


CASE STUDY

Sustainable development and dynamic capabilities in the fashion industry: A multi-case study

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Email: alessandro.dagiau@gmail.com**Abstract**

We used the dynamic capabilities approach to study *environmental sustainability* and development in the fashion industry. To achieve *green transformation*, companies need to develop effective *dynamic capabilities*, which entails changing their current organizational design by realigning their activities, partnerships, and routines with the changed external environment. By means of three case studies, we identified the components of dynamic capabilities that can be instrumental in companies' innovation and adaptability toward sustainability goals. In particular, we examined how companies sensed market opportunities and threats, seized such opportunities, and reconfigured their internal assets. We also investigated how structural changes in these firms reflected their strategies for supporting sustainability development.

KEYWORDS

dynamic capabilities, environmental policy, environmental sustainability, organizational design, sustainable development

1 | INTRODUCTION

Customers' awareness of sustainability issues is greatly increasing, and this "green consciousness" is changing those industries recognized for being highly polluting, such as the fashion industry (Pedersen, Gwozdz, & Hvass, 2018; White, Nielsen, & Valentini, 2017). Consequently, fashion companies have started to address the environmental problems caused by their products, processes, and facilities, but many of them clearly struggle in this effort because they lack the necessary capabilities to approach a green transformation.

Environmental sustainability has become an important field of industrial and economic development (Ahi & Searcy, 2013; Ashby, Leat, & Hudson-Smith, 2012; Carter & Easton, 2011; Colicchia, Marchet, Melacini, & Perotti, 2013; Gold, Seuring, & Beske, 2010; Pagell & Wu, 2009; Seuring & Müller, 2008; Srivastava, 2007). Given the increasingly high importance of the green sustainability challenge, scholars in several fields have addressed the issue and continue to study the phenomenon from different perspectives and at different levels of analysis (Seuring, 2008). Within the environmental sustainability literature, research efforts have primarily explored the surrounding dimensions of the concept, including the internal and

external driving forces that encourage companies to enhance their environmental sustainability (Carter & Rogers, 2008; Seuring & Müller, 2008; Walker, Di Sisto, & McBain, 2008; Zhu, Sarkis, Cordeiro, & Lai, 2008); the major barriers that impede these endeavors (Giunipero, Hooker, & Denslow, 2012; Yarahmadi & Higgins, 2012); and the best practices that are deployed to address green goals (Colicchia, Melacini, & Perotti, 2011; Pagell & Wu, 2009; Beske, Land, & Seuring, 2014; Deutz, McGuire, & Neighbour, 2013, etc.) and to create competitive advantage (Christmann, 2000).

Regarding this latter point, some researchers have conducted studies to understand whether the improvement of the environmental performance of a company contributes to its economic competitiveness. Most scholars and practitioners now agree that there is a positive relationship between green efforts and firms' performance (Schrettle, Hinz, Scherrer-Rathje, & Friedli, 2014; Tate, Ellram, & Kirchoff, 2010). Their evidence has led an increasing number of companies to start adopting environmental strategies, not only to comply with stakeholders' requirements and statutory regulations (Sarkis, Gonzalez-Torre, & Adenso-Diaz, 2010), but also to gain competitive advantage (de Brito, Carbone, & Blanquart, 2008; Gold et al., 2010; Pagell & Wu, 2009; Porter & Van der Linde, 1995; Prajogo, KY Tang, &



Lai, 2014; Sarkis, 2003). In fact, whereas some companies are improving their environmental footprint to avoid “green marketing attacks” from stakeholders and loss of market share (Cervellon, 2012), other companies have seized the new strategic opportunities presented by the demand for environmental sustainability and have started to proactively and voluntarily address it as a source of competitive advantage by rethinking their business models (Aragon-Correa & Sharma, 2003; Carter & Rogers, 2008; Colicchia et al., 2011; Goyal, Rahman, & Kazmi, 2013; Hart, 1995; Paulraj, 2009). For these firms, environmental sustainability has become a strategic imperative (Preston, 2001, p. 26) that drives them to incorporate green considerations in their agendas and to rethink and change the ways in which they conduct their businesses, processes, and activities (Ahi & Searcy, 2013; Bocken, Short, Rana, & Evans, 2014).

The achievement of this new green business model requires reconfiguration, extension, improvement, and integration of existing capabilities, assets, and resources, which should be aligned with these new purposes (Ambrosini & Bowman, 2009); however, there is a shortage of research about the role organizational design (OD) plays in achieving a green business model, notwithstanding the demonstrated relationships between the successful adoption of certain business models and OD (Bock, Opsahl, George, & Gann, 2012). OD plays a pivotal role in innovation and the adaptation of business models, since it relates to the ability to discover and realize new opportunities (Foss, Lyngsie, & Zahra, 2015).

Managers often do not know how to make this transformation (Bocken et al., 2014) due to a lack of experience in translating green strategies into action (Epstein & Roy, 2001; Yarahmadi & Higgins, 2012). To accomplish this kind of organizational and strategic change, companies must invest in their dynamic capabilities (DCs; Teece, Pisano, & Shuen, 1997; Eisenhardt & Martin, 2000; Peteraf, Di Stefano, & Verona, 2013), in order to develop their resource base and competitive position, when trying to “move to markets in which the dominant logic that they are accustomed to using is no longer valid” (Hart & Dowell, 2011, p. 1474). DCs represent a stream of research in the management literature that was crystallized by Teece et al.’s (1997) seminal article. In this article, the authors extended the resource-based view (Barney, 1991; Wernerfelt, 1984) and defined the concept of DC as the “firm’s ability to integrate, build and reconfigure internal and external competences to address rapidly changing environments” (p. 516). Following this influential article, the attention of scholars greatly increased (Vogel & Güttel, 2013), and many relevant papers have been published in different fields (i.e., Di Stefano, Peteraf, & Verona, 2010; Eisenhardt & Martin, 2000; Teece, 2007; Zollo & Winter, 2002).

In recent years, several researchers of environmental sustainability in business organizations have investigated this phenomenon by adopting the DC perspective (i.e., Aragon-Correa & Sharma, 2003; Hart & Dowell, 2011), which offers a “promising theoretical framework that could be used to motivate theories about organizations, environmental management and subsequent performance” (Russo, 2009, p. 318). Achieving green organizational transformation implies, in fact, that companies develop effective DCs and change their

current OD (Helfat & Winter, 2011; Perez-Valls, Cespedes-Lorente, & Moreno-Garcia, 2016) to realign their activities, partnerships, and routines with the changed external environment.

Despite the importance of the issue, there is a dearth of research and little empirical evidence concerning how companies can make the necessary changes in their processes, routines, structures, and mindsets to achieve a more sustainable enterprise model (Zollo, Cennamo, & Neumann, 2013). We therefore sought to gain a better objective understanding of the link between DCs and OD in relation to environmental sustainability in the fashion industry.

These two interlinked phenomena must be studied concurrently if we are to grasp the organizational and managerial complexities of adopting green strategies. Consequently, we addressed the following research questions:

1. How do fashion companies deploy DCs (in terms of sensing, seizing, and transforming processes) to pursue green objectives?
2. How do fashion companies adjust their OD to better align it with the new set of sustainable goals?

To gain insights into these issues, we adopted a multiple case study design (Yin, 2013) involving three internationally recognized fashion manufacturing companies known for their high-quality goods and their efforts to achieve environmental sustainability goals. We focused on the fashion industry because of its complexity, competitive challenges, high levels of globalization, and recent nongovernmental organization (NGO) pressure to incorporate environmental goals (Luque & Herrero-García, 2019).

We found that effective green transformations require companies to develop and operationalize specific DCs in order to continually monitor the markets and create stable relationships with external players (especially suppliers) to absorb new green knowledge. These companies structured their organizations to allocate to their Sustainability Departments the roles of identifying opportunities and gate-keeping, while the responsibility for execution was delegated to the business units.

2 | BACKGROUND

2.1 | Dynamic capabilities and environmental sustainability

During the past two decades, the DC perspective has become fundamental to strategic management (Eisenhardt & Martin, 2000; Teece et al., 1997). The DC perspective has its roots in the resource-based view (i.e., Barney, 1991), but whereas the resource-based view deals with an extant competitive advantage built on the resources and capabilities a company already possesses, the DC perspective focuses on how companies can adapt to changing environments by reconfiguring their existing resources and capabilities.

The DC literature has mainly been based on the work of Teece et al.’s (1997) and Eisenhardt and Martin’s (2000) research. The latter

provided a direct link to empirical inquiry (Helfat et al., 2009, p. 31), relating DCs to the collective organizational-level processes that enable companies to change their existing competencies and/or to develop new ones to adapt to changing conditions (Di Stefano, Peteraf, & Verona, 2014). In fact, “when we observe a DC in use, we are observing the underlying processes” (Helfat et al., 2009, p. 31), and therefore, DCs embody specific strategic and organizational processes (Eisenhardt & Martin, 2000).

Teece stated that, for analytical purposes, DCs can be divided into three groups—sensing, seizing, and transforming (Teece, 2007). Sensing capabilities relate to the market scanning and exploration activities through which companies “identify emerging opportunities and create knowledge” (Jantunen, Ellonen, & Johansson, 2012, p. 143). Seizing capabilities are the processes and routines that assimilate and integrate the knowledge derived from new market opportunities (Jantunen et al., 2012). Finally, transforming capabilities are the processes and routines by which companies recombine resources and operating capabilities.

So far, only a few scholars have linked the DC perspective to environmental sustainability (Prieto-Sandoval, Jaca, Santos, Baumgartner, & Ormazabal, 2019). The first were Aragon-Correa and Sharma (2003) who argued that sustainability management is a DC itself, because it depends on specific and identifiable processes that consist of common best practices across firms, is idiosyncratic in its details, requires path dependence, is nonreplicable, and requires the integration of different stakeholders' interests. Hart and Dowell (2011, p. 1473) maintained that the adoption of the DC perspective to study sustainability affords a more detailed understanding of the processes by which firms develop sustainable development strategies. They recognized that the DC perspective is suitable for studying the complex and ambiguous issue of environmental sustainability. Some other papers relating to the environmental sustainability challenge have focused attention on a particular DC, such as *absorptive capacity* (Bhupendra & Sangle, 2017), *communication skills* (to convince stakeholders), *sustainable supplier development capability* (Foerstl, Reuter, Hartmann, & Blome, 2010), a *proactive environmental strategy* (Aragon-Correa & Sharma, 2003), corporate environmental innovation, *corporate environmental adaptability* (Wong, 2013), or *environmental search routines* (Hilliard & Jacobson, 2011). Overall, research on environmental sustainability DCs, although still new, is achieving some degree of recognition.

New insights are, however, required to facilitate a deeper and more comprehensive understanding of the phenomenon and to provide practitioners with indications of how environmental sustainability can be developed (Wong, 2013), in terms of the organizational behaviors and processes that can support it (Iles & Martin, 2013).

2.2 | Organizational design

The concept of OD refers to the arrangement of “people, resources, technology, and strategic management in order to achieve organizational congruency in the face of continual change” (Mackenzie, 1988, p. 188), including the governance structures, the mechanisms that

allow companies to nurture knowledge, the degree of decentralization in the decision-making processes, the degree of vertical integration, and the integration of subtasks (Bryan & Joyce, 2007; Galbraith, 1977). OD is not only a matter of “drawing boxes and lines in organizational charts” (Kaiser & Buxmann, 2012, p. 58), but also concerns the fit between the context and the *organizational structure* (Pertusa-Ortega, Molina-Azorín, & Claver-Cortés, 2010) and between the external and internal coordination of individuals (Felin, Foss, & Ployhart, 2015); it has important consequences for the ability of a firm to sense and seize new market opportunities and external knowledge.

OD can influence the way in which the activities are connected and can influence employees' motivation to be proactive in helping and supporting their companies to recognize and exploit external opportunities, as well as to achieve high organizational performance (Aragon-Correa & Sharma, 2003). OD coordinates the structural elements of an organization in the most appropriate way (Galbraith, 1977). According to Galbraith's (1977) star model, OD coordinates five factors: strategy, structure, people, rewards, and processes.

In our paper, we decided to focus on the structural factor, which determines the locus of decision-making power. In the remainder of the paper, we will address the structure of OD in terms of organizational structure and *delegation of decision-making*.

Decisions regarding the organizational structure dimension affect “who interacts with whom” (Puranam, Raveendran, & Knudsen, 2012, p. 429) and how the different parts of an organization are interdependent (Kretschmer & Puranam, 2008), whereas delegation of decision-making refers to “who has the authority to make decisions about the types of opportunities to pursue and how best to do so” (Foss et al., 2015, p. 4).

In spite of the high relevance of OD in the academic literature and its potential impact on the sustainability journey undertaken by companies (Zhang et al., 2018), we still lack sufficient empirical evidence to analyze how companies change their OD during a green reconfiguration (Zollo et al., 2013). Even though, in general, there is no best way to reframe the OD of a company (Colombo, Mohammadi, & Rossi Lamastra, 2015), the ability to align it with new green goals is a relevant skill that can enable firms to improve their environmental performance (Russo & Harrison, 2005) and can direct the organizational and cultural shift in that direction (Bai & Sarkis, 2013).

3 | RESEARCH DESIGN

To address our research questions, we adopted a multiple case-study methodology for several reasons: First, research on DCs has suggested that the processes and structures underpinning them are enterprise-specific, and researchers require an intimate knowledge of companies (Teece, 2007, p. 1345); therefore, research on DCs should employ case studies (Barreto, 2010, p. 274). Second, research on DC and environmental sustainability is still in its infancy; thus, a qualitative case-comparative approach allows a deeper understanding of the phenomenon (Beske et al., 2014). Third, DCs are not clearly observable and are difficult to describe and conceptualize (Easterby-Smith,

TABLE 1 Sample companies

Characteristics	Alpha	Beta	Gamma
Headquarters	Italy	Italy	Italy
Main products	Clothing, accessories, eyewear, watches, jewelry, furniture and furnishing accessories, perfumes, and cosmetics	Handbags, luggage, accessories, textiles and leather, clothing and footwear, sunglasses, jewelry, and home accessories	Eyewear, eyeglasses, and sunglasses
Revenues (2018)	~2.1 billion €	~1.1 billion €	~8.9 billion €
Informants	- HS - HS assistant - market analyst	- HoS- HS assistant - general manager - market analyst	- HS - energy manager - sustainability PM ^b

Abbreviations: HS, head of sustainability; PM, project manager.

Lyles, & Peteraf, 2009), implying that the active engagement of researchers at the data collection stage is essential for mapping them correctly. Fourth, the case-study methodology allows for a holistic understanding of the characteristics of contemporary events within their real-life contexts (Yin, 2013). Finally, case study research allows research questions to be answered in the form of “how” and “why” (Yin, 2013), as it is the case with this study.

We employed a theoretical sampling logic (e.g., Eisenhardt, 1989; Glaser & Strauss, 1967; Strauss & Corbin, 1990) to obtain robust results and increase the generalizability of the findings. To address and answer our research questions, the case selection identified companies that (a) operated in the fashion industry; (b) were large manufacturing companies; (c) had publicly demonstrated a strong commitment to pursuing environmental sustainability goals; (d) had an internal Sustainability Department; (e) were internationally known; and (f) served an international market, so they dealt with national and international environmental regulations and faced complex challenges in their green reorganization. We chose companies with an internal Environmental Department because the DC literature has argued that DCs depend on the development of specific organizational structures and resources. DCs are organizational routines that, in many cases, require the nurturing of organizational units and dedicated resources. In our context, therefore, an Environmental Department could signal the existence of DCs for sustainability development.

We selected three companies and labeled them Company Alpha, Company Beta, and Company Gamma. Although this appears to be a small number of cases, it is nevertheless suitable for achieving sufficient validity of results (Yin, 2013). The selection was not random (Eisenhardt, 1989) but was based on literal replication logic (Yin, 2013). We selected these three firms because, compared to main players in the fashion industry, they shared several similarities in their approach to environmental sustainability, and such homogeneity provided an appropriate foundation for comparing their DCs.

Several tests were conducted to ensure the construct validity of our research (Galeazzo, Furlan, & Vinelli, 2014). We used a wide range of key informants whose distinct roles and functional levels enabled us to gain insights from different perspectives (Eisenhardt & Graebner, 2007). Access to additional data sources, such as internal documents, intranet websites, direct observations, and plant visits allowed us to triangulate information thus reducing single source bias (e.g., Eisenhardt, 1989; Martin & Eisenhardt, 2010).

Table 1 lists the main information and the respondents for each company. Each interview lasted 60 to 90 min and was digitally recorded and transcribed immediately thereafter to avoid loss of information. Each individual informant was recontacted after the first round of interviews. Further face-to-face interviews or calls enabled us to verify the main evidence identified during the previous meeting and answer any remaining questions. The data collected in the interviews were triangulated with documentary information from annual reports, sustainability reports, company websites, press releases, information available on the Internet about each company, and through direct observations made during plant visits.

For the data collection, we used a semistructured interview method (Voss, Tsikriktsis, & Frohlich, 2002), which relied on a protocol designed by the authors, based on the DC literature (i.e., Aragon-Correa & Sharma, 2003; Teece, 2007, etc.). The protocol was structured to enable us to identify the processes and routines (the DCs) these companies developed and deployed to address environmental sustainability. The protocol operationalized the construct of OD in terms of hierarchy and task specialization (organizational structure) and delegation of decision-making authority. DCs were operationalized according to the framework provided by Teece (2007). The protocol comprised questions regarding processes for sensing external market opportunities and threats, seizing such emerging opportunities and threats, and internally realigning the organization with the new goals (see Appendix).

After collecting data from the selected respondents, we analyzed and categorized the DC-related routines and processes they described. The same process was used to categorize the information collected regarding hierarchy, task specialization, and delegation of decision-making authority.

Following this analysis, the results for the three case studies were compared to identify recurring patterns in the adoption of DCs and the structuring of OD.

4 | FINDINGS

4.1 | Company Alpha

Company Alpha started to invest in sustainability in 1996, when it launched its first ecological collection. Some years later, in 2011, due

to direct pressure from NGOs and the evolution of international environmental regulations, company Alpha created an internal Sustainability Department.

4.1.1 | Sensing environmental opportunities

Sensing was mainly performed by the head of sustainability (HS), who periodically met with NGOs' representatives and attended conferences and events organized by international working groups (e.g., the Camera Nazionale della Moda Italiana Working Group on Sustainability). The cooperation with NGOs and working groups was fundamental for the firm. Through these groups and organizations, company Alpha was "able to collect information about new opportunities and new requests that stakeholders would probably mention in the near future, but ... could also identify, together with other stakeholders, some countermoves for mitigating possible marketing attacks" (Company Alpha's HS). Sensing was also performed through direct dialogue between the Sustainability Department and key suppliers, which allowed the company to identify new opportunities and threats and to benchmark some of its competitors. In the fashion industry, it is very common for a single supplier to serve many fashion manufacturers, and therefore, information relating to new approaches or new opportunities might be captured and benchmarked through the interaction with suppliers. The Sustainability Department also worked closely with the Marketing Department to survey customers via in-store surveys and verify what customers expected the company to do about their sustainability concerns. In addition, company Alpha sensed the markets by analyzing press releases and public documents regarding competitors, NGOs, and trends, to identify emerging opportunities. The Sustainability Department, finally, developed cooperation with external partners, including academics, research centers, and consulting companies, to seek advice about evolutionary scenarios.

4.1.2 | Seizing environmental opportunities

Based on the sensed opportunities, the Sustainability Department assessed which ones should be prioritized using a matrix to compare their "easiness of access" (e.g., Is the solution easy to implement? Do we need to develop or purchase new technologies?) and the pressure from NGOs (high, medium, or low). The Sustainability Department, therefore, made the first assessment about which green opportunities and threats to prioritize, but the final go/no-go decision (especially in the case of potential "long haul" green projects, for which new complex technologies or product features had to be developed) required a technical analysis performed by actors outside the Sustainability Department. The Sustainability Department determined the feasibility of each opportunity, verified how each green solution would fit with a product or production process, and validated an execution plan.

The Sustainability Department discussed the solutions with the chief operating officer (COO) who decided which solutions would be implemented; thus, although the decisions regarding the sensed

opportunities resided with the Sustainability Department, the decisions about which projects to implement were made by the COO.

4.1.3 | Transforming environmental opportunities

Once a sensed opportunity was approved for the execution, a cross-functional team managed the implementation of the solution. The team was composed of members from different business units as appropriate for the specific project. Such ad hoc teams oversaw all the project activities; thus, the implementation of the solution was decentralized, with the Sustainability Department initially developing the necessary new knowledge then extending it to such temporary teams.

4.2 | Company Beta

Environmental sustainability started to become a priority for Company Beta after its acquisition by a French group, which increased the pressure to improve the company's environmental performance and commitment. Despite this driver, the company did not have a Sustainability Department until 2012, when external pressure from NGOs encouraged the leadership team to launch a department with responsibility for the company's environmental footprint.

4.2.1 | Sensing environmental opportunities

The Sustainability Department mainly investigated new green market opportunities and threats through cooperation with several NGOs, which directly participated in setting the agenda and priorities for future environmental sustainability actions; in fact, as reported by the HS: "NGOs are recognized to have deep technical knowledge, but also strong leverage to destroy the brand image of companies. We want NGOs to sit at our table and cooperate; to anticipate possible issues with us".

Every 2 months, the HS participated in a mandatory meeting (required by the corporate) with all the heads of sustainability from the other brands belonging to the Group. During these meetings, managers shared their sustainability achievements and reciprocally benchmarked each other.

Company Beta relied also on collaboration with external organizations, such as universities, strategic suppliers, and industrial associations. Cooperation with suppliers represented the main element of the sensing process, because suppliers were more aware than the company about emerging trends:

We [company Beta] have a stable market and a luxurious image, but the majority of our suppliers are considerably smaller than us and, to stay competitive over time, we are investing efforts and resources in delivering sustainable products or solutions, to expand our



markets and reach more fashion houses amenable to green solutions (Company Beta's HS).

4.2.2 | Seizing environmental opportunities

Once green opportunities and threats were recognized, the deep dive analysis was delegated to project teams. In 2013, the company selected several employees from different business units, with different backgrounds, and assigned them to two permanent teams to support the exploitation and execution of green projects. Product Green Team was placed in charge of all projects dealing with green products and their related production processes (i.e., traceability of raw materials), whereas the General Green Team took charge of those actions that directly affected the facilities and company's governance mechanisms (i.e., ISO14001 certification).

Although the Sustainability Department explored new green opportunities and prioritized those that seemed relevant or urgent, either the Product or the General Green Team was responsible for the technical analysis and drafting the initial proposal. The proposal was then submitted to the industrial director who made the go/no-go decision.

4.2.3 | Transforming environmental opportunities

When the Industrial Director approved the initiation of a green project, the team in charge of it had full responsibility for the implementation, with the Sustainability Department acting as an internal sponsor of the initiative and involving other units as necessary. Even if the Sustainability Department had no role in the project's execution, there would be an update meeting every 2 weeks, in which the two teams shared with the HS the progress made and the issues they were confronting.

4.3 | Company Gamma

In March 2011, Company Gamma initiated an environmental program aimed at improving its environmental footprint. The project launch was followed by the nomination of an HS who is in charge of managing all the environmental projects; a sustainability project manager (SPM); and some "directors of sustainability innovation" who came from the retail units and had direct access to market information.

4.3.1 | Sensing environmental opportunities

Company Gamma's Sustainability Department sensed relevant and complex market opportunities and threats by attending dedicated conferences and meetings organized by industrial associations and through constant dialogue with the directors of sustainability innovation. These directors divided their time between monitoring general

market issues (i.e., sales rates for their geographical areas, etc.) and monitoring customers' priorities concerning sustainability issues. The Sustainability Department gained information about emerging trends through market analyses conducted by consulting companies, research centers, and universities, which were contracted to scout for new opportunities, risks, or technological developments relating to environmental protection.

Sensing also relied on the involvement of key suppliers. The company generally worked with some of its main suppliers to identify possible opportunities to be mutually addressed. Gamma's SPM said

We rely on external cooperation with suppliers, to the point where we are track on a database all the relevant information about suppliers that are proactive on environmental sustainability. In this way, we know at any moment who to contact and who to work with.

4.3.2 | Seizing environmental opportunities

Seizing employed both a top-down and a bottom-up approach. The latter approach was useful for "easy-to-implement" solutions (such as recycling bins in the offices), whereas the former one was specifically used for complex initiatives (such as the adoption of bioplastics).

In the case of complex solutions, the company adopted a top-down approach, whereby the Sustainability Department decided which of the sensed opportunities should be prioritized. The Sustainability Department initially sensed the opportunity and then, according to the knowledge and expertise required to develop each possible solution, appointed temporary project teams composed of employees from other business units to develop the implementation plan and present it to the CEO or COO for approval.

In the case of noncomplex solutions, the seizing of opportunities was pursued with a bottom-up approach characterized by a high degree of decentralization. For each of the plants, worldwide, several sustainability deputies were nominated in 2012. These deputies were placed in charge of identifying any green initiatives coming from their unit's employees, evaluating the proposals, and presenting the most attractive ones to the directors of their business units.

4.3.3 | Transforming environmental opportunities

Bottom-up solutions generally had limited impact, being mainly confined to the single business unit that proposed the initiative; however, for top-down solutions, the alignment of different business units, and the related integration of knowledge, were realized through specific ad hoc projects, which were coordinated by temporary cross-functional project teams. The execution of a project was carried out by the team it was assigned to, and the Sustainability Department only monitored the evolution of each project through the SPM who was responsible for reporting, weekly, the number of active projects and their progress.

5 | DISCUSSION AND CONCLUSION

By adopting the DC perspective, we showed how three fashion companies successfully managed their environmental reconfigurations, highlighting how they sensed market opportunities and threats, seized them, and reconfigured their internal assets accordingly. We showed also how the OD was structured to accomplish such goals. This research compared three sustainability-committed fashion companies and identified those processes and routines by which they achieved an internal reconfiguration to support their green journey and how they structured their OD concurrently.

We observed very similar patterns of behavior in the deployment of DCs. Specifically, the empirical analysis provided convergent evidence that the sample companies had developed specific environmental search routines (Hilliard & Jacobson, 2011) through which they continuously identified changing stakeholders' needs and new green market opportunities and threats. These routines required the involvement of different internal (i.e., company unit) and external (i.e., stakeholder, supplier, retailer, and industrial organization) actors, providing the Sustainability Departments with market intelligence for further action. If the Sustainability Departments judged such incoming knowledge to be relevant and decided on action, a (temporary or permanent) project team was given responsibility for the execution. The third company (Gamma) confirmed this finding but added the peculiarity of a bottom-up approach for those initiatives that did not require centralized efforts: through high decentralization, employees became active participants in the company's sensing capability, complementing the Sustainability Department for gatekeeping initiatives (Figure 1).

Overall, it was clear that the three companies assigned to their Sustainability Department the role of "specialized gatekeeper" (Tushman, 1977), monitoring the environment and searching for new green opportunities or risks. However, because the responsibility for the final decisions and the implementation belonged to other units, the companies split the exploration of new green opportunities from the exploitation of such opportunities. Sustainability Departments were in charge of exploring new opportunities, whereas other departments implemented the resulting programs. This configuration paralleled the concept of *structural ambidexterity* (Tushman & O, 1996)

whereby the dilemma of exploration/exploitation is solved by a structural separation of responsibilities, although in this case we referred to "exploration" as sensing and to "exploitation" as seizing.

An important implication was that, in all three cases, the decision-making process was not carried out by the environmental experts. The organizations opted to decentralize their activities and divide them among different units: sensing activities (which required a high level of environmental expertise) and seizing and transforming activities (which required a more technical and managerial approach).

Similarly, knowledge assimilation and integration was achieved mainly through specific projects given to permanent (in Beta) or temporary (in Alpha and Gamma) cross-functional teams. Cross-functional projects are efficient forms of knowledge assimilation and integration and an effective means of change management (Huang & Newell, 2003), especially relating to environmental sustainability.

Finally, we observed that alliances were fundamental for facing the environmental sustainability challenge. All the three cases relied heavily on the support of suppliers, consultants, industrial organizations, and even NGOs. *Relational capabilities* (Collins & Hitt, 2006; Dyer & Singh, 1998) were therefore greatly necessary for developing the absorptive capacity (Cohen & Levinthal, 1990) of the three companies because they allowed them to integrate new knowledge concerning environmental sustainability in an easier and faster way (the *collaborative paradigm*, Gold et al., 2010). Companies anticipating a green reconfiguration should, therefore, develop strategic alliances with external partners to share and transfer their idiosyncratic and tacit knowledge and to develop new green capabilities. This contrasts with other perspectives suggesting that sustainability is achievable by extending the awareness from focal companies to their supply networks (i.e., Lintukangas, Hallikas, & Kähkönen, 2015) and shows that, in fashion companies, the sustainable journey should be pursued both by involving the supply network and by integrating specific and niche best practices, developed by suppliers, in a continuous attempt to innovate and make themselves more attractive to major fashion players. In the analyzed firms, the responsibility for building and managing good relationships with external partners was left to the Sustainability Departments, so these departments acted as a *dedicated alliance function* (Kale & Singh, 2007) for developing environmental sustainability alliances.

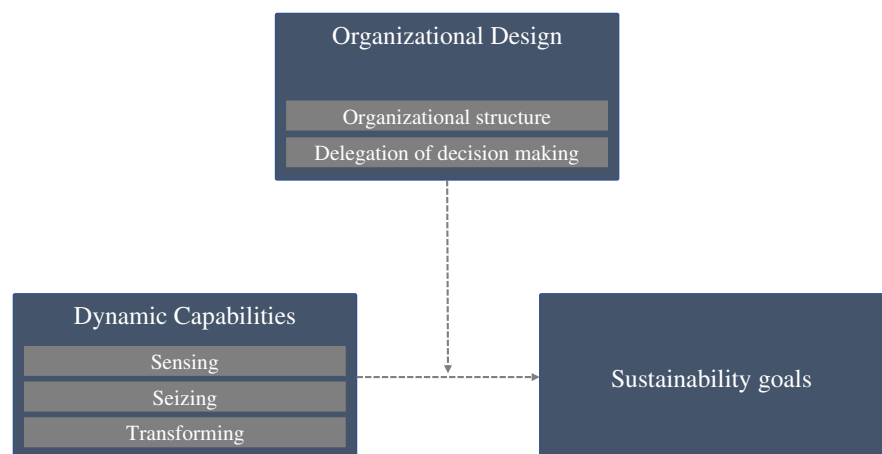


FIGURE 1 The proposed framework
[Color figure can be viewed at
wileyonlinelibrary.com]



Figure 1 describes the overall findings, providing a framework relating the main constructs (DCs and OD) to sustainability goals.

Our findings showed that OD plays a fundamental role in the transformation of firms. Allocating to the Sustainability Department the role of gatekeeper, and to the other business units the responsibility for implementation, enables companies to access and integrate new green knowledge and allows the reconfiguration of internal assets to yield sustainable outcomes. This is not sufficient, however, because alliances with external supply chain partners (i.e., suppliers or retailers) and other organizations appear to be critical for sensing market information and encouraging a high level of internal commitment whereby all employees become sensitive to the issue and actively responsible for the decision-making process (such as in the case of Gamma).

Our paper contributes to the sustainability development literature by integrating the DC perspective. Notwithstanding the high relevance of the strategic perspective for sustainable development, the literature on DCs, as applied to environmental management, is still limited, and a thorough understanding is lacking (Beske, 2012). In particular, the literature has not yet developed change-oriented frameworks that focus on the firms' useful internal resources and capabilities for green change (Gold et al., 2010; Russo, 2009); thus, we need to better understand which organizational processes underlie the evolution of companies toward environmental sustainability (Iles & Martin, 2013). We believe that this lack of discussion has two primary causes: First, the inherent complexity of the DC perspective makes it difficult for scholars to understand and map all the DCs that are deployed by companies in their green evolution. In general, papers on the DC perspective have focused solely on specific DCs, and because "these capabilities have been poorly specified ... researchers may not know what to look for" (Ambrosini & Bowman, 2009, p. 37). Second, research on both environmental sustainability and DCs is still hotly debated, and a solid conceptualization of the two perspectives has yet to be developed. This consideration leads us to presume that the lack of complementarity between these two perspectives is a consequence of the considerable complexity that scholars have to face in merging these two underdeveloped perspectives. Our paper bridges this gap. According to Petticrew and Roberts (2008) and Tranfield, Denyer, and Smart (2003), we have proposed a framework that relates DCs to environmental sustainability.

This paper provides practitioners with guidelines to structure their sustainability journeys in terms of those DCs required to sense and seize external opportunities and threats and those to transform their internal assets; however, there are some limitations. We chose the fashion industry because it provided exemplary cases for studying environmental sustainability. First, fashion is global, and supply networks in this industry are normally worldwide. Second, this industry is highly polluting and subject to pressure for environmental sustainability. Indeed, production processes (such as dyeing, tanning, or finishing) require heavy usage of chemical substances, leading to high environmental impact (Caniato, Caridi, Crippa, & Moretto, 2012). In addition, the global transportation system (final products and raw materials move into and out of many different countries) results in extensive

damage to the environment; for example, in terms of CO₂ emissions (Fletcher, 2013).

For these reasons, fashion was an ideal context in which to study how firms address (and cope with) sustainability issues. The strategies and organizational responses adopted by the firms operating in this industry might be generalizable to other industries; however, the results of our study might pose generalizability problems regarding the size of the firms. Indeed, all our three cases were large firms that had well-developed structures and Environmental Departments. Many smaller firms do not have the same resources and structures and may need to adopt a more modest approach. It follows that a complete generalization of the results cannot be assured, but DCs themselves are difficult to replicate because they consist of several underpinning features that are enterprise-specific.

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How to cite this article: Da Giau A, Foss NJ, Furlan A, Vinelli A. Sustainable development and dynamic capabilities in the fashion industry: A multi-case study. *Corp Soc Responsib Environ Manag*. 2019;1–12. <https://doi.org/10.1002/csr.1891>

APPENDIX: INTERVIEW PROTOCOL

General aspects

- Company history (when was the company founded, main events to date, etc.)
- Revenue
- Number of employees
- Types of products produced and distributed
- Distribution channels

Respondent profile

- Role in the company
- Experience in the company
- Experience or awareness of the environmental sustainability challenge
- Experience of internal projects relating to environmental initiatives

Driving factors

- What are the main internal drivers encouraging your organization to undertake the sustainability journey (i.e., willingness from the leadership team, etc.)?
- What are the main external drivers encouraging your organization to undertake the sustainability journey (i.e., pressure from NGOs, etc.)?
 - Which regulations have influenced your company and encouraged it to address sustainability issues (i.e., ISO14000, REACH, etc.)?
 - What other external drivers have led your company to commit to environmental sustainability?

Governance

- What are the sustainability priorities acknowledged by the company (i.e., water consumption, energy saving, waste management, etc.)?
- What are the environmentally-related management systems in your company (i.e., ISO14000, EMAS, etc.)?
- What internal resources has your company dedicated to sustainability tasks or projects?

Dynamic Capabilities

- Describe the company's reaction to the implementation of sustainability strategies, including organizational structures that have been created ad hoc, the roles defined within the company, and the procedures and routines that have been introduced.
- Describe the changes over time that have led the company to become more sustainable.

Sensing

- Can you describe the processes for monitoring market trends and customer requests?
- Can you describe the processes for monitoring legislative trends?
- Can you describe the processes for monitoring economic trends?
- Can you describe the processes for monitoring social trends?
- Can you describe the processes for absorbing new knowledge regarding sustainability issues (partnerships with universities, research centers, laboratories, etc.)?
- Can you describe the processes for discovering information about other brands, within the group and/or from suppliers and/or customers?



- Can you describe the processes for giving instructions to the R&D unit and selecting new technologies?
- Can you describe the processes for intercepting competitors and trends in their sectors?

Seizing

- Can you describe the processes for integrating new knowledge about green issues into the company (in products and processes)?
- Can you describe the decision-making processes for allocating investment in more sustainable actions/technologies/new processes?

Reconfiguring

- Can you describe the processes for reconfiguring internal company processes based on the new sustainability programs to be introduced (i.e., cross functional teams, shared meetings, internal newsletters, new organization charts, management involvement, use of consultants and external resources, etc.)?

- Can you describe the processes for promoting the internal commitment of the organization to green issues (incentive schemes, etc.)?

Organizational Design

Can you describe

- The degree of decentralization?
 - The degree of participation in decisions regarding aspects of environmental sustainability?
 - The degree of autonomy in undertaking environmental sustainability actions?
- Formalization
 - The presence of written rules and procedures for how to manage sustainability issues?
 - The presence of monitoring systems for the introduction of sustainability solutions?
- Integration
 - Between interdepartmental functions?
 - Through cross-functional teams?