We also used snowball sampling, identifying relevant respondents based on the recommendations of other interviewees. These interviews, conducted between November 2021 and May 2022, lasted between 30 and 70 min, were held in Dutch, and were recorded and transcribed. Interviewees were asked about their role in traditional and circular construction projects, the role change they experienced in the transition to circular construction, the barriers they experienced in this process and the negotiation tactics they adopted.

Second, we conducted in-depth interviews with different actors participating in the two cases, including 9 interviews for Project 1 (#20–28 in Table 1) and 6 interviews for Project 2 (#29–35 in Table 1). These interviews, held in Dutch, were conducted between March 2022 and April 2023 and lasted between 40 and 80 min, and were also recorded and transcribed. Interviewees were asked about the project and its circular ambitions, the role of the demolisher in the project, and the

Table 1
Data sources.

Type	Nr.	Specifications	Duration
In-depth interviews	1.	Demolisher 1- Commercial director	30 to 70 min per interview
	2.	Demolisher 2 – CFO	
	3.	Demolisher 2 - Commercial director	
	4.	Demolisher 2 - Circularity advisor	
	5.	Demolisher 3 - Board advisor	
	6.	Demolisher 3 - Project manager circular	
	7.	Demolisher 3 – Foreman	
	8.	Demolisher 4 – Manager	
	9.	Demolisher 5 - Circularity manager	
	10.	Demolisher 6 - Circularity manager	
	11.	Demolisher 6 - Circularity manager	
	12.	Demolisher 7 - Circularity manager	
	13.	Demolisher 8 - Circularity manager	
	14.	Demolisher 9 - Sustainability & innovation manager	
	15.	Demolisher 10 – Owner	
	16.	Urban miner - Commercial director	
	17.	Demolisher association - Project manager	
	18.	Demolisher association – Secretary	
	19.	Constructor - Project manager	
	20.	Demolisher - Project 1 manager	
	21.	Demolisher – Project 1 manager	
	22.	Client – Project 1 manager	
	23.	Architect	
	24.	Constructor - Sustainability manager	
	25.	Constructor – Project 1 manager	
	26.	Engineer – Project 1 manager	
	27.	Structural engineer – Project 1 manager	
	28.	Steel builder – Project 1 manager	
	29.	Demolisher - Project 2 manager	
	30.	Demolisher – Owner	
	31.	Client – Project 2 manager	
	32.	Architect - Senior architect	
	33.	Architect - Junior architect	
	34.	Constructor - Project 2 manager	
Observations	1.	Supply chain meeting	30 to 180 min per observation
	2.	Field tour urban miner	
	3.	Meeting demolisher association representatives (organized by the researchers)	
	4.	Meeting demolisher association sustainability working group (organized by the researchers)	
	5.	Meeting with research consortium partners (organized by the researchers)	
	6.	Visit demolition site	
	7.	Disassembly meeting	
	8.	Project start-up	
	9.	Project meeting	
	10.	Evaluation meeting	
Documents	1.	Publications construction association (5x)	
	2.	Publications demolisher association (4x)	
	3.	Project documents (2x)	
	4.	Project documents (3x)	
	5.	Survey project participants	

collaboration with the demolisher including challenges and opportunities. Most of the interviews were conducted through video calls. Video call interviewing offers advantages, such as cost and time savings, but also leads to challenges including technical issues, limited access to body language, and a loss of intimacy (Seitz, 2016). We aimed to address these challenges by slowing down and clarifying talk, being open to repeating answers and questions, and paying close attention to facial expressions (Seitz, 2016).

Data was also obtained through observations, providing the researchers with direct experiential and observational access to the participants world of meaning. First, we observed five meetings about the changing role of demolishers between March and October 2022. In three of these meetings, the researchers shared the results with the participants and facilitated a discussion. The meetings included demolishers, representatives from the demolisher association, constructors, clients and architects. Second, we observed two Project 1 meetings and three Project 2 meetings between March 2022 and April 2023. In general, the observations involved between 30 and 180 min per meeting where the researchers took extensive notes.

Lastly, archival data was collected, including publications on the changing role of demolishers by the demolisher association and the construction association and documents on the projects, such as project reports and evaluation forms.

3.3. Data analysis

A research method is a way of treating data "such that others can understand where the data came from and what sort of character they have as evidence for claims making" (Yanow & Schwartz-Shea, 2006: 385). We adopted interpretive sensemaking, a practice of 'dwelling' in the data (Welch et al., 2011). Such analysis, where data are understood within the context of the case, strengthens claims made about actors' interpretations (Yanow & Schwartz-Shea, 2006). Our analysis comprised five steps (LeCompte & Schensul, 2013) in which we give meaning to our data. These steps provides grounds for assessing the study's trustworthiness (Swartz-Shea & Yanow, 2009). First, all data from interviews, observations and documents were carefully read, in order for the researchers to become familiar with the vocabulary of research participants. The interpretation of data involves "providing an explanation of the meaning of research results that is grounded in the experience of researcher and research participants, embedded in empirical evidence and informed by the theory offered by relevant disciplines" (LeCompte & Schensul, 2013: 16). Second, these data were coded using a first- and second-order coding methodology (Gioia et al., 2013) in Atlas.ti 9 (see Appendix A). Informed by our research question we conducted text queries to search for keywords and phrases. For example, when reading the transcripts, we searched and labelled texts mentioning changes in the role of demolishers. Triangulation of the diverse data sources was used to validate the researchers' interpretations (Flick, 2018). Third, after re-reading all data, we gradually combined the original labels into first-order codes. These codes were helpful to evaluate which role changes were needed for demolishers. Furthermore, we evaluated the challenges demolishers experienced in achieving these role changes, and the tactics they adopted in order to negotiate their role change with other project actors. This helped us to combine the first-order codes into second-order themes and create a coherent storyline that articulated our understanding of the changing role of demolishers. We discussed these themes and storyline with the participants for validation purposes. During this process there was a continuous movement back and forth between the storyline and the data, questioning categorizations and adding new data to the categories under construction (Yanow & Schwartz-Shea, 2006). Fourth, we compared the findings from the two typical cases by using a tactic recommended by Eisenhardt (1989), which evaluates the similarities and differences between cases. This forced us to look for the subtle similarities and differences in the role changes and negotiation tactics adopted by the demolishers. Fifth and final, we gathered the second-order themes into aggregate dimensions (see Appendix A), comparing our findings with the relevant literature. For example, we compared the identified needed role changes with the descriptions of the traditional roles of demolishers in the literature. This helped us to create a coherent storyline including thick description of settings, activities, persons, tactics in such a way to explicate the context of the lived experience of the demolishers studied (Swartz-Shea & Yanow, 2009).

4. Results

Based upon the data collected, four needed changes in the role of demolishers were found (see Fig. 1). Furthermore, six different tactics adopted by demolishers to negotiate these changes with other project actors were found. By using projects as a space to negotiate role changes, demolishers can develop their new role as circular demolishers in the construction sector. These findings are summarized in Fig. 1 and will be discussed in the next paragraphs.

4.1. Needed changes in the role of demolishers in circular construction projects

Based on our findings and the insights of previous literature (Coelho & De Brito, 2012; Ding et al., 2016; Giorgi et al., 2022; Ruiz et al., 2020), the traditional role of demolishers in construction projects can be described as a subcontractor following the plans of a constructor at the end-of life phase of a building. Demolishers then deconstruct buildings and transport all materials to clear a construction site. According to our respondents four changes in this role were needed in circular construction projects (see Table 2).

The first role change is related to the task of demolishers. Traditionally, their tasks involve clearing a site for the constructor: '*They* [demolishers] *have to remove all the elements at the site, in order to make it ready for construction' (interview #22)*. Tasks included in this role mainly involved demolishing a building and transporting all released materials (Coelho & De Brito, 2012). This is often described as a rough process, including heavy machinery such as hammers and wrecking balls. Respondents argued that the task of demolishing needed to change towards an increased focus on disassembly. In order to do this, demolishers

Table 2
Changes in the role of demolishers needed in circular construction projects.

Element	Conventional construction project	Circular construction project
Tasks	- Demolishing - Transporting released materials	- Advising - Disassembling - Redistributing (+ careful transportation) - Storing (+ digitalization & processing) - Supplying materials - Demolishing & transporting (for materials that cannot be disassembled & redistributed)
Timing	- At a late stage - For a short period of time - In a separate demolition phase	- Early on (design phase) - During the entire project - Also involved in projects where there is no demolition assignment
Position	- Serving role, subcontractor - Little room for input - Dependent on other actors	- Partner, more equal position - Collaboratively designing plans - Other actors also become dependent on the demolisher
Image	- Sloppy, rough, unprofessional - Untransparent & untrustworthy	- Specialists, experts - Transparency & trust

needed to form disassembly teams with specialized skills: '*We have specialized teams with their own tools which they need to disassemble specific parts' (interview #3)*. However, respondents also noted that demolishers would still have to fulfil their traditional task of demolishing in most projects, as disassembling a building can be limited due to their design.
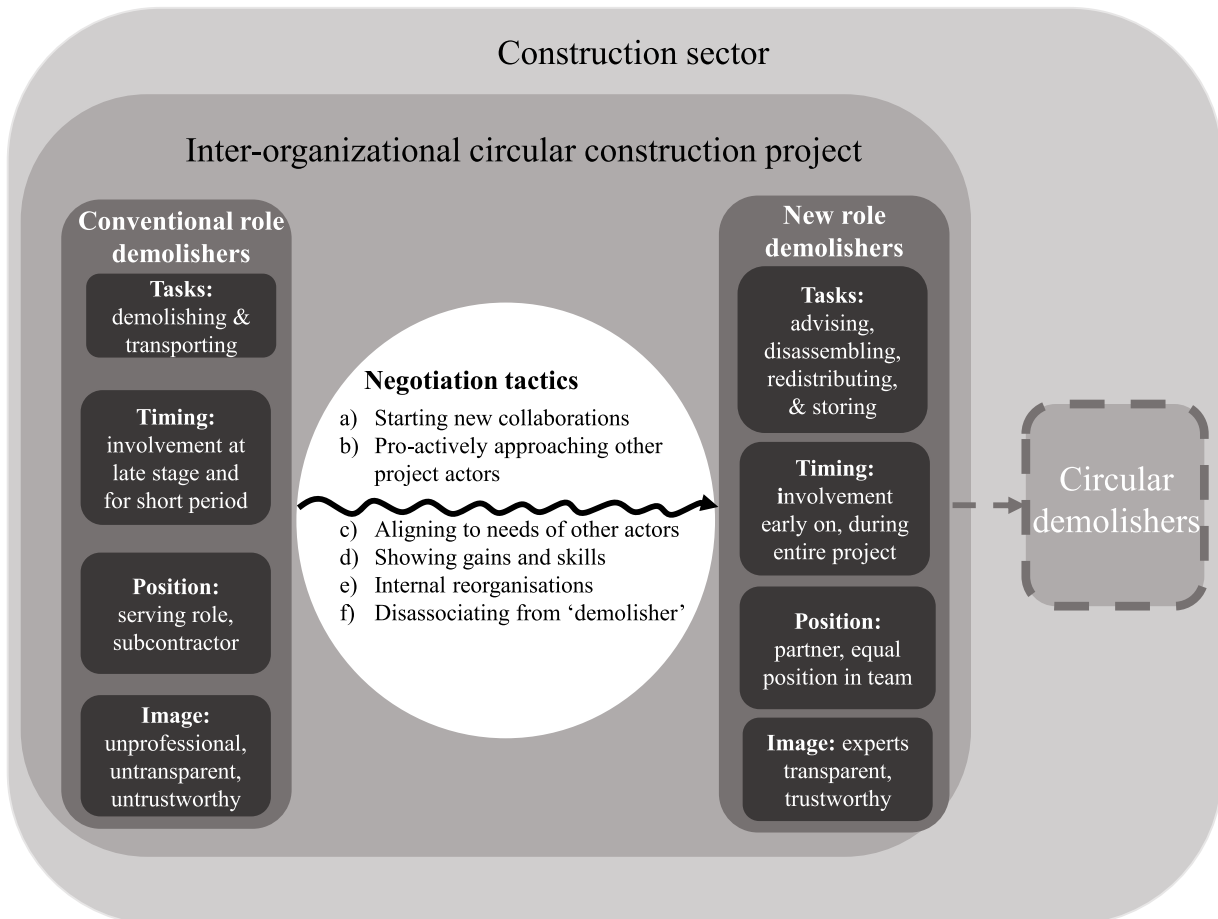

Fig. 1. Role changes and negotiation tactics of demolishers in circular construction projects.

Next to a change in traditional tasks, the interviewees also emphasized that demolishers would need to execute several new tasks in circular construction projects including advising, redistributing, storing and supplying materials. Advising involved giving advice, mainly to architects and constructors, about the extent to which their designed buildings could be disassembled and the possibility for the reuse of materials: *'We go through their [architect's] design, accessing to what extent it can be disassembled'* (interview #30). Redistribution involved coordinating between different actors, via personal networks, inviting others to the construction site, open days or intermediaries, to redistribute the disassembled materials, which often included carefully transporting them: *'They also really have a coordinating role, between our partners, to make sure all materials can be reused'* (interview #24). Another new task involved storing materials that could not be directly redistributed, which could require new facilities: *'We started to buy adjacent terrain from the municipality, where we want to set up a big storage hall'* (interview #30). Storing materials often also involved digitalization (placing materials on a website or in digital models) and processing or refurbishing materials to reduce storage times. Finally, demolishers would need to become suppliers of reused materials (originating from the project itself or outside of the project) in circular construction projects: *'Demolishers become the material suppliers of the future'* (interview #14). Even in construction projects where there was no demolition assignment, demolishers could in this way still become involved.

Second, the respondents argued that the timing and duration of the involvement of demolishers needed to change. In conventional construction projects, demolishers are involved at a late stage of the project (Coelho & De Brito, 2012) and only for a short period of time: *'Only when about two years have passed, one smartass at the table says: But guys, that apartment building still needs to go, right? Oh right, demolisher, will you make a bid within three weeks, the demolition phase will start in two months by the way'* (interview #1). The interviewees emphasized that this would need to change because demolishers would require more time to fulfil their new tasks: *'We need to have the time to figure out which materials we have and in which projects we can deposit them'* (interview #30). Furthermore, the early involvement of demolishers (i.e., in the design stage) would be essential in order for demolishers to give advice: *'Then we can make a plan together with the architects and constructor for reusing as much elements as possible (interview #3).'* This also meant that demolishers would not only be involved in a separate demolition phase, but in the other phases of the project as well, increasing the connection between the design, construction and demolition phases.

Third, respondents emphasized that the position of demolishers in the construction team needed to change in circular construction projects; *'We need to become a partner of the constructor, instead of a subcontractor who is of little importance to them'* (interview #3). Demolishers traditionally fulfil a serving role in the background as a subcontractor of the constructor (Coelho & De Brito, 2012; Ding et al., 2016), following the plans of the other actors with little room for input: *'It is very top-down. We [constructor] are in the lead and tell them [demolisher]: we want you do to this and in this time'* (interview #34). According to all respondents, more collaboration would be needed to enable the disassembly and reuse of materials. This could result in a more central position of demolishers: *'That is where all materials come from which we can reuse'* (interview #34). Therefore, respondents argued that traditional client-contractor-subcontractor relationships needed to change.

Fourth and final, respondents argued that a change in their image was needed for demolishers to fulfil their new tasks in circular construction projects: *'They should not see us a people who destroy things, but as professionals'* (interview #14). Such a change include increased trust and transparency in the construction team. Traditionally, demolishers have a negative reputation among other project actors: *'They were sloppy, money driven, not well educated, don't take the safety requirements too serious and just destroy things'* (interview #22). Furthermore, demolishers were often seen as untransparent and untrustworthy, mainly in relation to the costs of demolition and benefits of salvaged materials: *'You can't*

see what they really earn from the building and what they remove' (interviewee #23). Increased trust and transparency would be needed, for example about the redistribution of materials: *'We also need to make plans, which materials can we get out of the building and what will we do with them'* (interview #12). Respondents argued that demolishers would need to change their image to be seen as experts.

Some demolishers emphasized their close resemblance to their historical role: *'Some call it a new horizon, but I prefer to call it a return to the old reality'* (interview #14). These interviewees indicated that demolishers traditionally focused on disassembling and reusing materials. However, these tasks disappeared due to the emphasis on time and costs in the sector: *'My grandad, he also disassembled materials as it was a waste to throw them away. [...]. That disappeared due to the mechanisation in the nineties because it is all about time and efficiency now'* (interview #30). Some respondents argued that, due to the focus on sustainability and circularity, they now experienced a revival of these traditional tasks, including traditional values such as equal working relationships and reciprocity: *'We lost these very basic principles, but now we see that they are returning. Collaborating in the chain to reuse materials with each other, on the basis of trust and reciprocity'* (interview #14). Respondents emphasized that their changed role is an improved version of this historical image, for example by using digitalisation and modern storage methods.

4.2. Tactics to negotiate role change in circular construction projects

While the respondents argued that several changes in the role of demolishers were needed, we found that it was not always easy for demolishers to establish these changes in circular construction projects. This involved multiple challenges, such as unclarity about the new tasks of demolishers, different opinions and needs among project actors, and defensive behaviour. Demolishers adopted several tactics to negotiate their role changes with other project actors in circular construction projects (see Table 3). We describe the challenges and tactics adopted by demolishers for each of the types of role change identified in the section below.

4.2.1. Negotiating new and changed tasks

Demolishers faced three main challenges with regards to executing their changed and new tasks in circular construction projects. First, demolishers encountered challenges in performing their new tasks as the details of the execution of these tasks were often not yet clear, as was for example experienced in Project 1: *'The demolisher also does not know yet how a technician wishes to receive the materials. So, there have been conversations back and forth, but that is still a challenge'* (interview #25). This was in particular challenging when project actors had different opinions about how the tasks should be executed, for example the demolishers' newly acquired task of supplier.

Second, crystallizing their changed tasks required demolishers to align with other project actors, who often also had to adjust their tasks in turn: *'We have to change the way we design and tender to enable the demolisher to work differently'* (interview #24). However, this alignment did not always go according to plan, or was in some cases non-existent, as experienced in Project 1: *'They [transport boxes] were delivered too late [by the constructor], so the glass was just put somewhere [by the demolisher], which caused damages. So now we still have to buy 20 % new glass, just because it was not stored well'* (interview #23). Aligning tasks was challenging due to a lack of openness from other project actors to change and discuss tasks and differences in time schedules and needs (e.g., certainty about the availability of materials vs. quick throughput times of stored materials).

Third, demolishers faced challenges executing their new tasks as there were different opinions among project actors about which actors should execute specific tasks, as was experienced in Project 2: *'It is a process of figuring out who has to do which tasks and who has the lead (observation #10).* This challenge was also encountered in Project 1 with regards to testing the quality of reused materials, where the client

Table 3

Challenges and tactics for negotiating role change in circular construction projects.

Required change	Demolishers' main challenges	Demolishers' tactics to negotiate change
Task: change in and addition of new tasks	- Unclarity & different opinions about how new tasks should be executed - Difficult to align new tasks due to different needs & defensive behaviour - Different opinions about which new tasks should be executed by demolishers or by other project actors	a) Collaborating and sharing new tasks with other project actors a) Using the project as a space to collaboratively experiment with and align new tasks b) Pro-actively addressing other project actors on their tasks
Timing: earlier involvement, during all project phases	- Adherence to traditional project procedures inhibits the early involvement of demolishers - Other project actors, mainly constructors, can be reluctant to involve demolishers at an earlier stage due differences in needs & defensive behaviour (protection own role)	a) Starting new collaborations with architects and jointly participate in tendering procedures b) Pro-actively approaching and showcasing new circular skills to clients c) Aligning to the needs of other project actors in order to convincing them d) Showing potential gains and missed opportunities
Position: more equal position in construction team	- Adherence to traditional top-down relationships and indirect communication lines (by demolishers and other project actors) - Defensive behaviour (protection role) - Lack of trust in the ability of demolishers to take a more central role	c) Aligning to the needs of other project actors by switching between a circular and traditional role b) Pro-actively approaching other actors during the project e) Internal reorganizations to become less dependent on other project actors, taking over tasks of the constructor
Image: becoming experts, trustworthy, & transparent	- Lack of trust in the skills of demolishers - Distrust in the circular activities of demolishers	d) Showcasing circular skills by taking part in verification activities during project d) Showing circular activities to other project actors f) Disassociation from term 'demolisher'

emphasized that this was the task of the demolisher - '*He has to check the quality of the materials, they cannot just sell rubbish' (interview #22)* – whereas the demolisher argued that this should be done by the constructor: '*When we transport the material it is no longer ours, so at that moment it is the responsibility of the constructor to check it' (interview #20).* Furthermore, there were often conflicting interpretations among project actors, including among demolishers themselves, about which tasks should be executed by demolishers: '*I think their role should not be advising but becoming a supplier. […] so visiting architects, just like any other supplier of bricks or carpets (interview #23).* This led some demolishers to focus on disassembly, while others focused more on becoming advisory bureaus.

In order to negotiate a change in their tasks and align these tasks with other project actors, demolishers adopted two main tactics, including collaborating with other project actors and pro-actively approaching them. First, several demolishers decided to share some of their new tasks with other project actors, for example by creating alliances with constructors as was done in Project 2: '*Now we go to potential sites together* [with the constructor]*, because they have more knowledge about the logistics there and we have more knowledge about the disassembly' (interview #29).* This also included collaborations between demolishers and suppliers, such as shared circular hubs for collecting and refurbishing materials. In addition, some demolishers aimed to negotiate their new tasks

by using the project as a space to collaboratively experiment with their new tasks and align them with other project actors, as was emphasized in Project 2 '*We used this project as a learning space really, for instance to learn how to correctly package materials together' (interview #29).* In order to do this, it was important that demolishers got sufficient space and trust from the other project actors. Second, some demolishers actively addressed other project actors on how they executed their tasks, in order to achieve more alignment between tasks in the project: '*I go to him* [constructor]*, and ask him, why do you do it like that? (interview #14).* However, most demolishers noted that they were often unable to do so as they lacked the power to convince other project actors and were often dependent on them for their involvement.

4.2.2. Negotiating earlier involvement

Demolishers noted that they were often still involved at a late stage by other project actors, as was the case in Project 1: '*You would have wanted that he* [client] *would have given the job to the demolisher perhaps directly at that moment, you know? [..] But that's not the way it worked of course (interviewee #23).* It was often difficult for constructors to involve demolishers early on due to tendering procedures (and their handling of these procedures), as constructors were not always involved themselves yet (i.e., in the early design process), not being refunded by the client for the costs of involving a demolisher early on, or not open to search for new opportunities within the parameters these procedures. Furthermore, some project actors were reluctant to involve demolishers earlier on due to potential extra costs, difficulties in the planning and a lack of openness and awareness of the new role of demolishers: '*Contractors are sometimes against involving us at the start, it is difficult for their planning and they don't always have an open mind' (interview #15).* This prevented an early involvement of the demolishers.

Demolishers adopted different tactics to negotiate their early involvement in the project. First, several demolishers focused on developing new collaborations with other project actors, mainly with architects who helped convince other project actors and applied for tenders together with demolishers, as was done in Project 2: '*Now they* [architect &demolisher] *won the tender because they did it together. [..] That was really rewarded' (observation #10).* Second, demolishers also pro-actively approached and showcased their circular skills to clients, by giving lectures or offering free advice at the start of projects: '*We need to tell our story to the parties from which we know can involve us earlier on' (interview #3).* However, this could also lead to frustration among demolishers, especially when they spend a lot of effort on sharing knowledge at the start of a project without becoming formally involved: '*We shared a lot, their basic design involved a lot of our ideas. But they set us aside like an old rag, and that hurts' (interview #14).* Third, demolishers tried to convince other actors to involve them earlier on by aligning to their needs, showing other actors what they could gain by involving them at an early stage, as was attempted by the demolisher involved in Project 1: '*We told them* [constructor]*, if you get the assignment and directly involve us, we can resell them* [flooring elements]*. That was beneficial to them, because they could apply for the tender for a lower price' (interview #29).* Demolishers also showed how their lack of involvement in previous projects led to missed opportunities for other project actors.

4.2.3. Negotiating a more equal position in the construction team

The respondents noted that, while the tasks of demolishers changed, their position in the construction team did often not change, which was for example emphasized by the engineer involved in Project 1: '*Well our collaboration is actually very traditional. We still have our traditional relationships. We only ask different things. […] They* [demolisher] *just get the assignment from us, disassemble this, so in the end they don't have more to say really' (interview #26).* Traditional relationships were often reinforced by constructors who continued to see the coordination of demolishers as their responsibility, had a lack of trust in the abilities of demolishers, and aimed to protect of their own tasks: '*We really pull a lot towards us, also the disassembly process, we feel very responsible for that'*

(interview #24). The constructor involved in Project 1 noted that they did want demolishers to take a more influential position in the construction team, however they argued that demolishers themselves were reluctant to do so: *'We would actually want them* [demolisher] *to take the lead in the disassembly. [...] But they are very reluctant, they think well the constructor, he will arrange it and we will just do what they ask' (interview #24)*. Furthermore, it was often still difficult for demolishers to be recognized by other actors in circular construction projects. This could for example be seen at the demolition site of Project 1, where there was no permanent site hut for the demolisher and the logo of the construction company dominated *(observation #6)*.

Demolishers adopted different tactics to deal with these challenges and negotiate a more central position in the construction team. First, most demolishers accepted their position and aligned themselves with the needs and wishes of the other actors by switching between a more circular and traditional role: *'If the client does not want to go a step further together and give us more space, then we will not say, well then we don't work with you, we will just fall back into our traditional role' (interview #12)*. Second, several of these demolishers argued that they did try to approach constructors and clients more pro-actively to gain more influence in the construction team: *'We now also approach other project actors with lists of materials that we have on offer, instead of only reacting to their grocery lists' (observation #5)*. Third, some demolishers argued that they re-organized themselves in order to become less dependent on other project actors: *'We organized our process in such a way that we can disassemble very efficiently. [...]. That has as a consequence that there are almost no delays in the project itself. So, as a consequence it doesn't matter anymore for us, whether the client also wants to give us more space or not' (interview #3)*. The demolisher involved in Project 2 even decided to take on several tasks normally performed by a constructor or project developer (e.g., being involved as a main applicant and buying an old donor building) in order to gain more influence in the construction team.

4.2.4. Negotiating an image as experts

Finally, the respondents noted that project actors often still judged demolishers based on their traditional image and had a lack of trust in their abilities, which was for example mentioned by the engineer involved in Project 1: *'We have to check them, like the way they disassemble, that might not be the best way to do it, maybe it will be broken' (interview #26)*. Furthermore, several project actors were not convinced demolishers were changing their role, arguing that new activities were mainly undertaken for marketing purposes: *'We have to pierce through their stories, as those may appear better than they are in reality' (interview #19)*. This was also noted by demolishers themselves: *Many demolishers say they are circular, but that is not really the case I think' (interview #13)*. In addition, project actors argued that demolishers were often still untransparent, for example about extra transportation and certification costs for circular materials: *'We always have to dig deep to get all the details from them. What are for example these extra costs that they add [...] I get that circularity costs more, but the way they try to get extra money out of it, that doesn't feel right' (interview #19)*. Demolishers also argued they could not always be fully transparent as they could not make details about the material inventories of buildings that were not their property public.

Demolishers adopted different tactics to negotiate an improved image and increase trust in circular construction projects. First, some demolisher disassociated from the term 'demolisher', referring to themselves as disassembler, deconstructor, remolition company or material expert: *'We are not even a demolisher, we are material experts (interview #10)*. The Dutch demolisher association also played in an important role in this process by adopting these new terms and providing and promoting new role descriptions for demolishers on their website. Second, several demolishers took part in verification activities in their projects to build experience and showcase their circular skills to other project actors: *'We are also being tested in this project by an external certification institute' (interview #12)*. Some demolishers also emphasized

that they used circular construction projects as a way to showcase their new circular skills to other project actors and convince them of their professionality, as was noted by the manufacturer involved in Project 1: *'I always thought that the demolisher is just a demolisher, who doesn't have any brainpower. But now I see that's of course not the case at all! (observation #7)*. Demolishers did this for example by hosting meetings for other project actors, hiring new employees (often not originating from the demolition sector) to market their activities, and cooperating with other parties in exchange for exposure.

5. Discussion

5.1. Projects as spaces to operationalize role changes of incumbent actors

The results of this paper contribute to the growing body of literature merging project management and sustainability transitions research (Daniel, 2022; Gasparro et al., 2022; Huemann & Silvius, 2017; Locatelli et al., 2023; Nylén, 2021; Papadonikolaki et al., 2023; Winch et al., 2023) by showing the potential of projects for operationalizing and implementing role changes in the construction regime. This capacity of projects was already noticed by scholars (Gasparro et al., 2022; Papadonikolaki et al., 2023; Whyte & Mottee, 2022), but in this paper we actually show how role changes can enable conventional projects to stimulate radical innovations in a protected, temporary space. In our case, demolishers negotiate about and experiment with new roles at niche level (Daniel, 2022). For example, project actors experimented how reused materials should be stored and transported. Through adopting several negotiation tactics, such as starting new collaborations, demolishers change their role in circular construction projects. Outcomes of such role negotiations can be transferred to other projects, for example when a demolisher and architect jointly tender a new project together. Furthermore, outcomes can also be translated to the regime level (Gasparro et al., 2022), which was observed in our study when the demolisher association provided and promoted new role descriptions for demolishers. Sustainable projects thus enable change in actor roles, which can, if role negotiation outcomes are transferred and translated, lead to changes in the roles of organizations and institutions and, in a dynamic interplay, can change the landscape level. For example, when client organisations in the construction sector include the new role changes in their tender procedures. These findings show that projects can, next to technological innovations (Gasparro et al., 2022), enable the development and transfer of new roles necessary for achieving sustainability transitions (Daniel, 2022; Eikelenboom & van Marrewijk, 2023).

The findings furthermore highlight how sustainable projects can influence the roles of incumbent actors. These actors are established and positioned in markets and deeply entrenched in the socio-technical regimes (Bos-de Vos et al., 2019). Our study shows that incumbent actors in less powerful positions, such as demolishers, can also change and challenge their roles in projects. Instead of protecting their position (Turnheim & Sovacool, 2020), they proactively engage with transition goals to increase their influence and power. The actions of powerful incumbent actors may limit this ability by protecting or reinstating their own roles (Bos-de Vos et al., 2019) and by supressing role conflicts (Turner et al., 2020). For example, while the tasks of demolishers changed in the studied circular construction projects, incumbent actors held on to traditional hierarchies and relationships, making it difficult for demolishers to successfully execute their new tasks. In line with recent insights (Magnusson & Werner, 2023; Turnheim & Sovacool, 2020) our study indicated that powerful incumbents could also help to promote role change of demolishers. This was for example done by architects who changed their own role by collaborating with demolishers in subscribing for project tenders. Therefore, less powerful incumbent actors often align their changing roles to the needs of powerful actors. They can also move towards independence (Avelino & Wittmayer, 2016) by appropriating several tasks of powerful incumbent actors. For example, demolishers can become a constructor or project developer

themselves, which can lead to future competition and conflicts. This also shows that strategies used by powerful incumbent actors to protect their own roles (Bos-de Vos et al., 2019) can be counterproductive, as demolishers may break off collaborations and instead execute the tasks of these actors themselves.

5.2. Illuminating the different elements in the role change of demolishers

The second contribution, and related to the debate above, we contributed to the small but promising body of research on roles in sustainable projects (Bos-de Vos et al., 2019; Dokter et al., 2021; Tripathi & Goyal, 2014; Whyte et al., 2022) by showing which role changes are required for demolishers. This body of research emphasized the potential contribution of demolishers to circular construction projects (Giorgi et al., 2022; Ruiz et al., 2020). Ruiz et al. (2020) already mentioned a change in the tasks of demolishers, mainly focussing on disassembly, but we also identified three other role changes which have not yet been identified yet. Furthermore, our results indicate that achieving these changes requires changes in the roles of other project actors as well. For example, in order for demolishers to execute new disassembly tasks, architects and constructors have to change their design and construction practices.

Furthermore, the findings show the non-linear nature of the role change as not all project actors have the same pace and direction (Wittmayer et al., 2017). For example, some demolishers may move towards becoming advisors, while others remain focussed on disassembling. Role changes can also develop in a reverse direction; some demolishers perceived their role change as a return to the past, including a revival of traditional values such as reciprocity. This indicates that sustainable project actor roles can, next to being created, dissolved or changed (Turner, 1990), also be revitalized, where hostile cultural elements are eliminated and cultural values of the past restored in order to better adapt to a new context (Wallace, 2003). Role change is thus a complex non-linear process which involves multiple elements, where the focus should not only be on the tasks of individual project actors (Dokter et al., 2021; Whyte et al., 2022), but also on changing role constellations (Wittmayer et al., 2017).

In line with previous research (Bos-de Vos et al., 2019; Gluch & Månsson, 2021; Van Marrewijk et al., 2016), our results indicate that achieving role change is challenging, involving conflicts and ambiguities over roles, for example, about how new tasks such as supplying materials should be executed and aligned. Changing the roles of established circular project actors involves unique challenges compared to the challenges faced by new entrants (Gerding et al., 2021; Koch-Ørvad et al., 2019), such as circularity experts (Gluch & Månsson, 2021) and university researchers (Genus & Theobald, 2015). For example, it was difficult for demolishers to change their role due to established project hierarchies and negative stereo typing. We add to the literature by identifying multiple tactics that have been adopted by demolishers to negotiate their role changes. For example, by establishing new collaborations with architects and clients, demolishers can become important partners in the early stages of circular construction projects. Such new ties can impact project actors' perceptions of the roles and responsibilities and thus influence the activities in a project (Swärd, 2016). These tactics are different from tactics adopted by project actors to protect and reinstate their roles, such as putting other actors under pressure and challenging the collaborative structure, that have been identified in previous research (Bos-de Vos et al., 2019). Due to the limited power of demolishers in circular construction projects, we found that these actors relied on different tactics, for example aligning to the needs of other project actors and disassociating from the term demolisher. These findings furthermore indicate that, while some project actors aim to maintain stable roles (Bechky, 2006; Blomquist & Müller, 2006; Zwikael & Meredith, 2018), others can change and challenge roles, which is in line with recent research on sustainable projects (Sergeeva, 2022; Whyte et al., 2022).

6. Conclusion

This paper discussed the needed role changes of demolishers in circular construction projects and the negotiation tactics adopted by demolishers to achieve these role changes. To collect data, we conducted a qualitative, interpretative study (Yanow & Schwartz-Shea, 2006). including interviews among 10 different demolishers and two case studies of circular construction projects. Based upon the findings we identified four changes that were needed in the role of demolishers and several tactics adopted by demolishers to negotiate these changes with other project actors.

6.1. Practical recommendations

This study examined the role changes and negotiation tactics of demolishers in circular construction projects. The results provide relevant insights for practice, by highlighting that project actors should take roles in sustainable projects seriously. In line with others (Whyte et al., 2022), our study emphasizes the need for changes in the roles of sustainable project actors to realize sustainable ambitions. In the case of demolishers, a more timely and equal involvement of these actors is essential in circular construction projects, to enable demolishers to close structural holes between the design and end-of-life phase of buildings and fulfil new tasks, including advising, redistributing and supplying reused materials. It is important for project actors to recognize that their adherence to traditional roles, relationships and hierarchies can be detrimental to the circular ambitions of construction projects. Instead of developing contracts with clearly specified and fixed role divisions (Zwikael & Meredith, 2018), project actors should therefore adopt a more flexible approach towards roles. In this process, role ambiguities and conflicts may be inevitable, as different actors often tend to disagree about the most desirable innovations and role constellations for sustainability transitions (Köhler et al., 2019; Wittmayer et al., 2017). Project actors can manage such conflicts and ambiguities by collectively reflecting on their roles. This can be realized by adopting reflective interventions throughout circular construction projects (Eikelenboom & van Marrewijk, 2023; Reynolds & Vince, 2017), such as reflective discussions and role plays, where project actors can clarify, negotiate, align and reflect on their changing roles. Such an approach can offer room for demolishers to change their role, using the project as a space for experimenting with and aligning their role changes. Our results also provide useful insights for demolishers, by revealing which types of negotiation tactics can be adopted to establish role change in circular construction projects. We argue that demolishers may in particular be able to negotiate role changes by developing new collaborations with other projects actors, such as cooperatives with architects and suppliers, to combine their roles and fulfil the new requirements of circular construction projects together.

6.2. Limitations and future research

While this study offers useful insights, several questions remain. First, this research focused on the changing role of demolishers, and in doing so also revealed the changes that may be required in the roles of other project actors. Future research may further investigate the role changes of other projects actors, such as clients and constructors, including exploring how new role constellations are formed within sustainable projects. Second, we focused in this research on frontrunners, demolishers that were already involved in circular activities and projects. We recognize that not all demolishers are involved in these activities, and may thus experience little role change. Future research could explore how these demolishers experience the transition to circular construction, for example by examining how they can be stimulated to switch to more circular roles. This could also assist in further investigating how incumbent actors change their strategies and roles over time, from initial resistance and denial to exploration and re-

orientation (Turnheim & Sovacool, 2020). Researchers could furthermore explore the role changes of demolishers in different countries and contexts, as our respondents were all located in the Netherlands. While we expect that our results will be relevant in other countries and contexts as well due to the similarities described in the conflicts and cultural characteristics in the international construction sector (e.g., Clegg et al., 2023), future research is needed to confirm this and explore potentially differing characteristics, such as legal systems. Third, questions remain regarding the outcomes of role change and negotiation tactics in the transition to circular construction both in and outside of construction projects. Our results indicate for example that role change is non-linear, with demolishers adopting different types of role changes. Future research is needed to further investigate these role changes by using longitudinal designs and for example examine if and how power hierarchies are shifted in the wider construction sector. Longitudinal research designs could also enable researchers to investigate the ongoing negotiations about changing roles among project actors, evaluating if and how role changes are established over time. Finally, researchers could investigate how new rules and regulations may assist in establishing the role change of sustainable project actors.

CRediT authorship contribution statement

Manon Eikelenboom: Writing – original draft, Methodology, Investigation, Formal analysis, Data curation, Conceptualization. **Mieke Oosterlee:** Investigation, Data curation. **Alfons van Marrewijk:** Writing – review & editing, Writing – original draft, Supervision, Project administration, Methodology, Funding acquisition, Conceptualization.

Declaration of competing interest

Supplementary materials

Supplementary material associated with this article can be found, in the online version, at doi:10.1016/j.ijproman.2024.102605.

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