Green Business Model: The Digitization of Sustainability

Chapter 6

Green business model. The digitization of sustainability

by

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Abstract

The academic-scientific debate has been heavily focused in recent years on the issue of sustainability as a new economic model that captured the attention of scholars and economic operators (managers, institutions, investors, etc.).

Sustainability encompasses themes that are increasingly transversal to business management, just think of skills, knowledge, management of change and complexity, networking, the possibility that the value generated is shared between new business configurations, business models, supply chain.

The research work presents the first results of an ongoing study on green management with particular reference to the most relevant strategic decisions by manufacturing companies and the concomitant re-design by management both of the new governance systems and of the evaluation metrics.

The focus of the paper is mainly to highlight how new digital technologies, especially those implemented in operations, represent the ideal prerequisite for allowing manufacturing companies to formulate the most appropriate strategies to successfully improve competitive positioning in the current competitive contexts. Such contexts are now permeated by disruptive technological innovations generating new business models within companies, in special in the technological-production activities, and favoring the re-design of firm's business performance evaluation models and new buyer-supplier relationships.

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An interpretative, qualitative approach, utilizing selected multi-case study, is chosen because it helps to navigate and understand the complex issues that are associated with the data quality concept, and its relation to the factors involving managerial practices to implement new business model and to build facilities in modern relationships within supply chain.
Key words: sustainability, green management, buyer-supplier relationships

1. Introduction

Since sustainability is a new economic model the attention of scholars and economic operator must necessarily pay particular attention to business production systems and to new ways of managing these business systems and new relationships within supply chains.

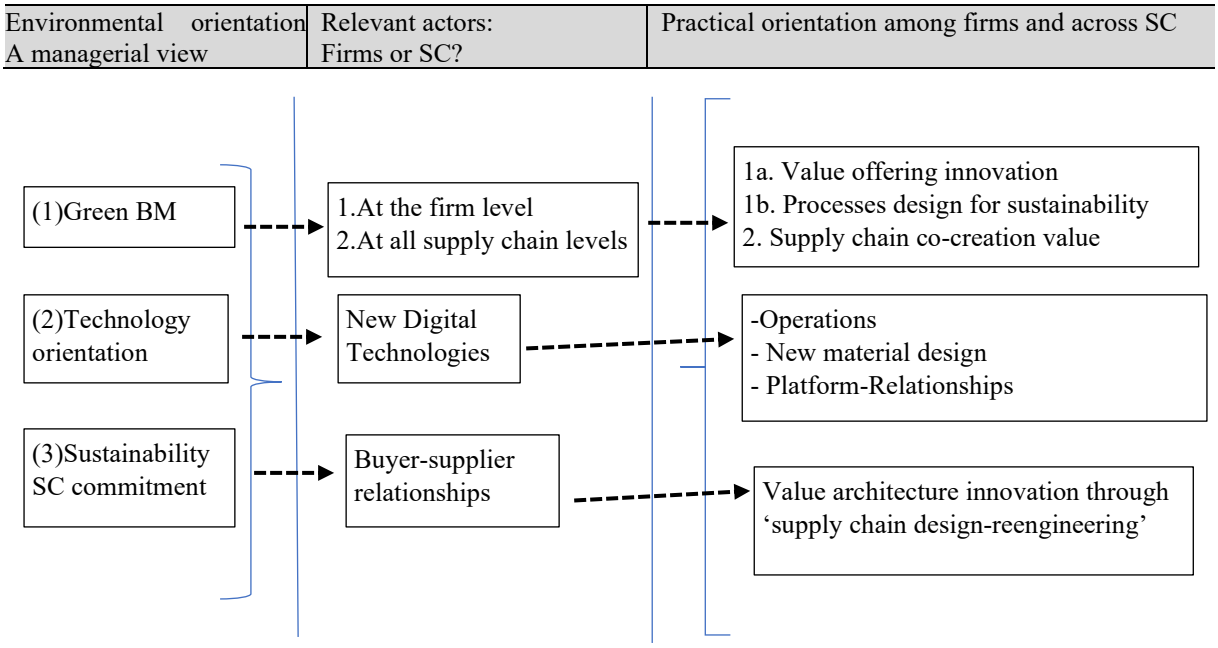
The research work presents the first results of an ongoing study on green management with particular reference to the most relevant strategic decisions on a wide range of evolutionary phenomena in the way of doing a new way of doing business that induces management at the concomitant design of (1) new green business model (see point 1 in figure 1), of (2) new digital technological implementation (see point 2 in figure 1), and of (3) the reconfiguration of sustainable supply chains (SC). These supply chains they appear new governance systems and, in the concrete, they become new managerial structures that demand the design and the application of more adequate dashboards to evaluate the competitive performance of the company.

The focus of the paper is mainly to highlight how new digital technologies, especially those implemented in operations, in new material design and in new digital governance platforms at the supply chain level, represent the ideal prerequisite for allowing manufacturing companies to formulate the most appropriate sustainable strategies to successfully attack current competitive contexts.

In strategic management studies, traditionally focused on the decisions' formulation, increasing importance is recognized to the analysis of how changes are generated and the evaluation of the effects they generate (Hock et al., 2015). The widest vision of business strategy studies

increasingly incorporates the innovative processes that sustain the sustainability aspects into their productive processes, products, services. While extant research on the linkage between sustainability has gained attention, should be noted that in the past years, prior research has predominantly focused on firm's sustainable phenomena, analysing their impact on firm's sustainable performances (e.g. financially and environmentally) and on sustainable innovative products (considered as final output), neglecting the supply chain innovative mechanisms that leverage sustainability. While findings from previous studies suggest that sustainability may drive business model innovation, it still lacks empirical evidence on whether and how innovative processes for the sustainability may influence the evolvement of business model (BM) in firms belonging to the given supply chain and also may improve buyer-supplier relationships in a new sense (Figure 1).

Figure 1. Evolutionary phenomena in the way of doing business in sustainable era



Source: Our elaboration

The contribution examines the critical yet underexplores role of innovative processes diffusion in sustaining digital innovation in business model strategies of the firms belonging at the supply chain systems more and more deveining evolutive in sustainable sense. The study of the evolutionary view of disruptive innovation diffusion in the supply chain is empirically assisted by the investigation of the roles played by case studies - distinct yet interconnected parties (agri-suppliers,

food manufacturing systems, manufacturing firms, platforms or hub academies) - within innovation supply chain systems as well as the research opportunities it brings. Height are those studied (see text table 2).

We want to contribute to the improvement of the innovative sustainability research by analyzing supply chain strategic orientation and its direct influence on competitive outcomes of the innovative processes of the supply chain actors. Moreover, we extend our previous research on the linkage between innovation and sustainability, which mainly relied on qualitative case studies.

Numerous managerial studies have made use of the theoretical framework focused on resources - resource based view (RBT) approach- to analyze how various forms of integration between actors-firms in the supply chain impact on their performance (Flynn et al., 2010; Cao-Zhang, 2011; Schoenherr-Swink, 2012). The resource-based approach also makes it possible to estimate the value of the "relational resources" that are developed in the "buyer-supplier" relationships.

2. Company innovative strategies for sustainable competition

a) Digital technologies

Disruptive[2] technological innovations generate the adaptation del dashboard to evaluate new business model redesign activities within companies, regarding in particular their technological-production activities, and require the re-design of business performance evaluation models. In addition, digital technologies permeate the supply chain relationships, since they are used for design multi-sided platforms within given supply chain, within which they represent new governance model. Studies focused on R&D that impacts on the improvement of business competitive performance (including business productivity) must necessarily be based on theoretical study frameworks that

[2] The 5 faces of 'disruption' have been presented by Clayton Magleby Christensen. In fact, development of an overwhelming wave that is at the same time efficient, proactive, inclusive, constructive and in favor of society. Disruptive innovations are not breakthrough innovations or 'ambitious start-ups' that drastically change the way business is done, but rather consist of simple, accessible and affordable products and services. These products and services appear modest at first, but over time have the potential to transform an industry.

consider complementary intangible investments such as business process redesign, the co-invention of new products and business models, and investments in human capital. Although the effects of complementary investments and their spillovers are often mentioned in the literature, there is a lack of in-depth research (Nonnis et al., 2023).

It is something further than the classic absorptive capacities (AC) (Cohen and Levinthal, 1990; Riikkinen et al., 2017) has the potential to explain performance and competitive advantage. Research on AC is cross-disciplinary and involves theories on dynamic capability, network structures, knowledge management (Apriliyanti and Alon, 2017). Seminal scientific research converges in defining AC as a multidimensional theoretical construct, based on ability developed in learning processes or in knowledge processes. The analysis of the relationships between AC and its knowledge dimensions is important (Knoppen et al., 2022).

Some scientific studies suggest that a firms' commitment to sustainability drives innovations and thus may give firms an opportunity to gain a competitive advantage by changing the current business model innovation and furthermore that sustainability seems to be directly linked to such type of innovation (Spieth and Schneider, 2016; Foss and Saebi, 2017; Sovacool et al., 2020).

Some authors studied the effect of emerging digital technologies on the operations management through co-creation and found positive impact on efficiency, safety and ecological sustainability. These technologies will create new potential for firms changing strategic management, which may lead to improved sustainable competitiveness.

Technology orientation refers to a constant monitoring of technological developments and a constant search for new technologies beyond current products. Kennedy e al. (2017) found that the choice to increase sustainability intensifies technological knowledge in order to develop solutions to sustainability issues and gain possible competitive advantages. Likewise, new technologies could create opportunities to conform with governmental regulations regarding material usage, energy usage, and production emissions, which might be required to avoid fines. New technologies can also change the production processes and the procurement practices. Digital technologies might enable

new disruption channels and may develop the potential to design new supply chain structure (value creation architecture) (Teece, 2010).

b) Sustainability

While it is commonly believed that sustainability and sustainable development are interchangeable terms, they are in themselves different. Their natural difference lies in the fact that sustainable development is the journey, the path, the process to achieve sustainability. More recently, economic operators and business managers have become aware that environmental sustainability is an indispensable value, not only to be safeguarded, but even to be increased. Sustainability is the company's capital, that is a potential competitive advantage (King et al., 2006; Krause et al., 2009). Sustainability is made up of a plurality of elements unthinkable until a few years ago: in addition to the patrimonial and financial capital, partly tangible (machinery, land, buildings) and intangible (know-how, reputation, value of the brand, etc.), is made up of natural capital (raw material extraction methods, water purification, renewable energies, ecosystem services, etc.), human capital (resources, motivation, training) and the value of capital of a given society (education system, culture, infrastructure, etc.). Furthermore, there is awareness that sustainable companies can evaluate and monitor their environmental performance targets, thus expanding the more usual company performance evaluation metrics. Sustainable development is currently a key element in the processes of formulation of the competitive strategies of many companies we will take care of the manufacturing, energy and agri-food sectors) (Dyllick and Muff, 2016). The sustainable development of the company's business presupposes that additional objective with respect to the traditional ones (economic-financial objectives) are considered both in the formulation of growth strategies and in the planning of modern internal and interfirm governance procedures. The study of corporate business sustainability reveals the importance of the parameters aimed at assessing the eco-efficiency of corporate activities (from the business case to the natural case) (Dyllick and Muff, 2016).

c) Business Model

The business model is the operational aspect of the company strategy. More analytically, it is the company's way of working which, having to be redefined in dynamic competitive situations, is the result of continuous reconfigurations of the operating processes and parts of the company's production structure referable to them (re-engineering).

The business model must necessarily be restructured by companies that intend to anticipate the signs of change coming from outside (sector's structure, market needs, development of technologies, etc.) or that even want to act proactively on the external context. The business model modification is concretely and profitably possible in the production structures which adapt with agility (operational agility) to the new competitive ways.

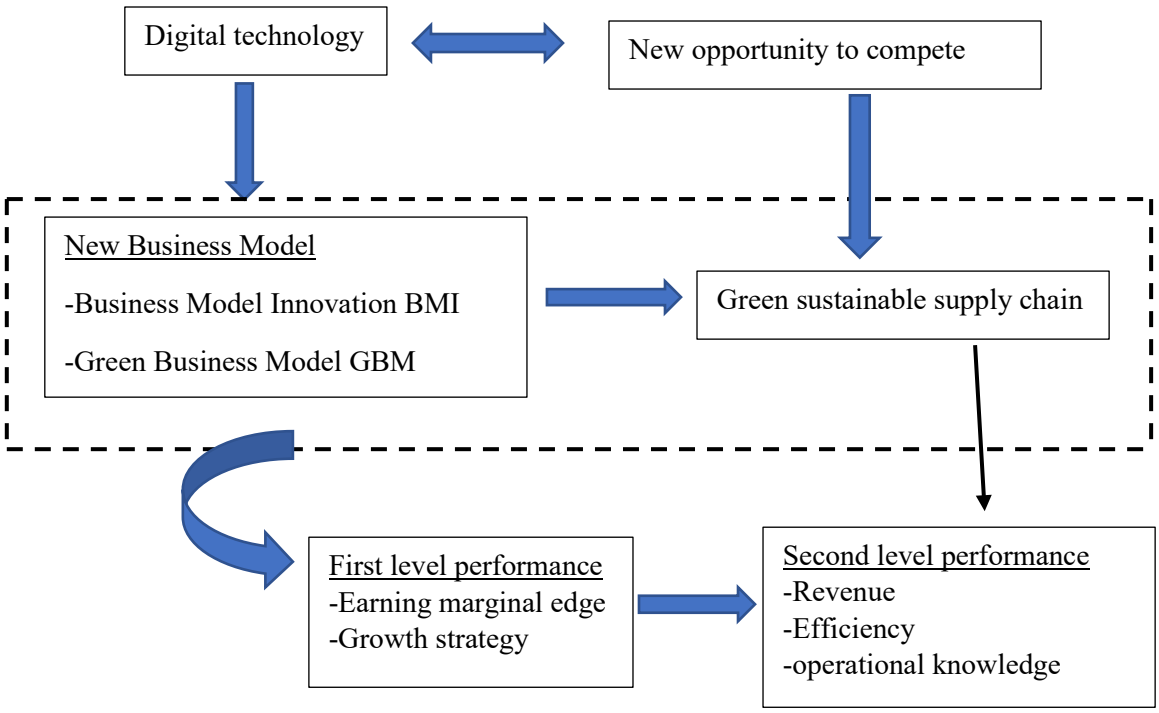
The business model modification and the resulting creation of value are sources of a competitive advantage which is also modified, since it is different, sometimes significantly, from the past.

A conceptual model is developed to examine whether the goals of firms implementing new business models (BM), which are essentially the marginal edge and the growth-oriented strategy (Latifi et al., 2021), affect a firm's overall performance. In fact, earning edge and growth strategy (tin figure 2 they appear as 'first level performance') are two essential performances, which however generate significant effects on company under-performance or second-level performances (such as revenue growth, efficiency growth, operational capabilities). According to some scholars a plausible approach may be to analyze mediating and moderating factors that allow firms to translate BM into higher performance (Guo et al. 2017). According to these scholars, the mediating factors are precisely the three elements, revenue growth, efficiency growth, operational capabilities, which in this work are the detailed or second-level performances, in practice those which more analytically allow us to interpret the quality of the impact of the new digital business models on the green sustainability and on the competitiveness of the company (Figure 2).

The business model is defined as new when it is the result of the planning, by managers and entrepreneurs, and investors, of a system of activities that is radically new in terms of strategic

objectives, operational structure and forms of governance (architectural novelty of the business) or of a supply chain system, in which activities with elements of novelty (goals, structure, governance) integrate with unmodified activities (complementary novelty of the business) (Teece, 2010; Zott-Amit, 2010; Spieth et al., 2016).

Figure 2. A conceptual model



Source: Our elaboration

The production of scientific contributions on the subject of the business model is extremely active and lively. For further insights, please refer to the reflections that some authors have launched on the topics listed below: Brucherer (2012) recognizes two important "macro-dimensions" among the causes of modification of business models, the market and the industry; Teece (2010) argues that the criticality of the operational meaning of the business model lies in the connection that it makes possible between the "micro-foundations" or "micro-elements" constituting the business strategy and the competitive performance it actually achieves; Schneider and Spieth (2013) are among the most convinced supporters of the business model as an operational process in continuous evolution;

d) Digital innovation in green sustainable supply chains

The companies that attribute strategic importance to environmental issues are those that recognize a new opportunity to compete. They are inclined to make huge investments aimed at the adoption of non-polluting technological solutions in production systems, as well as to start internal training activities to increase the skills of human resources in environmental matters and also to design specific and well-detailed internal organizational procedures. See the impact of the green sustainable SC in more detailed performance (or 'second level performance') in figure 2. This is the case of companies that use production technologies fuelled by renewable energy sources and reduce CO2 emissions, or that use materials for whose production the production contexts of the countries of origin are not compromised. Among the companies that adopt this strategy, we can mention those that use the residues or scraps of the manufacturing cycles in further industrial transformation processes. The development of digital technologies creates competitive opportunities for firms in repositioning in international supply chains. While research on the linkage between sustainability and innovation mainly focused on how firms develop sustainable innovations, a deeper understanding of sustainability's effects on supply chain strategies and inter-firm planning processes requires more insights (Adams et al., 2016; Klein et al., 2021).

3. Methodology

This is qualitative research. First, we continuously visited and revisited the international managerial literature and systematize and re-systematize the conceptual categories which are the focus of this study, and which could contribute to increasing the knowledge base of management scholars. The analysis of the international managerial literature has favoured the inclusion of articles and research contributions based on the following criteria: articles should include hypotheses concerning the relation between digital BMI by introducing a new system of creating, delivering and capturing value; references is made to new supply chain relationships. We continuously collected and re-analyzed information (quantitative data, such as revenue, investment efforts in innovative procedures and processes, internal and external resources involved (organisational, managerial and

above all research skills applied to production departments) and analysis of the procedures put in place to innovate, such as evolved internal and external relationships to the company; those external to the company, but within the supply chain to which it belongs; those external to the company and the supply chain.

The survey was administered after in SMEs' sample after forward and back translation procedures. Before administering the survey, we subjected the design of the questionnaire to two rounds of pre-testing with: (a) first level area managers and representatives of trade associations; and (b) technicians from various managerial areas and actors in the field of start-ups. So even if the number of companies is limited, the questionnaire was administered in two different steps to many people (see text table n. 1).

Text table 1. Exemplary field investigation protocol

More precisely, the elements of the digital supply chain projects that have been investigated have been those deemed capable of influencing the relational structure established between the partners. In this study the following are considered:

- procurement policies (single, dual, and multi-sourcing),
- attitude and commitment to collaborative improvement projects with supply chain partners (specially at the ‘supplier-side’ level)
- the position of the company within the SC,
- the extension of the interdependencies between the companies within the SC (relative importance of a customer for the supplier's business and criticality of the supplies),
- the duration of the relationship and the types of past experiences,
- technological or procedural links between companies,
- the existence of legal constraints, such as patents, contracts, etc.,
- the bargaining power and influence of the parties,
- the length and complexity of the Supply Chain.

The value of qualitative research is also that of proceeding in a positive-interpretative way: in fact, the presentation of the case study allows us to interpret its relation to theoretical. Since our purpose has been to systematize ad conceptualize an empirical phenomenon and thereby contribute to the enrichment of the managerial theory (Eisenhardt, 2021), rather than verifying or falsifying already established constructs, we are not claiming that our findings are universal nor that they reveal statistically significant relationships.

An interpretative, qualitative approach, utilizing selected multi-case study interviews, is chosen because it helps to navigate and understand the complex issues that are associated with the data quality concept, and its relation to the factors involving managerial practices to implement new business model and to build facilities in modern relationships within supply chain.

The constructs were developed after a comprehensive review of previous literature. Industry 4.0 leads to the age of digitization. Everything is digital and intelligent: business models, environments, production systems, machines, operators, products and services. New disruptive technologies provide supply chains with broad prospects for gaining competitive advantage and a good foundation for future sustainable supply chain practices, paving the way for adopting new business models and improving the manufacturing process. We approach this task through a literature review and multiple examples of supply chains (see text table 2). These are supply chains located in Italy and sectoral interdependencies in technology value chains are analysed.

Text table 2. Multiple examples of analyzed supply chains

Firms	Some business information	Sustainable strategies
1.	-Born, 2015. -Localization, Tanzania. -Supply chain platform that is internationalized,	*Milk supply chain* Leading Italian company in the production of milk, promoter of the motto “there is no quality without social responsibility”, is engaged by many in the planning and

	generating the technological leap	support of social and cultural initiatives both in Italy and in poor countries. Among the most significant examples, we can mention the Africa Milk Project which allowed the construction of a dairy in Tanzania. The dairy, from a funded project, has become a company that allows small producers in rural communities to autonomously take charge of project activities. By replicating the cooperative model on which the Italian company is based, an economic project has been successfully launched, sustainable over time, in one of the poorest areas of Tanzania
2.	-Born, 1978. -Location: Florence (Italy). -Supply chain re-engineering (in 'supplier-side' perspective)	*Organic food* Favouring the supply chain of Italian (or even regional) raw materials is the strategy pursued by the company specialized in the production of organic food. Objectives: the choice makes it possible to reduce costs (almost in procurement and in production areas), to increase the resilience of the supply chain, to involve the players in the supply chain in innovative-digitalised processes. Product strategy: sustainable and organic food (suppliers that do not use herbicides, pesticides, chemical fertilizers, GMOs) exclusively plant-based (ie vegetable). Organic, healthy products characterized by a high nutritional profile, but also by unique recipes in terms of flavor and

		formulation. Target products: (1) Rich in and (2) free from foods.
3.	-Born, 2022. -Location, Parma (Italy) -New supply chain design in a 'district area'	*Biotech Hub.* Modification of the business model of the leading pharmaceutical company that designs the new Italian supply chain of biotechnological drugs. Objectives: progress in science, technology, innovative drugs, technological hub in a 'district area'. Increase Italian biopharmaceutical exports.
4.	-Location: Marghera and Gela (Italy). -Supply chain internationalization. -Supply chain platform redesign.	Green sustainability - Precision agriculture sector. Production of eco fuels: no more palm oil, but (1) frying oils (used), animal fats discarded from slaughterhouses and other biomass; (2) from Kenya, non-edible cotton, castor and croton oils From Kenya arrives in Gela, November 2022, the first load of vegetable oil produced in the Makueni experimental farm, where castor, croton and cotton seeds are pressed, vegetable raw materials that are not in competition with the food chain, grown in degraded areas, harvested from spontaneous trees or resulting from agricultural by-products. The Marghera biorefinery is the first in the world where hydrogenated biofuels are produced to replace diesel, naphtha, LPG and kerosene for aircraft. Gela plant:

		production capacity -at full capacity-, 20,000 tons/year; in 2023 it will reach 5,000 tons.
companies no. 5-6-7-8	-Born, 2022. -Location: Parma, Perugia, Puglia. -Supply chain collaboration among 200 Italian producers (suppliers-agronomists) and 7,000 hectares of crops will be digitized. -Digitized supply chain platform (technological leap).	4 companies in the agrifood chain (with well-known and established brands in the world) have joined an open platform-project (i.e. accessible in 'as a service' mode via management software in the cloud) and capable of accompanying 'supplier-side' companies to gradually digitize , simplifying the collection and processing of data. The platform-project started in 2022, initially involving 103 operators in the supply chain and provides for the integration of data collected by IoT sensors, climate indicators and forecasting models to have full control of agronomic management and a more precise understanding of the environmental footprint of the supply chain itself.

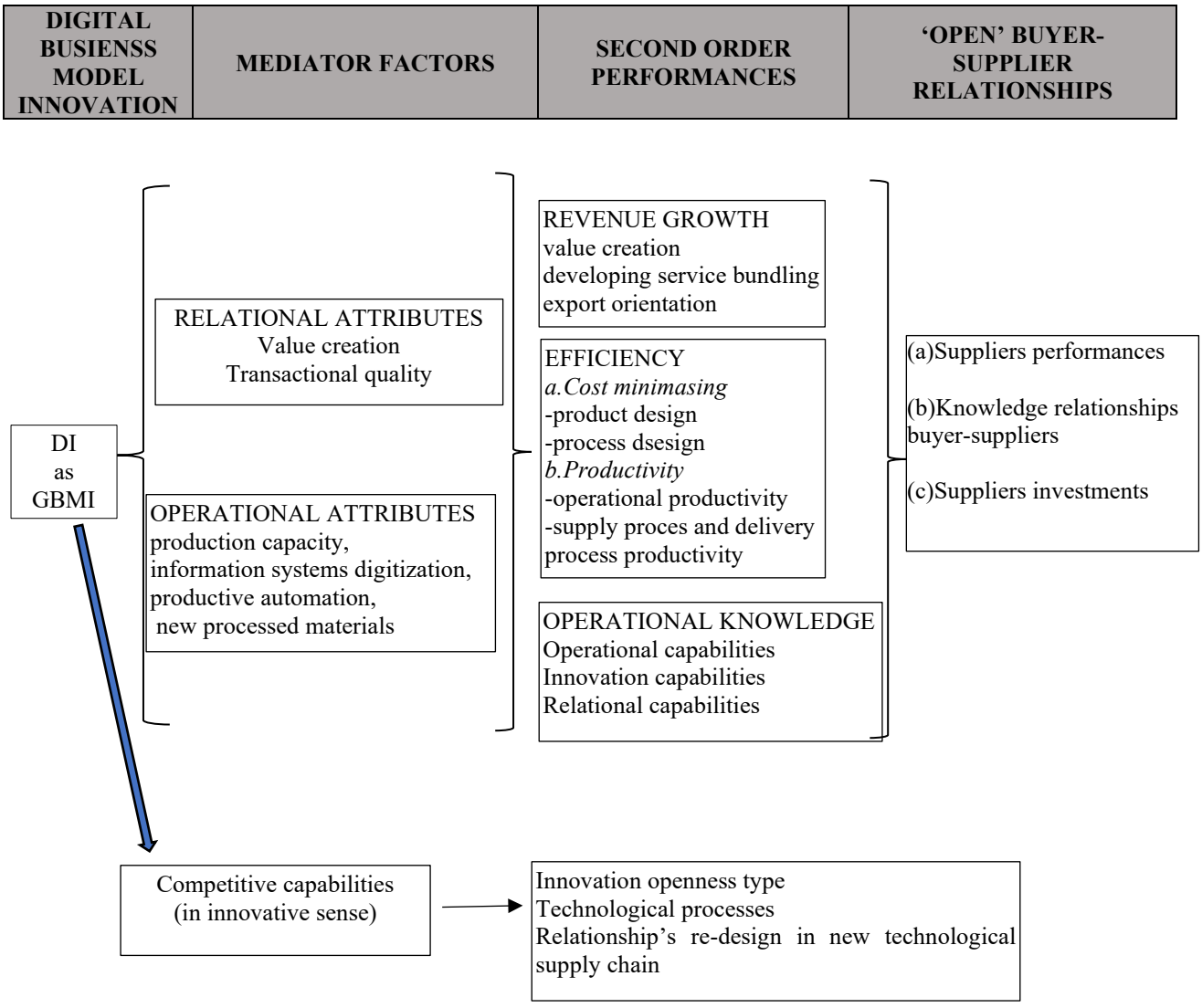
4. Digital business model in digital supply chain reconfiguration

A new conceptual model is shown in figure 3. Although some previous steps of the research still in progress have been analyzed, in the present work we want to show some preliminary systematizations even if scientific reflection activities are still ongoing and discussions with national and international scientific representatives are scheduled in the next international conferences.

Transitions towards sustainability are highly dependent on the development and diffusion of emerging technologies causing changes both in the demand for materials such as minerals and metals and in firm's productive processes (productive processes redesign, production servitization, etc.). Industry 4.0 leads to the age of digitization. Everything is digital and intelligent: business models, environmental relationships, production systems, industrial machinery, products and services, supply chain relationships. It has been stated that the change of the business model is concretely and

profitably possible in the productive structures that with agility (operational agility) are adapted to the new modalities to compete. Among the most convinced supporters of the business model as an operating process in continuous becoming, we remember Teece (2010), Schneider and Spieth (2013). New disruptive technologies provide supply chains with broad prospects for gaining competitive advantage and a good foundation for future sustainable supply chain practices, paving the way for adopting new business models and improving the manufacturing process. Another element enhancing the relations of new business models in the supply chain is the amplification of the added value generated.

Figure 3. A new construct model



DI: digital innovation

GBMI: green business model innovation

Source: Our elaboration based on empirical investigation

Many studies have followed on the importance of relationships in SCs (Parmigiani and Riviera-Santos, 2011; Cao and Lumineau, 2015; Gölgeci et al., 2018). Having the availability of strategic resources is of fundamental importance because this allows for forging relationships with key suppliers who consequently allow the procurement of the right materials and will apply appropriate contractual conditions. All this requires careful management of suppliers, for example through an analysis of their performance (see point a in figure 3). In order to improve the synergies between their own and suppliers' knowledge, industrial client firms should be able to identify and use external innovative knowledge (radically innovative) in combination with their characteristic business activities (see point b in figure 3). Some research has focused, already in the past, on highlighting how procurement strategies have been transformed from rewards to supplier's contingent on performance to high-risk initiatives involving suppliers specific investments (see point c in figure 3). Now, in the era of open innovation, one wonders if relations with suppliers that positively influence the competitive performance of manufacturing companies can be seen as closed industrial client-supplier relationships. In practice, the emergence of such relationships requires the formation of new relational assets which are the basis of the ability of companies to reposition themselves in the new structures of the offer or supply chain: they are perhaps even more important than those relational assets, traditionally dedicated to maintaining consolidated relationships, as well as identifying and planning new ones. Scholars are only now beginning to examine knowledge resources and the mechanisms underlying the competitive advantage driven by innovation that reconfigures the design processes of fashion collections. As knowledge resources are arguably of critical importance to innovation (Höber and Schaarschmidt, 2017), they are increasingly being made

available by supply chain operators (manufacturers, suppliers, retailers, startuppers, etc.) in the restructuring processes of innovative production chain phenomena (Salunke et a., 2019).

Although the RBV places emphasis almost exclusively on the benefits deriving from collaborations based on the development of resources that are specific (unique or dedicated) to each relationship, and therefore difficult to imitate, interactions between diversified supply chains emerge with ever greater force in global competition. Indeed the analysis of the supply chain in the relational perspective considers the interdependence that is created between companies and the willingness that they have to initiate and control forms of interaction that increase the degree of integration of the supply chain. The concept of integration between different business units (companies), aimed at constituting a single 'business system', essentially refers to the quality of the collaboration between companies in the activation of innovative and complex technological processes, which, through the production and products and services at the 'downstream' stages, generate value. We found that innovative strategic orientation choices, such as digital technology orientation and green sustainability supply chain design, affect more important competitive supply chain outcomes, and improve buyer-supplier relationships.

The relationships of the new business models within the supply chain are relatively stable, non-hierarchical in nature and based on interdependence, in the sense that what occurs in a relationship has an impact on the contents and processes of other companies belonging to the same supply chain. This relational dimension is based on a process of mutual convergence which, in order to be able to develop, requires the willingness of the parties to interact and establish mutual knowledge.

5. Some final reflections

The research work presents the first results of an ongoing study on green management with reference to the most relevant strategic decisions by companies, belonging in manufacturing, agrifood

and energy sectors, and the concomitant design by management of new relational governance systems and new structures or dashboards to evaluate the competitive performance of the company.

The academic-scientific debate has been heavily focused in recent years on the issue of sustainability that has captured the attention of the financial and social disciplines. However, since this is a new economic model, the attention of scholars and economic operators (managers, institutions, etc.) must necessarily pay particular attention to business production systems and to new ways of managing these business systems within supply chains.

Following the research results obtained, it emerged that buyers and suppliers, developing relational skills, favour the profitable circulation of information, which is the basis of cooperation based on mutual trust. Such a strong degree of integration determines the reduction of conflicts and the formation of relational revenues. The integration of supply chain operators or supply chain integration (SCI) is made possible by the ability of companies to cooperate with "critical suppliers and customers" and more and more cooperation involves business managers (intra-organizational collaboration), managers of different companies, but belonging to a group or to a multinational (co-operation between home-mother and subsidiary), and managers of completely autonomous companies (inter-organizational cooperation).

The paper presents modern and unusual innovative processes shedding new light on success factors in modern competitive contexts increasingly anchored to integrated and relational relationships (relationships) in sustainable supply chains.

At the conclusion of the study, the first cognitive results of which have been presented here, we would like to bring to the attention of the reader some observations. Firstly, the company's "proactivity" towards environmental and social issues positively orients the opinion of the stakeholders. Secondly, the empirical findings make it possible to agree with those managerial studies which have highlighted how responsible management of the "supply chain" increases the company's reputation, which is one of the critical success factors to be leveraged in international competitive processes and in international business markets (Tate et al., 2010). It is understandable how, even in

business marketing, companies strive to demonstrate that the activities generate positive externalities both on the social and on the environmental context. Because transactions have evolved today: on the 'supply side' contractual relationships take place within a wide range of potential innovative relationships involving start-ups, innovation communities, young and competitive companies in new sectors, etc. it seems clear that transactional relationships are not to be considered as traditional ways of regulating supply chain relationships in supply chains characterized by consolidated or even mature technologies. Moreover, if a company competes mainly on product-service innovation, the type of relationship could depend on where the innovation is expected to emerge: many types of innovations (and therefore the technological assets) emerge outside the usual and close collaborations between suppliers and buyers.

The relationships between the operations in the supply chain are at the basis of the evolution of the value created by the supply chain. Upstream integration concerns partnerships or simply contractual relationships between purchasing companies and supplier companies. The need to involve suppliers in innovation processes, in the design processes of new business models, as well as to acquire relevant information on the evolution of technologies and on the behavior of competitors, increases the need for coordination between companies in the supply chain, concretely achievable with the conclusion of long-term agreements, the establishment of more intense communication processes, the ability to manage joint decision-making processes and the development of relationships of trust.

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