

Sustainable Business Model Innovation and Dynamic Capabilities: from “traditional to sustainable”

Summary

Given the significant impact big companies can have on sustainability, they need to innovate their business models. This requires a shift from a traditional to a sustainable business model. Despite ongoing discussions on the topic, managers often lack guidance on how to initiate or develop this transformation, while scholars emphasise the need for further advancements in the field. This research aims to explore the key events that comprise the innovation process for sustainability in large manufacturing companies and how dynamic capabilities influence business model innovation for sustainability. We analysed Brazilian manufacturing companies that have been engaged in this process for several years, using them as case studies. We identified and highlighted the key determinants of the change process by dividing it into phases, the relevant microfoundations in each phase, and how they can influence one another.

Track: Sustainable and Responsible Business

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1 Introduction

Companies are increasingly recognising their fundamental role in both the challenges and benefits associated with the pursuit of sustainability. This pursuit presents a range of difficulties. These include understanding the negative externalities arising from their operations (Massa et al., 2017), adopting clean technologies (Strauss et al., 2017), and addressing the interests and needs of various stakeholders (Inigo et al., 2017). All these aspects are expected to be integrated into the company's business model (BM). However, considering that the BM must comprise how the organisation creates value, delivers that value, and captures benefits from this delivery (Teece, 2018), this model needs to be thoroughly scrutinised for sustainability to be truly integrated into the organisation.

Business models become sustainable, or as close to it as possible, by enabling companies to find solutions to solve environmental and social challenges (Ritala et al., 2018) or negative externalities caused by an organisation (Massa et al., 2017). Thus, a sustainable business model (SBM) seeks not only to generate financial returns for its shareholders but also to create value for its various stakeholders, including the environment (Abdelkafi and Tauscher, 2016).

Sustainable Business Model Innovation (SBMI) is an ongoing progression organisations must navigate over time (Pieroni et al., 2019) and not an outcome of adopting specific practices. Therefore, examining the change of BM through procedural analysis sheds light on the changing process. It is essential for research to adopt a more intricate perspective, as the current focus is linear, oversimplifying and compartmentalising the Business Model Innovation (BMI) process (Andreini et al., 2021). Often, studies focus on a single phase within the overall process (Geissdoerfer et al., 2018). Thus, to implement these changes, dynamic capabilities are crucial to support the processes involved. These capabilities refer to the ability to reconfigure resources and routines as needed (Zahra et al., 2006), enabling the identification and exploitation of opportunities that align social, environmental, and financial benefits with customer expectations (Wu et al., 2013).

Moreover, the dynamic capabilities of sensing, seizing, and reconfiguring play a key role in designing, transforming, and refining a company's business model (Teece, 2018). Therefore, adopting the theoretical perspective of dynamic capabilities helps in understanding how these abilities can be used to modify organisational routines and capitalise on opportunities, facilitating the transition from a traditional business model to a sustainable business model (SBM).

Considering the existing research on incorporating sustainability into business models (Bocken et al., 2014; Evans et al., 2017; Roome and Louche, 2016) and the limited progress in understanding how sustainable business models operate (Dentchev et al., 2016; Morioka et al., 2017), along with the importance of understanding how the theory of dynamic capabilities explains the evolution of established business models (Schaltegger et al., 2016), this study's central research questions are: What are the main events that make up the innovation process for sustainability in large manufacturing companies? And how do dynamic capabilities enable business model innovation for sustainability?

To address these research questions, a multiple-case study was conducted with three large Brazilian manufacturing companies. The study contributed by identifying key events, organised into distinct phases, of the SBMI process in companies pursuing both incremental and disruptive changes. It also highlighted the microfoundations of dynamic capabilities utilised in each phase and explored the relationships between them.

2 Theoretical background

When a business model is geared towards sustainability, it broadens the conventional perspective by aiming to provide value not only to investors and customers but also to various other stakeholders (Bocken et al., 2014; Abdelkafi and Tauscher, 2016; Inigo et al., 2017). Research shows that Sustainable Business Models (SBMs) may not deviate entirely from traditional business models but rather enhance the business outlook, necessitating certain adjustments (Morioka et al., 2017; Raunter et al., 2017).

For a company to transition its business model from traditional to more sustainable, it is necessary to innovate the business model for sustainability. This innovation in this context is referred to innovations that result in significant positive impacts and/or diminished negative effects on the environment and/or society, achieved by altering the methods through which the organisation and its value network generate, deliver, and capture value (i.e., generate economic value) or by modifying their value propositions (Bocken et al. 2014).

Foss and Saebi (2017) emphasise that certain scholars contend that altering any of the crucial components of the business model already qualifies as innovation. For instance, Ciulli & Kolk (2019) assert that innovation in the business model, specifically to align with the sharing economy, may occur in a single element or across all elements. Another group of authors argues that the model's architecture must change, signifying a modification in the interrelation among these essential elements.

However, an organisation that wants to change its business model or has already been created with SBM may face several challenges or barriers. Three main factors can be highlighted as the primary causes of aggravating or creating the others. First, the dominance of short-term indicators in the market is concerning. Second is the constant attempt to avoid uncertainty, which causes fear of the complexity involved in SB. Third is the prioritisation of maximising profits for shareholders (Bocken and Geradts, 2020), which highlights that only one type of result is incompatible with SBM.

In contrast to the obstacles mentioned, recent research has begun examining the relationship between business models (BMs), dynamic capabilities (DCs), and corporate sustainability, noting that strong DCs enable rapid changes in the BM and increase the likelihood of achieving a sustainable business (Bashir et al., 2022). While many studies focus on the evolution of traditional business models to circular ones, this research provides a broader perspective, offering initial insights into the micro-foundations of DCs.

Key factors in sensing capability include external sensitivity, collaboration with stakeholders, and strategies such as trend-focused marketing, diverse communication channels, and strengthening customer relationships (Santa-Maria et al., 2021; Inigo et al., 2017; Silva et al., 2021; Oliveira-Dias et al., 2022).

In Seizing capability, the emphasis is on stakeholder engagement, collaboration for R&D, capacity development to improve efficiency, and fostering a culture of sustainability and innovation (Santa-Maria et al., 2021; Oliveira-Dias et al., 2022; Silva et al., 2021).

For reconfiguring or transforming capability, the focus is on organisational culture, flexibility, ecosystem orchestration, and knowledge management. Open innovation strategies and trust-building communication are also critical elements (Santa-Maria et al., 2021; Cavicchi et al., 2022; Inigo et al., 2017).

Overall, the studies reviewed focus on various organisational contexts and sectors. Some analyse the role of DCs in circular business models for small and medium-sized companies (Cavicchi et al., 2022) and start-ups in Brazil (Oliveira-Dias et al., 2022). Others explore business model innovation for circularity (Pieroni et al., 2021; Santa-Maria et al., 2021) but differ in their focus, such as analysing processes over time or identifying micro-foundations.

3 Method

We conducted a multiple-case study, based on interviews with the company's managers and document analysis as data collection methods. Such data were coded (Corbin and Strauss, 2007) using the ATLAS.ti 8 qualitative analysis software. The analysis of the history of BM innovation employed a procedural perspective (Langley et al., 2013), utilising temporal bracketing to separate the process into distinct phases (Langley, 1999).

The selection criteria for the cases were large Brazilian manufacturing companies recognised for their innovations in business models that aim to become more sustainable. Fifteen companies met the above criteria and were contacted to participate in the study. However, only five of these companies agreed to participate in the study. Of these five, only three provided sufficient interviews and documents to support the necessary data for the study.

Case A is a family-owned company that operates in almost all phases of clothing production. Over the years, the textile sector has been involved in several controversies, both in the social and environmental dimensions. However, the company seeks to minimise risks and increase efficiency in its production and working with its supply chain.

Case B is a publicly traded company that constantly seeks to improve its position or score in sustainability indexes. The company operates in the food sector, primarily producing pasta and various types of biscuits. The company is a market leader in Brazil and is expanding its production to other countries in Latin America.

Case C represents extreme sustainability strategies guiding the company through radical changes. Case C is known for its operations in the health and education markets and is also a family-owned company with over 100 years of history. Its product portfolio is very diverse, including, for example, school erasers and liquid concealers, water bags to ease pain, and gloves to aid in physical exercises.

Data were collected through 22 interviews with 20 different managers, as well as several documents, such as the Sustainability Reports and companies' websites. Considering that the phenomenon under study is the Business Model Innovation for Sustainability (BMIS) process, we sought to interview managers who participated in the main changes towards sustainability over time.

All interviews lasted, on average, between 45 and 55 minutes. The following tables present the characteristics of the interviewees. All interviewees signed a Consent Form approved by the company to confirm their interest in participating in the research. Table 1 presents some characteristics of the interviewees.

Table 1 – Respondents’ characteristics

Case	Interviewee code	Name of the position according to interviewees	Main activities	Company time
Case A	M1	ESG project manager	Responsible for sustainability and corporate communications.	3 years
	M2	Head of industrial operations	Management of transformation processes, including chemical, manufacturing, maintenance, water, and waste treatment processes, among others.	9 years
	M3	Senior Sustainability Analyst	Validation and search for raw materials and production processes with a lower environmental impact.	2 years
	M4	Sustainability analyst	Supplier monitoring.	5 years
	M5	Service delivery manager	Supply chain management and ensure product delivery on established dates.	25 years
Case B	B1	Communication, culture and sustainability manager	Responsible for internal communication vehicles, external brand communication (not the product brand), organisational climate management and sustainability governance.	18 years
	B2	Sustainability coordinator	Monitoring the company's sustainability goals, monitoring and action plans to advance sustainability indexes and awards. Employee engagement in sustainability issues.	5 years
	B3	Sustainability analyst	Support in the execution of sustainability coordination activities.	3 years
	B4	Supply Specialist	Administrative consultancies and leading the ESG agenda for supplies.	9 years
	B5	Education Analyst	Development and execution of training for the company's internal audience.	2 years
Case C	E1	General director or CEO	Activities focused on corporate governance and the general management of the company	14 years
	E2	General director, CEO and Chairman of the advisory board	Maintaining company culture and facilitating projects, in addition to working in corporate governance	38 years
	E3	Head of innovation	Manage the company's radical innovation processes.	4 years
	E4	Commercial Manager	Development and qualification of commercial area teams	18 years
	E5	Learning Manager	Development of employees' technical skills and company culture	27 years
	E6	Coordination facilitator	Facilitate projects related to the market, institutional communication and logistics	16 years
	E7	Supply area manager	Selection, assessment and monitoring of raw material suppliers	25 years
	E8	Impact assessment area manager	Monitoring and analysis of the organisation's sustainability indicators	22 years
	E9	Project in R&D specialist	Manage incremental improvement projects for products and services	16 years
	E10	Planning Analyst	Improvements and systematisation of planning processes	17 years

Source: authors (2025)

The number of interviewees differs in Case C because these organisations have more managers who have been involved in the business model innovation from the beginning and are still working at the company today. In contrast, the other two cases have higher staff turnover, making it harder to find managers who participated in the key business model changes and are still employed by the company.

4 Results

First, a procedural analysis was conducted, and the phases each case underwent during business model innovation were identified. After that, an analysis was performed to identify which microfoundations of the dynamic capabilities of sensing, seizing and reconfiguring were relevant to each case.

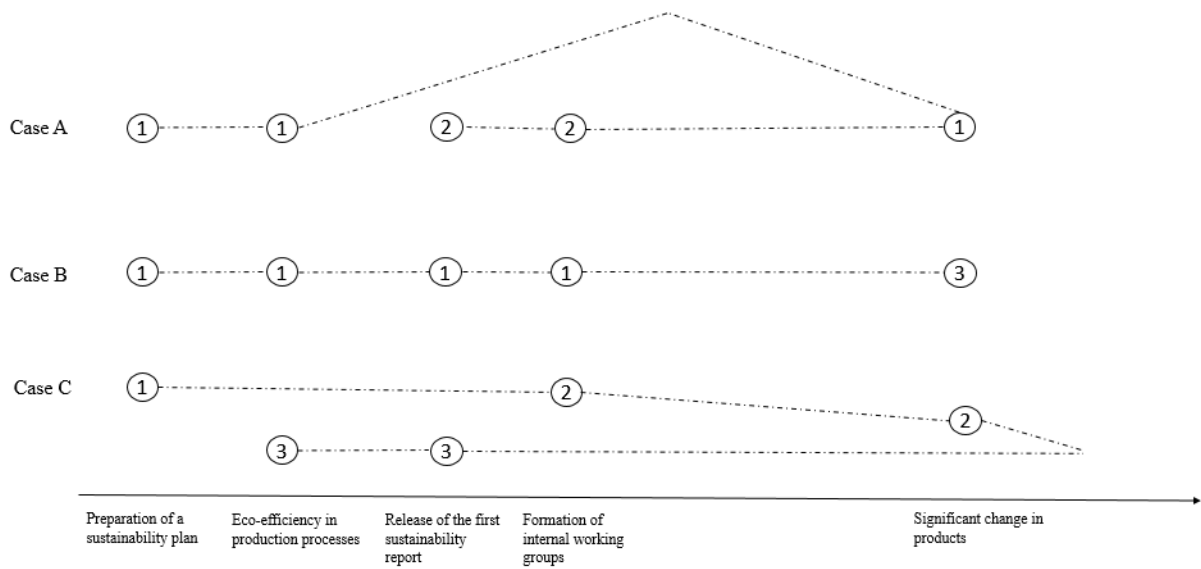
Finally, the phases of business model innovation for sustainability were related to each microfoundation used by all companies or that was fundamental for the development of the processes in one or two cases.

All cases had their SBMI process divided into phases based on the theoretical framework proposed by Langley (1999). Therefore, each process consists of three distinct phases. It is worth noting that the fact that the three cases were considered to have gone through three distinct phases does not imply that the three companies underwent similar innovation processes. Each of them has its particularities and has undergone more or less radical changes in its business model up until the time this research was conducted.

However, the cases share the following relevant events in common: The initial preparation to develop a change plan typically occurs in the first phase, although this may vary across companies. Additionally, the pursuit of eco-efficiency in the production process, the publication of sustainability reports, the formation of internal working groups, and significant product changes are key events that occur throughout the companies' processes, albeit at different stages.

These events, along with the phases in which they occur in each case, can be seen in Figure 1 below and will be detailed in Subtopic 4.1.

Figure 1 – Similar events in the sustainable business model innovation



Source: authors (2025)

4.1 Parallel among the main events in the SBMI of the cases analysed

The motivation to begin the process of innovating the business model for sustainability varied across each of the cases analysed. This influenced how each case experienced relevant events and their order in distinct ways. However, all three cases began planning how to implement the changes in phase 1. Each has uniquely developed its change plan.

Case A had numerous significant initiatives in Phase 1, but they were implemented in an isolated manner without a unified strategic plan. But it was during this Phase that Case A earned the ABVTEX certification, demonstrating its commitment to ethical labour practices by ensuring compliance with human rights principles and fighting child and slave labour in its supply chain. It used this certification to identify areas where it could seek improvements when creating its plan.

For Case B, the key driver for the company's business model innovation was its pursuit of entry into the Corporate Sustainability Index (ISE) on the Brazilian stock exchange. The director of investor relations, along with the sustainability director at the time, played pivotal roles in emphasising the significance of this goal. According to Interviewee B1, the process of participating in the ISE questionnaire served as a self-assessment, helping the company identify areas to prioritise: "The questionnaire gave us a grade, and that helped us focus on areas for improvement" (B1, 2024). Following this, in 2013, the company launched its first sustainability plan, which included 10 priority topics. However, as Interviewee B3 noted, the plan had not yet consulted stakeholders or set specific goals for advancing the business model.

In Case C, the change process began with the main executive's awareness, who, as a shareholder and family member, recognised the importance of his role and the company's contribution to sustainable development. According to the main executive himself in an interview for this research, it was during a course that he became aware of the significance of the issue: "I had

taken some courses on the responsibilities of top executives. There was a course at Manaquí in São Paulo, which I attended for one week. After a while, I returned for another week. And these responsibilities impacted me, they hit me very hard” (E2, 2023). After the sustainability training, he began to delve deeper into the topic, expanding his knowledge and sense of responsibility.

In 2007, after redesigning its brand with the help of a consultancy, the senior leadership felt something was still missing. As interviewee E2 described, while the rebranding was modern and visually appealing, it lacked differentiation from other brands in the market. The company sought a consultancy to reevaluate its strategy, but found it difficult to find one that aligned with its commitment to avoid greenwashing. Eventually, they found a consultancy that focused more on posing reflective questions rather than offering ready-made solutions, a shift that proved crucial to the evolution towards sustainability. As interviewee E5 noted, the consultancy’s approach encouraged the company to question more deeply, which had a lasting impact.

On the other hand, the pursuit of eco-efficiency in the production process began in phase 1 for Cases A and B. For example, in 2003, Case A pioneered water reuse in South America by installing an advanced effluent treatment system to ensure the quality of water returned to nature, a significant step in process innovation for sustainability. However, Case C did not focus on this aspect during phase 1, instead prioritising internal education during this phase, which will be further detailed later.

One point that differentiates all the cases regarding the timing of the event is the external release of the first sustainability report. Case B had already prepared and published its integrated report in Phase 1, while Case A did so in Phase 2, and Case C only in Phase 3.

Interviewee B1 from Case B emphasised the importance of public sustainability reporting, stating, "It gave the company a degree of maturity and an opportunity to showcase best practices and positive impacts" (B1, 2024). It is essential to note that, as mentioned, the primary motivation for pursuing sustainability in Case B is to join the ISE. Therefore, the sooner the company started communicating to its shareholders and the market that it was striving for sustainability, the better it would be for Case B.

For Case A, having a sustainability report was crucial in systematising its data and tracking the company’s progress toward the goals outlined in its sustainability plan. Therefore, this was only done in phase 2 of its process. It published its first sustainability report, following the guidelines of the Global Reporting Initiative (GRI).

Case C, on the other hand, was not interested in starting this disclosure, as it was focused on internal changes rather than communication with the external audience. Between 2009 and 2012, the company focused internally on making necessary changes without external communication efforts (Narrativas Mercur, 2017). But in 2022, it released its first impact report for the public.

The formation of internal working groups occurred in Phase 1 for Case B and in Phase 2 for the other two cases. In Case B, Sustainability Working Groups (WGs) were created in Phase 1 in response to ISE questions, bringing together employees from various departments to address material sustainability topics. These groups laid the groundwork for key initiatives, including the Zero Landfill Program, launched in 2016, to eliminate waste sent to landfills by 2030. Five units have already met this goal (Company B, 2024). Interviewee B2 explained, "The Zero

Landfill program emerged from an ISE question about circular economy practices. It started within the WGs and grew to become institutionalised" (B2, 2024).

In Case A, working groups were created to assist with the new Plan during Phase 2. The year 2014 was pivotal for Case A, as it marked the creation of the 2020 Sustainability Plan, which focused on strategic actions to enhance corporate sustainability. The plan was developed through extensive collaboration, with input from over 100 employees across multidisciplinary committees.

To support the cultural shift, Case C implemented an educational plan between 2009 and 2010, which involved workshops and meetings among working groups to discuss sustainability and the company's evolving mission. The aim was to ensure that all employees understood the importance of sustainability, but it was clear that the changes were non-negotiable.

The significant changes in products also occurred in different ways and at different times for the three cases.

Two notable product innovations that Case A introduced in Phase 1 were the use of PET mesh made from recycled PET bottles and the incorporation of defibrated and organic cotton. On the other hand, Case B proposed a significant change in products only in Phase 3, when it began its search for healthier products and committed to offering carbon-neutral products.

Case C is the one with the most disruptive changes in products. In Phase 2, it made the controversial choice to stop selling licensed products, including school erasers featuring popular cartoon characters. This move, described by interviewee E4 as "the most impactful, most traumatic," was driven by feedback from teachers who expressed concerns that such products fostered competition and feelings of inferiority among children. Interviewee E7 elaborated, saying, "The eraser... almost ended up generating competition among children... 'I have it, you don't have it'" (E7, 2023). As a result, Case C decided to discontinue these products after gradually phasing out related contracts and production lines over several years.

In the same year, the company also chose to cut commercial ties with sectors that did not align with its values, including tobacco, weapons, and pesticides, despite these relationships being profitable. As interviewee E1 noted, "We had strong and highly profitable businesses with the tobacco market", but decided to prioritise ethical considerations over economic gain.

4.2 Specific events

As is the case with the most disruptive change process, Case C differs from the other two cases mainly in the following points. Until now, Case C has not actively sought to participate in external forums. While for Case A, it was very important to rely on organizations like ABVTEX, for example, to access relevant information about the industry and how to be more sustainable starting in Phase 1, Case B joined the UN Global Compact in Phase 2, marking a shift towards closely aligning with national and international food sector trends.

Active collaboration with suppliers commenced in Phase 2 for Cases A and B. Case A initiated the Supplier Assessment Program, which was designed to evaluate suppliers based on environmental and social performance criteria. This included audits and document checks carried out by Malwee to ensure compliance with sustainability standards (Sustainability Report Case A, 2014).

In the same Phase, Case B restructured its supply area, incorporating sustainability into its new planning process. Interviewee B4 explained that the area developed its agenda, with focal points in each purchasing category and enhanced governance involving both suppliers and the board of directors (B4, 2024). A dedicated supply development management department was created to oversee the progress of sustainability projects across all categories (B4, 2024).

Direct work with suppliers was not a focus of Case C's process. Instead, the company prioritised local suppliers to support local development and reduce its carbon footprint. However, Case C had very relevant and unique events in its process.

One of the most impactful transformations was the restructuring of the company to reduce hierarchy and promote broader discussion and autonomy. As interviewee E5 explained, the removal of strict hierarchical layers was vital for fostering teamwork and collaboration: "If we didn't have that, we wouldn't be able to develop this capacity for teamwork" (E5, 2023).

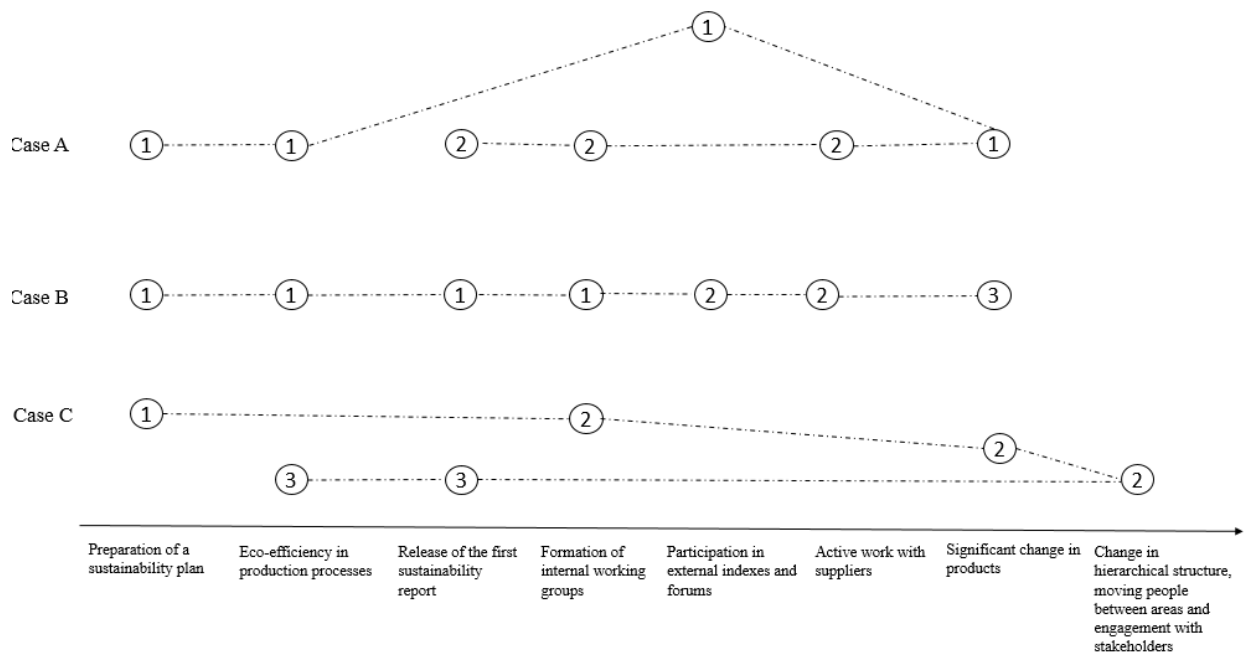
Another significant change occurred as employees from different areas switched roles more frequently, reflecting a growing organic change within the company. As interviewee E2 noted, "We promote a lot of role changes. If an area needs more workforce, we adjust by moving people around" (E2, 2023). Interviewee E4 emphasised the impact of these changes in 2018: "This shift happened strongly in 2018, affecting all areas of the company" (E4, 2023).

Finally, stakeholder engagement in Case C was highly relevant. It was not only the reason for discontinuing certain products, as previously explained, but also essential for establishing its new product innovation approach, called co-creation. One example of this is the "Diversity on the Street" project, a collaboration with a consultancy. This initiative brought together people with disabilities, their families, and professionals to discuss ways to improve their quality of life. This project shifted the company's approach to product development, emphasising co-creation to meet user needs. Interviewee E5 highlighted, "We brought people with disabilities together with professionals to co-create products" (E5, 2023).

The figure below summarises the different milestones and the moments when they occurred (or not) for each case. Case B has the most linear and incremental process, followed by Case A, with Case C having the most disruptive process.

Figure 2 summarises and graphically demonstrates in which phase each event occurred, or not, for each case.

Figure 2 – All main events in the sustainable business model innovation



Source: authors (2025)

5 Discussion

Furthermore, we analysed the relationship between the DC microfoundations, identifying how one can be relevant for the company to develop and use another. Thus, a framework is proposed that identifies the main microfoundations of dynamic capabilities necessary at different stages of business model innovation for sustainability in large manufacturing companies, as well as the relationship between these microfoundations of sensing, seizing, and reconfiguring.

Each phase is detailed below, discussing the microfoundations that were important for the cases and their respective contributions. A table summarising the microfoundations observed in each phase and case can be found in the Appendix.

5.1 Phase 1

For Phase 1, the following microfoundations were relevant to the cases: participation in external forums, use of certifications and indices, consulting services, utilising employees' expertise, educating for sustainability, adapting to changing technologies, and leadership involvement. The manifestation of these microfoundations in the cases and their relationships with one another are presented below.

The proactive involvement of senior leadership, coupled with their authority, was a key factor that initiated the process under analysis. Previous studies have underscored the significance of leaders' actions, values, and personalities in driving change (Schaltegger et al., 2016; Reunter et al., 2017). As noted by Long et al. (2018), proactive leadership is essential for successful transformation. Leaders' behaviours hold the power to engage and inspire the wider workforce

(Raunter et al., 2017), as demonstrated by the shift in mindset of the main executive at Case C. Case A and Case B also highlighted the importance of the company founders' involvement in sustainability actions from the very beginning of the companies' histories, as well as top management's support for the change process.

Some authors suggest that managers may lack the necessary theoretical and practical knowledge to create a Sustainable Business Model (SBM) (Bocken & Geradts, 2020; Hofmann & Jaeger-Erbon, 2020), which can serve as a barrier to Business Model Innovation for Sustainability (BMIS). Therefore, managers must seek knowledge through alternative channels, such as external forums.

Participating in external forums was essential for both Company A and Company B. In Phase 1, Company A extensively utilised the information shared in these forums to identify opportunities and threats, particularly within its industry. For instance, they participated in forums organized by ABVTEX to gain insights on how to engage with suppliers. Thus, the cases support the importance of participation in networks (Oliveira-Dias et al., 2022) in accessing and collaboratively developing the knowledge necessary to continue the innovation process for sustainability.

Although authors highlight the importance of generating ideas focused on consumer behaviour as a microfoundation of sensing (Bocken & Konietzko, 2022), the cases analysed, particularly Case A and Case B, did not seek to understand opportunities with consumers, as this factor did not drive the shift toward sustainability. The cases highlight the challenge of persuading customers and consumers to understand the relevance of the changes being implemented. Thus, idea generation occurred internally, leveraging questionnaires from indices and certifications, as well as the expertise of consultants and employees, to generate ideas that supported the business model innovation process for sustainability, as detailed above.

Both Case A and Case B utilised self-reported questionnaires from indices and certifications, such as ABVTEX (for Case A) and ISE (for Case B), to conduct internal assessments and identify areas for improvement in sustainability. These questionnaires and certification data were used as educational tools. By analysing the results, managers gained valuable insights into key sustainability aspects, as well as the company's strengths and weaknesses concerning these aspects.

Case C was unique in its active focus on sustainability education during Phase 1. As noted earlier, it was this educational approach that sparked the CEO's awareness and marked the beginning of the company's journey toward a sustainable business model. Additionally, one of Case C's early milestones in Phase 1 was the development and implementation of a survey to assess employees' understanding of sustainability.

Another key element for Case C in Phase 1 was using consultancy services to guide the company on its sustainability journey. The involvement and methodology of the sustainability consultancy hired at the outset played a critical role in shaping the process.

In contrast, Cases A and B focused on leveraging their employees' expertise from the beginning. In Case A, new sustainable cotton processing methods were developed and implemented based on employee ideas. Similarly, Case B formed cross-departmental working groups, bringing together diverse areas of expertise to approach sustainability topics from a multidisciplinary angle.

By effectively employing their expertise, both Case A and Case B could develop more sustainable processes by improving existing technologies. In Case A, for example, the introduction of defibrated cotton marked a key development. At the same time, in Case B, working groups developed sustainable solutions to enhance waste circularity, such as the 'Zero Landfill' program. This corroborates with authors highlighting the need for employees to engage in the innovation process (Hall et al., 2022) and strive to make organisational change happen (Raunter et al., 2017).

5.2 Phase 2

For phase 2, the following microfoundations were relevant to the cases: consultation with specialists, consulting services, utilising employees' expertise, changing technologies, changing organisational structure, internal forums and groups, educating for sustainability, driving suppliers' change, and collaborators' legitimacy. The manifestation of these microfoundations in the cases and their relationships with one another are presented below.

Consultation with specialists played a key role for Case C during Phase 2, enabling the company to identify the necessary changes to transition to a more sustainable business model. As previously mentioned, a prime example of this was the decision to discontinue licensed products featuring popular children's characters for school supplies. This consultation also became a regular practice for product innovation, with the concept of co-creation with stakeholders introduced in Phase 2.

In Phase 2, Case B also relied on consultancy expertise to identify opportunities and threats tied to its external sustainability commitments. One example was engaging a consultancy to evaluate the company's alignment with the TCFD (Task Force on Climate-related Financial Disclosures).

For Case C, the consultation with specialists, as mentioned earlier, was facilitated by the hired consultancy. Additionally, Case C partnered with various institutes to implement a liberating education approach for employees, promoting the development of critical thinking. The goal was not just to impart knowledge but also to encourage employees to analyse and understand the core principles of sustainability.

In Case B, employee expertise was again pivotal in Phase 2. By tapping into the knowledge of employees in the supply chain department, the company was able to restructure this area and launch a more robust initiative to work with and develop suppliers on sustainability.

Authors discuss the importance of reducing hierarchical rigidity and fixed positions to enhance organisational flexibility (Santa-Maria et al., 2021; Oliveira-Dias et al., 2022). In this sense, in Phase 2, Case C underwent a significant transformation. The company sought to dismantle its existing hierarchical structure and implement a more horizontal management model. Achieving this required not only a shift in organisational structure but also guidance for employees on navigating the absence of traditional authority, ensuring they understood how to function effectively without the usual top-down directives.

All three cases utilised internal groups for discussions during Phase 2. In Case A, these groups played a vital role in exploring potential innovations, particularly in assessing risks and finding ways to make production processes more sustainable. Case B continued to build on the multidisciplinary group approach established in Phase 1. Elf et al. (2022) studied small

businesses in the fashion sector in the UK and highlighted the importance of multidisciplinary teams for discussing new ideas and implementing them.

Meanwhile, Case C emphasised the value of these groups in tackling a broad range of issues, from solving challenges related to natural resources and logistics to engaging in meaningful conversations on diversity and inclusion. Employee involvement was essential in advancing the company's educational initiatives focused on sustainability.

Authors highlight the importance of considering value alignment when hiring employees and providing the necessary training (Bocken & Geradts, 2020). In Case C, this became a consideration in the hiring process after the turning point. However, for those already employed, the company went beyond training and sought to provide transformative education for its employees.

Both Case A and Case B began working closely with suppliers in Phase 2. Case A launched its Supplier Evaluation Program, with managers highlighting its educational and transformative nature. Rather than replacing suppliers, the goal was to help them improve their sustainability practices. Given the complexities of the textile industry, it was crucial for the company that all suppliers align with its sustainability guidelines. Case B, on the other hand, conducted its first supplier workshop, which, while not yet mandatory, had a strong educational focus, aiming to engage suppliers in the company's broader sustainability efforts.

Several authors emphasise the role of employee engagement as a key enabler of business model innovation for sustainability (Morioka et al., 2017; Reunter et al., 2017; Bocken & Geradts, 2020; Santa-Maria et al., 2021; Hall et al., 2022). This allows them to contribute more effectively through consultation and active participation in decision-making processes (Chevrollier & Kuijf, 2021).

This happened in Phase 2, both Case A and Case C leveraged the legitimacy they had established with employees. In Case A, the 2020 Sustainability Plan was developed with input from employees in internal discussion groups, providing the legitimacy needed for the workforce to understand and accept the company's sustainability goals.

For Case C, radical changes, such as the decision to stop selling licensed products and to cut ties with companies in sectors like tobacco and firearms, were only embraced because of the strong legitimacy of the company's purpose among its employees.

5.3 Phase 3

For phase 3, the following microfoundations were relevant to the cases: external forums, consulting services, utilising employees' expertise, changing technologies, R&D, educating for sustainability, driving suppliers' change, having a close relationship with stakeholders, Open Innovation, and changing organisational structure. The manifestation of these microfoundations in the cases and their relationships with one another are presented below.

In Phase 3, participation in external forums became essential for both Case A and Case B. Case A considers its involvement in the UN Global Compact's Business Ambition for 1.5° initiative and its representation as the only company in its sector from Brazil at COP 25 as pivotal milestones. Managers emphasised how these forums were instrumental in understanding the risks and opportunities related to sustainability within their sector. Conversely, Case B

highlighted the importance of engaging in industry forums to gain a deeper understanding of the relevance and practical steps required to achieve carbon-neutral and healthier products.

For Case C, consultancy support remained vital in Phase 3. The company leveraged consultants to develop new indicators aligned with its evolving organisational culture, as well as to design projects with local suppliers and deepen relationships with stakeholders to co-create new products.

In Phase 3, Case C took a different approach to utilising employee expertise. The company began encouraging managers from various departments to move to other internal sectors that required a fresh perspective to boost performance. Once they had implemented solutions or changes, these managers could either return to their original departments or remain in the new ones. While not all managers were enthusiastic about the move, most recognised its significance. This shift also continued the structural changes that had begun in Phase 2.

Meanwhile, Case A harnessed employee expertise to introduce significant sustainability changes in its processes, such as a new method for dyeing fabrics in neon colours, a proposal put forward by employees. These changes represented major technological innovations for the company. Another key technological shift in Phase 3 was the implementation of the 5.0 laundry system, which significantly reduced water usage in the garment-washing process. As such, leveraging employee expertise proved essential in advancing the company's technological transition toward sustainability.

R&D played a crucial role in these technological advancements, actively contributing to the development of solutions in Case A. Similarly, in Case B, R&D became instrumental in Phase 3, with the department taking responsibility for creating new carbon-neutral products and healthier food lines. R&D has also been highlighted in previous studies as a facilitator of the business model innovation process (Santa-Maria, 2021). It is worth noting that this microfoundation was only implemented in the cases analysed in phase 3. Thus, it can be inferred that companies begin to invest in R&D when they are further along in their business model innovation process.

The work on sustainability education for suppliers, which began in Phase 2, intensified in Cases A and B during Phase 3. Case A took a significant step by becoming a signatory of ABVTEX, moving beyond just seeking certification to committing to a comprehensive set of goals aimed at educating and supporting the development of its suppliers. In Case B, the supply chain department's program to create a learning pathway for suppliers was fully implemented. Once again, sustainability education emerged as a key driver in inspiring supplier transformation toward sustainability.

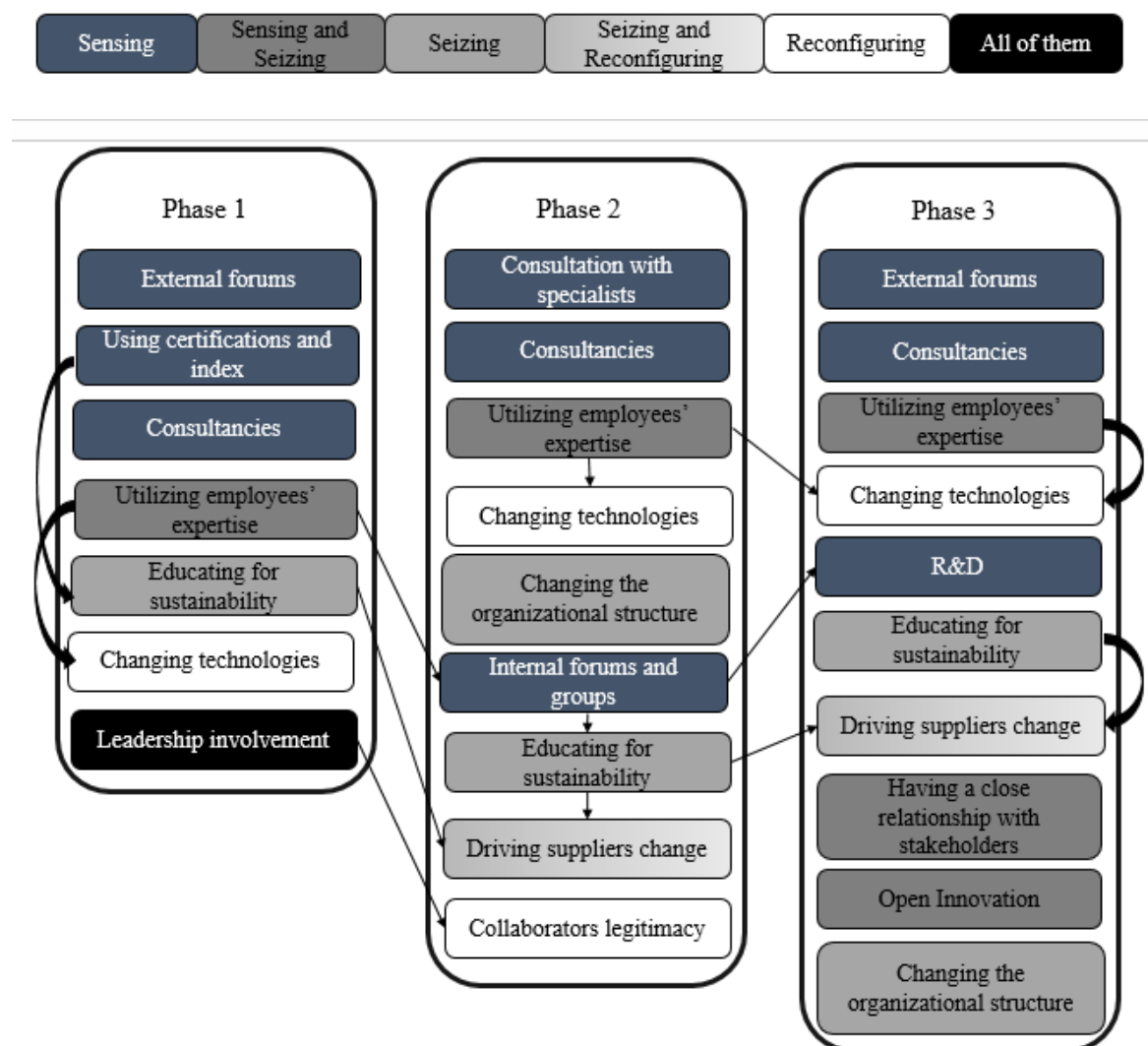
Other authors have emphasised the role of stakeholder involvement in driving innovation (Morioka et al., 2017; Bocken & Geradts, 2020; Santa-Maria et al., 2021), a practice that Case C intensified in phase 3, when it started focusing on building closer relationships with stakeholders. With the assistance of consultancies, the company organised discussion groups with healthcare professionals, product users, and their families to gain deeper insights into the real needs of its customers and consumers. As a result, the sustainable product innovation process evolved into a co-creation effort with stakeholders. Open innovation thus became even more crucial for Case C in Phase 3.

Related to open innovation strategies, Bocken & Konietzko (2022) also emphasise the importance of collaborating with startups. Although Case A and Case B claim to collaborate

with these actors, none of the most significant events in their business model innovation processes occurred with strong support from a startup. Case C emphasised that there is still an internal barrier among managers to work with companies in their early stages, especially when incumbent companies offer similar solutions.

The phases, microfoundations, and their relationships described above were then organised into the framework presented below. Some microfoundations may appear in more than one capability, as their application can support the company in different ways. The legend above the framework indicates whether the colour of each triangle containing a microfoundation indicates that it is always used for sensing, seizing, or reconfiguring, or whether it can be used for combinations of these capabilities.

Figure 1 – Sustainable Business Model Innovation Framework



Source: authors (2025)

5 Conclusion

The study's main theoretical contributions can be summarised in three key points. First, the article shows that each company undergoes distinct phases in the process of innovating its business model for sustainability, although some events are common across cases. The motivation to initiate the process has a significant impact on which events occur and at what stage of the process. Nevertheless, certain common events can be highlighted. The initial preparation for developing a change plan typically occurs in the first phase, although this may vary across companies. Additionally, the pursuit of eco-efficiency in the production process, the publication of sustainability reports, the formation of internal working groups, and significant product changes are key events that occur throughout the companies' processes, albeit at different stages. Finally, when a company seeks more substantial changes, it may reorganise its structure, reassign managers across internal departments, and engage stakeholders more actively.

Furthermore, the study identifies which microfoundations of dynamic capabilities are most relevant to each phase of the SBMI process and illustrates how they are interconnected. In doing so, it not only contributes to the literature on dynamic capabilities and SBMI but also helps managers understand which microfoundations should be developed first, as they enable the more effective use or development of others.

Finally, the article shows that the dynamic capabilities of Sensing, Seizing, and Reconfiguring are not applied linearly over time across the phases. Instead, they are utilised in distinct yet parallel ways throughout all stages of SBMI. As such, managers should focus on understanding how to leverage each capability and avoid prioritising one at the expense of the others during the process.

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Appendix A - Microfoundations used in each phase

	<i>Microfoundations</i>	<i>Phase 1</i>	<i>Phase 2</i>	<i>Phase 3</i>
<i>Sensing</i>	<i>Certifications use (case A and B)</i>	Case A & Case B	Case B	Case A & Case B
	R&D			Case A & Case B
	Internal forums and groups	Case B	Case A, Case B & Case C	
	External forums	Case A	Case B	Case A & Case B
	<i>Consultancies(case B and C)</i>	Case C	Case B & Case C	Case C
	<i>Consultation with specialists (case C)</i>		Case C	
<i>Sensing and Seizing</i>	Utilizing employees' expertise	Case A & Case B	Case B	Case A & Case C
	<i>Having a close relationship with stakeholders (Case C)</i>			Case C
	Open Innovation			Case C
<i>Seizing</i>	Educating for sustainability	Case B & Case C	Case A, Case B & Case C	Case A & Case B
	<i>Changing the organizational structure (Case C)</i>		Case C	Case C
<i>Seizing and Reconfiguring</i>	Leadership involvement	Case A, Case B & Case C		
	Driving suppliers change		Case A & Case B	Case A & Case B
<i>Reconfiguring</i>	Collaborators legitimacy		Case A & Case C	
	Changing technologies	Case A	Case B	Case A

Source: authors (2025)