

Developing Capabilities for Sustainable Business Models: Exploring Project Maturity for Innovation Processes

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Abstract: Companies must cultivate new dynamic capabilities to meet the demands for sustainable solutions in an uncertain and dynamic world. This longitudinal case study explores the significance of project maturity as a critical capability within complex innovation processes for developing sustainable business models. The purpose of the study is to gain a better understanding of the central factors companies encounter when making efforts to build sustainable business models through innovation projects. Tracking a market-leading company's journey from ideation to implementation over an extended period, this study focuses on creating a sustainable business emphasising waste reduction, heightened customer satisfaction, and profitability. Key insights emerge through qualitative methods, including interviews, observations, and document analysis. The findings highlight the pivotal role of project maturity in innovation projects centred around sustainable value propositions. Project maturity is salient in creating an autonomous unit, fostering agility, and promoting open collaboration. It encompasses organisational ambidexterity and collaborative engagement with vital stakeholders. Furthermore, proficient project managers well-versed in agile project management and innovation processes and contextual resolution emerge as crucial drivers in innovation projects aimed at developing capabilities for sustainable business models. By tailoring project maturity to the specific needs of each project and integrating agile methodologies, organisations can forge the necessary capabilities for crafting sustainable business models. Additionally, dynamic capabilities can be cultivated by aligning projects with the overall business strategy and implementing practices that facilitate continuous learning and improvement. This study underscores the importance of project maturity within innovation processes and its role in creating profitable and sustainable business models by developing new dynamic capabilities. The research findings offer valuable insights for businesses seeking to design effective innovation processes supporting sustainable business model realization.

Keywords: Dynamic capability, Sustainability, Project maturity, Innovation process, Project management, Business model innovation

1. Introduction: Innovations in the Age of Sustainability

Sustainability has become a pressing concern for business leaders, necessitating the development of sustainable solutions within. However, integrating sustainability goals into business operations is challenging, often requiring extensive innovation projects and new business models (Bocken et al., 2016; Bocken et al., 2022). These projects involve uncertainty, experimentation, and the need for resource allocation while maintaining profitability. Effectively, innovation processes to balance operations and innovation are crucial but challenging (Davies & Hobday, 2005; Shenhar & Dvir, 2007). One approach is creating separate units for innovative innovation projects, known as ambidextrous units or two-handed solutions (O'Reilly & Tushman, 2008).

While necessary, more than the effective organization of innovation projects is needed for fostering innovations. Instead, project maturity, signifying the organization's capacity and readiness to deploy suitable tools and expertise, becomes paramount. (Clegg et al., 2020; Gemünden et al., 2018). Sustainable value proposition development often benefits more from agile, open approaches rather than traditional, sequential ones (Serrador & Pinto, 2015; Silvius & Schipper, 2022). The project format aligns well with tackling pressing sustainability issues (Silvius & Schipper, 2014). This necessitates adaptive project maturity, adjusting tools and approaches to fit the conditions of innovation projects. While project maturity has been studied (Mullaly, 2014), its exploration of innovation processes for creating sustainable value propositions is less frequent (Inigo et al., 2017). Hence, sound project management becomes crucial due to uncertainty and the need for agile methods that demand autonomy and adaptability (Denning, 2017; Hill, 2014).

Using a longitudinal case study, we have followed an innovation process in a large market-leading company (see Figure 1).¹ Aiming to solve the wicked problem of reducing the use of single-use packaging, simultaneously delivering increased value to customers, solving infrastructure challenges, and being profitable. The implemented solution involves a transformation from in-store retail products to an on-demand service delivered

¹A preliminary examination of this case study has been conducted and published by us as authors in Norwegian: Skyttermoen & Wedum (2020). Bærekraftige forretningsmodeller og prosjektmodenhet i innovasjonsprosjekter. Magma Vol. 23 (7)

directly to customers' homes, facilitated by digital scanning for ordering and refilling. Our focus is to identify key project-related components crucial for resolving this challenge. As a single-case in-depth approach, our study aims to elucidate in more detail: *How is project maturity expressed in an innovation process where sustainable business models are innovated?*

Company Case:

- The company specializes in managing brands and consumer-focused enterprises. Structured as a divisional model, it oversees 12 distinct portfolio companies, collectively employing over 20,000 people.
- While its primary operations are located in the Nordic countries, it has expanded its reach to include the Baltic nations and India. Navigating a fiercely competitive landscape, the company continually adapts to evolving customer preferences by enhancing its product offerings and pioneering innovative solutions.
- The company has sustainability as one of its core values, putting efforts to pursue long-term sustainability goals. The company established an innovation project intending to reduce plastic packaging to meet sustainability challenges. This has resulted in, among other things, a circular refill service that helps you reduce the amount of plastic waste while you always have access to the household items you need every day. They deliver the products to your door and pick them up when it's time to refill. During the project, one digital company and one strategic consultancy company were involved and eventually organized as a mutual venture.

Figure 1: Brief presentation of case company and context

Through our findings, we contribute to better comprehending the essential conditions that drive innovation processes leading to sustainable solutions, enabling us to gain insights into the tools necessary for organizing and leading innovation projects. Specifically, we examine the significance of organizational maturity as a dynamic capability for shaping project forms while implementing innovation processes.

To achieve sustainable innovations in businesses, several vital factors exist. We will first briefly address the topics of sustainable business models and innovation processes. Using a longitudinal case study, we will explain the methodological approach following an innovation project from ideation to implementation. We present and analyse some of the findings against central elements for project maturity. In conclusion, we will discuss proposals for further research and practical implications.

2. Innovation and Implementation of Sustainable Business Models

Certain key conditions must be considered to implement innovation projects for sustainable business models successfully. Understanding the complexity and ambiguity of processes involved in addressing new challenges and improvements requires a multidisciplinary approach (Alvesson & Sandberg, 2014; Davies et al., 2018; March, 1996). Integrating sustainability goals and creating value for shareholders adds another dimension. Various disciplines contribute different perspectives, terms, and focuses. Strategy research emphasizes dynamic capabilities and business models, while innovation project research encompasses various processes for developing new solutions. Traditionally focused on planning and control, project management as a field of study has expanded its scope, including innovation (Davies et al., 2018). This article does not aim to merge and cross-fertilize. Instead, we apply concepts and knowledge from various fields of study in our approach.

2.1 Innovation and Sustainable Business Models

Innovation processes can be *exploitative*, involving minor improvements and better utilization of existing processes or products, or *explorative*, bringing about extensive changes and exploring entirely new products or processes (March, 1991; Petro et al., 2019). Our case involves an explorative innovation through the emergence of a new business model. While extensive research has been conducted on innovation processes, the focus has primarily been on product elements rather than co-creation with customers and other stakeholders (Lusch & Nambisan, 2015; Vargo & Lusch, 2004). Many offerings in the market today combine products and services, which has implications for innovation (Rubalcaba et al., 2012).

Businesses face pressure to innovate and adapt their business models in response to sustainability, technology, and customer preferences (Jørgensen & Pedersen, 2018). Transforming value propositions to be sustainable can

be extensive and requires further research (Bocken et al., 2016). The value proposition, a central element of the business model, involves offering solutions that address customer needs (Osterwalder & Pigneur, 2010; Osterwalder et al., 2015). Transforming value propositions to be sustainable can be extensive and requires further research (Bocken et al., 2016; Morioka et al., 2017). Sustainable value propositions differ significantly from previous concepts offered to customers.

For businesses to thrive, they must possess the relevant capabilities to adapt. *Dynamic capabilities* involve purposefully creating, extending, or modifying resources to address rapidly changing environments (Helfat et al., 2007; Teece, 2017). Within dynamic capabilities project management plays a role in innovation projects as part of an organization's dynamic capabilities (Hernando & Martín-Cruz, 2020). *Project capability* refers to the knowledge, experience, and skills required for project-related activities, while project maturity encompasses the use of knowledge, skills, tools, and techniques to meet project requirements (Davies & Hobday, 2005). In the literature, the term project capability has primarily been applied to describe large technical projects, while project maturity is traditionally related to large project-based organizations (Kerzner, 2019). They are closely related; however, we will use project maturity as a term here. As a form of dynamic capability, project maturity entails having a large toolbox and reflective use of project management processes based on situational requirements (Clegg et al., 2020; Gorog, 2016). Projects involving explorative innovation often require a degree of autonomy to succeed (Shenhar & Dvir, 2007). Such projects have many aspects. In our case, we have taken a closer look at two aspects of project maturity with a view to the appropriate organization: *project organizational maturity* and the importance of *project manager maturity*. Project organizational maturity means that the organization has insight into which organizational arrangements are appropriate for using projects as a method for change and innovation processes that the business initiates and implements.

Our study examines two aspects of project maturity related to an appropriate organization: project organizational maturity and project leader maturity. *Project organizational maturity* refers to an organization's understanding of suitable organizational arrangements for using projects as a method for change and innovation. *Organizational ambidexterity*, which involves refining existing products and creating new units, is crucial for handling increased customer demands and competition, particularly in the context of sustainable business models and the circular economy (Chari et al., 2022; O'Reilly & Tushman, 2013; O'Reilly & Tushman, 2008; Petro et al., 2019). Organizational ambidexterity involving a transition to more sustainable business models and a circular economy has been relatively little studied in the project literature, and more studies are called to deal with how this happens in businesses (Turner et al., 2015).

In the context of agile innovation projects, the role of a project leader is typically pivotal to the project's overall success (Gemino et al., 2021). The term '*project leader maturity*' encapsulates how a project leader employs their skills, utilizes relevant tools, and applies methodologies in a manner sensitively attuned to the current situation. This involves a reflective practice contributing significantly towards effective implementation and support for the project. Leading innovation processes necessitates a mastery over managing complexities and ambiguities while simultaneously fostering an environment conducive to learning (Hill et al., 2014). Generally, the role of a project leader in innovation projects is accompanied by substantial expectations. The efficacy of a project leader is often seen to correlate with the project's ultimate success (Cooke-Davies, 2002; Pinto & Slevin, 1989). It is, therefore, crucial to understand that the role of a project leader extends beyond just managing tasks. It involves an adaptive approach that tailors strategies to the project's specific needs and conditions while ensuring the innovation process's dynamic development.

3. Method

To gain a deeper understanding of the development of sustainable business models, we have employed longitudinal case studies as our research method (Langley, 1999). Such studies offer the opportunity for in-depth exploration, which is crucial for advancing knowledge in this area (Flyvbjerg, 2006; Yin, 2014). As highlighted by Eisenhardt (1989), case studies are particularly well-suited for illuminating and generating insights about new phenomena, enabling a thorough examination of the subject matter. This article emerges from an ongoing research project conducted in collaboration with a selected company known for its involvement in various innovation processes.

The project we have focused on addresses the significant challenge of plastic issues and is organized as a separate unit within the case company, a market leader in the retail industry specializing in soap and cleaning products. The company continually introduces new concepts and expands its product lines for existing brands,

strongly emphasizing sustainability. As a result, several new concepts have been launched to minimize the environmental footprint compared to other product lines.

Our case study is grounded in the theoretical framework of how sustainable business model innovation is carried out and organized at the micro level, specifically focusing on developing or improving value propositions. Various methodologies have been implemented throughout the innovation process, including different forms of insight studies, service design, design sprints, and business modelling. Each phase involved continuous development, prototyping, testing, and adjustments, all aimed at finding alternative solutions to reduce the use of single-use packaging. The innovation project addresses the complex challenges associated with plastic packaging in household products, aiming to offer smart, simple, and sustainable alternatives that render disposable packaging unnecessary. Merely adopting environmentally friendly packaging, such as recyclable plastic, is deemed insufficient, necessitating a shift towards a more circular business model.

To comprehensively capture the innovation process, we have longitudinally followed its evolution, as depicted in Figure 2. Our data collection involved interviews, observations, and document studies, serving as the primary sources (see Table 1). Eisenhardt (1989) stresses the suitability of longitudinal case studies for investigating the emergence of new phenomena, such as sustainable business models. Figure 2 and Table 1 provide an overview of the data on which this study is based. Participants in the project have used different methodologies in the process of innovating the concept, including service design and business modelling. Service design maps how the service is experienced by the user and for those who deliver the service (Bason, 2018). This means looking at how products, people and systems interact. Central elements in service design are user involvement, idea development, prototyping and testing. In the innovation process, the company used a set of different types of methodologies; they interviewed households about their use of cleaning products. Conducted several workshops where various concepts were developed and tested. Prototypes of the service were made, which were tested in use at the household, and changes were made based on input from the user. The new innovation required a completely new business model, and to solve it, a new company was established. A pre-launch of the concept was also carried out before a full-scale launch.

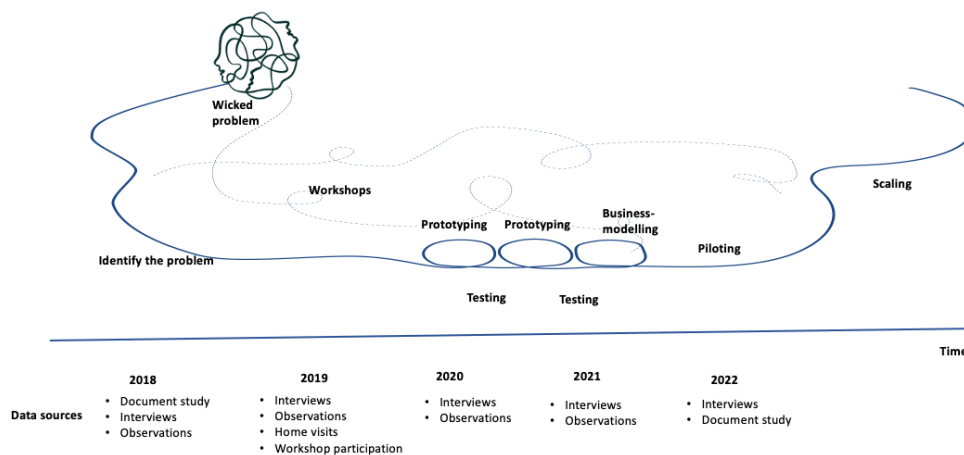


Figure 2: An overview of the main events in the innovation process. The timeline illustrates phases in the innovation process and for data collection and sources

Table 1: Empirical foundation for the case

Interviews	Observations	Reviewed Documents
<ul style="list-style-type: none"> - Business Developer Sustainable Living - Leader New Businesses Innovation - Innovation Manager Growth Accelerator - Nordic Marketing Director - Sustainability Innovation Manager 	<ul style="list-style-type: none"> - workshop participation - introductory workshop on evaluation proposals - business modelling - service design 	<ul style="list-style-type: none"> - insight studies - review and interviews with drivers of so-called Zero Waste stores - strategy documents - process tools for innovation processes

Interviews	Observations	Reviewed Documents
		– communication material - material from a workshop

4. Findings

In our study, we have investigated the role of organizational project maturity in innovation projects that aim to generate environmentally conscious value propositions. Our case study underscores the vital importance of project maturity. Here, we will concentrate on two aspects: 1) the organization of the innovation project and 2) the project leader's role.

4.1 Organizational Project Maturity

Our subject company plans to transition from a linear to a circular business model. This innovation project is housed within a specialized innovation unit, using an agile approach. This configuration displays a shift from an integrated to a separate innovation project, from a closed to an open innovation process, and from a sequential to an agile approach.

4.1.1 Organizational autonomy

Unencumbered by operational activities, an autonomous department was created to handle this innovation project. The project unit operates under the company's sustainability strategy, enjoying substantial freedom to develop and execute the project. The company maintains several innovation projects, but they are organized within existing structures, reflecting an exploitative approach. Many organizations operate with such ambidextrous structures (Kumkale, 2022; O'Reilly & Tushman, 2011). The following quote from the study can illustrate the advantage of this organization:

"In projects like this, it is important to broaden one's perspective and not be bound by the existing business model. One must be able to explore new thoughts and ideas, which may appear highly radical to someone solely focused on the company's daily operations."

4.1.2 Collaboration and partnership

Despite the company's history of insular innovation processes, the development of sustainable value propositions led to collaborations with vital stakeholders. Recognizing the need for multifaceted inputs due to the project's considerable uncertainties, the company integrated various actors into the process, including research environments, suppliers, and other partners. As a result, the processes became more complex, increasing uncertainty but potentially leading to superior solutions. More fundamentally, they have committed two essential partners in the separate innovation unit as equal partners. Such involvement requires a willingness to open up to others and thereby provide transparency into ongoing processes within the organization. This often leads to more complex processes with numerous inputs and elements that need to be incorporated into the project, which, in turn, can result in a higher degree of uncertainty during implementation. At the same time, it can lead to much better solutions. Our data indicates that the project team has valued external actors' participation, interference, and contributions, especially the established committed partnership. The project leader expresses the importance of complementary expertise in the following way: *"All parties contribute to the collaboration with their unique competence and 'toolbox,' which, in the aggregate, provides a high level of execution capability in the project."*

4.1.3 Agile project approaches

The company uses various innovation tools in their processes, with a preference for agile strategies for this project. Traditional sequential strategies were deemed inadequate for this kind of innovation (Serrador & Pinto, 2015). An agile strategy allows for the evolution of the solution and the approach, promoting customer focus and iterative development. Furthermore, agile project execution strategies are characterized by a more robust customer focus, which has also been central in this process. It has required experimentation with different solutions through short iterations and solutions that further development has built upon (Binci et al., 2023). As the Sustainability Innovation Manager stated:

"Early in this project, we realized we needed inspiration and expertise from actors outside the company. Therefore, we must have an open dialogue with others who have the potential to find alternatives to the current consumption model."

4.2 Project Leader Maturity

The project leader's role has been accentuated as critical in executing innovation projects promoting sustainable value propositions. Sustainable innovations necessitate novel work approaches, with the project leader's maturity significantly influencing the project's success (Müller & Turner, 2010). Project leader maturity encompasses many components and dimensions.

The realization of this type of value proposition requires a different form of collaboration than a simple purchase in a store does. The implementation of technology is central to being able to innovate circular value propositions.

«We have both a responsibility and an opportunity to do something about the sustainability problem. New technology can be implemented to meet the needs of the consumer. We can deliver value while at the same time being able to turn our operation into a more sustainable situation which means that we get a more sustainable business model». Sustainability Innovation Manager

Working methods to bring about innovation are central to arriving at radical innovations. The informants believe it requires a new way of working in the innovation process.

«I think that the problem we have requires such a release from our usual projects, and then I think that it is wrong to have very defined processes. We have worked a lot with hypotheses and sought how to solve them». Sustainability Innovation Manager

Here, we will particularly emphasize the following two dimensions: *innovative agility and contextual resolution*.

4.2.1 Innovative agility

Innovation processes and project implementation are closely intertwined phenomena, and it is important to understand them. Based on the data from the case study, it is evident that it is crucial for the project leader to have insights into project-related components such as implementation strategies, project organization, and application of various methodologies. Particularly in a more agile implementation, where there should be multiple learning loops with customer focus, collaboration with external stakeholders, and experimentation, it is essential to adapt project management methods in a customized manner (Funke et al., 2023; Pinto & Slevin, 1989). The dimension of *innovative agility* implies understanding, using various methods, and applying agile approaches for developing new value propositions and business models. Failure to be able to learn and improve is central to all innovation processes.

Our case company has been at the forefront of brand building and innovation in the grocery retail industry. However, it has been necessary to think entirely differently to address growth in new channels, service growth, digitization, and sustainability. The project leader has been particularly attentive to the central role of applying project and process methodologies in a customized manner and customized suitable implementation. The informants we interviewed in the case company emphasize the importance of acquiring process competence within the company and assessing when and for which tasks different methodologies and tools are appropriate.

“But we need to choose someone who knows the process so that we can gain competence ourselves. That way, we can do it ourselves. I also thought about that with the Sprint methodology. The company has verified it and made it their own. They have brought in and seen what works and what does not. I mix methodologies and adapt them to the problem that needs to be solved.” Leader New Business Innovation

4.2.2 Contextual resolution

Innovating new sustainable value propositions requires entirely new ways of working. For innovation projects, the project is given a mandate developed based on a strategy, but the project mandate remains open to change. The active role of the project leader has been crucial. The dimension of *contextual resolution* implies the ability to transform future needs into new value propositions. Understanding conditions for creating value for projects, including business acumen, building networks with salient stakeholders, and a fundamental understanding of organizational processes are characteristics included in this dimension.

The informants emphasize that in an innovation process, it is crucial for the project team members to be critical of the mandate they receive and consider it as a sketch for the job to be done. The experience from the case company aligns with previous research indicating that culture should be based on speed and agility, and employees must dare to take risks and experiment (Binci et al., 2023; Conforto et al., 2016). The project leader and others involved are firmly committed to reducing the company's environmental footprint. Personal

commitment to sustainability from both the project leader and other project/department members has been crucial. Innovation projects are characterized by uncertainty regarding approaches and potential solutions. In such cases, the project leader needs to have a contagious level of engagement that influences team members, a well-founded understanding of the context and actively involves external collaborators while also receiving continued support from the client (Silvius & Schipper, 2020).

“Working on such a fundamental issue as challenging the consumption model is energizing. Many stakeholders, with great enthusiasm, see the potential for thinking differently, particularly regarding the circular economy. This quickly leads to exciting collaboration opportunities.” Leader New Business Innovation

The central components of project maturity for innovating sustainable value propositions can be summarised and visualized in Figure 3.



Figure 3: Project Maturity and essential components for innovation sustainable business models

5. Discussion: Project Maturity Promoting Innovation of Sustainable Business Models

Our analysis suggests that dedicated project units tasked with explorative innovations should possess significant organizational autonomy. This aligns with the concept of an ambidextrous organization where a dedicated unit can focus on a novel business model's development (Pellegrinelli et al., 2015; Petro et al., 2019). However, separating this unit might pose challenges, potentially reducing the project's connection to the broader organization and disrupting regular production (Binci et al., 2023; Gann et al., 2012). Project units might thrive in prosperous economic conditions but could also be vulnerable to economic changes, particularly when results are delayed. Thus, establishing these units necessitates organizational and managerial understanding and commitment, reinforcing project maturity as part of dynamic capabilities for sustainable business model development. Even though environmental sustainability is increasingly vital in decision-making and innovation project implementation, many companies still overlook this aspect (Silvius & Schipper, 2022). To truly innovate sustainable solutions, sustainability must be integrated from the project's inception rather than as an afterthought.

Our case also underscores the project leader's pivotal role. They should perform innovation agility and contextual resolution. The crucial nature of this role can make it both impactful and vulnerable, especially when replacement becomes necessary. To mitigate this risk, thorough information and knowledge sharing within the project team and the larger organization is crucial (Bredillet et al., 2015).

Moreover, the case company demonstrated that a willingness to experiment, organizational autonomy, and agile project management are crucial for innovating sustainable business models. In addressing complex challenges, trial and error, open collaboration, and agility are indispensable. In summary, our analysis of the empirical data uncovers multiple essential components for the successful implementation of innovation projects. Figure 4 visually represents these elements, emphasising project maturity's role in developing dynamic capabilities for sustainable business models.



Figure 4: Project maturity in innovation projects. Central components

6. Conclusion – Limitations and Practical Implications

This case study underscores the critical role of project maturity in fostering dynamic capabilities for sustainable innovation. Focusing on a single innovation project, from inception to execution, has revealed promising insights into sustainable and profitable business model development. Still, the study's limitation lies in its singularity, making broad generalisations difficult. Using a single longitudinal case study provides an opportunity for in-depth insight but limits generality for other cases. Despite this, our findings echo other research across various fields, attesting to their potential relevance.

The complexity of cultivating dynamic capabilities for sustainability and profitability could benefit from interdisciplinary perspectives, including innovation studies, project management, and strategic approaches such as dynamic capability and business model innovation (Chari et al., 2022; Davies et al., 2018). We thus advocate for further research into project maturity as a dynamic capability for crafting sustainable business models.

Our study offers key insights for organizations aiming to develop sustainable business models through substantial innovation. It reaffirms prior research, emphasising the importance of autonomy, experimentation, and a degree of organizational decoupling for successful innovation. Unravelling new solutions invites considerable uncertainty and necessitates multi-stakeholder collaboration, underscoring the value of open, agile approaches for successful sustainable transformation. Traditional economic models, focusing on profit maximisation and hierarchical structures, could pose challenges in implementing agile innovation processes aimed at achieving sustainable yet profitable solutions. Notably, our study identifies the project leader's maturity—characterised by innovative agility and contextual resolution—as a critical success factor in these innovation processes.

In conclusion, organizations striving towards greener, circular economies via innovative projects should prioritise enhancing their project maturity as part of developing dynamic capabilities. Simultaneously, they must be equipped to navigate these transformative processes' inherent complexities and uncertainties. This study thereby contributes to a more comprehensive understanding of the key factors companies face when endeavouring to innovate sustainable business models.

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