

MANAGEMENT DECISION

Revisiting business strategy under discontinuity

Document Information:

- Title:** Revisiting business strategy under discontinuity
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- Citation:** Antonio Ghezzi, (2013) "Revisiting business strategy under discontinuity", *Management Decision*, Vol. 51 Iss: 7, pp.1326 - 1358
- Keywords:** [Business model](#), [Business strategy](#), [Case study](#), [Discontinuity](#), [Management strategy](#), [Mobile communication systems](#), [Mobile technology](#), [Resource management](#), [Strategic management](#), [Value network](#)
- Article type:** Research paper
- DOI:** [10.1108/MD-05-2012-0388](https://doi.org/10.1108/MD-05-2012-0388) (Permanent URL)
- Publisher:** Emerald Group Publishing Limited
- Acknowledgements:** The author wishes to thank the Guest Editors and two anonymous reviewers for their insightful comments and suggestions, which helped improve the study's quality and contribution significantly.
- Abstract:**
- Purpose* . Business strategy and its quest for sustainable competitive advantage and success is challenged by external and internal change, which increasingly takes the form of radical discontinuity. However, emergent strategy models are rising as concepts and constructs, possibly impacting on the advancement of strategic management theory and practices: these tools are the business model (BM), the value network (VN) and resource management (RM). The purpose of this paper is to propose a revisited role for BM design, VN configuration and RM, with specific reference to strategy execution and monitoring under discontinuity.
- Design/methodology/approach* . The study builds its contribution on a theoretical framework (constituted by a literature review on discontinuity, BM, VN and RM), supplemented by two longitudinal case studies on companies which went through several discontinuities affecting their business strategy.
- Findings* . BM, VN and RM are the strategic tools through which a company executes its planned strategy. In addition, radical variations in: BM parameters performance; VN configuration and firms relationships; RM consistency with resources core status, resulting from an external or internal discontinuity, constitute a signalling vector of inputs to identify the discontinuity and activate a new strategic re-planning process.
- Originality/value* . By revisiting the role of BM, VN and RM, the study revives the theoretical debate on business strategy under discontinuity, and provides managers with a comprehensive model to concretely employ these three tools for strategy analysis.

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REVISITING BUSINESS STRATEGY UNDER DISCONTINUITY

Structured Abstract

Purpose - Business Strategy and its quest for sustainable competitive advantage and success is challenged by external and internal change, which increasingly takes the form of radical discontinuity. However, emergent strategy models are rising as concepts and constructs, possibly impacting on the advancement of Strategic Management theory and practices: these tools are the business model (BM), the value network (VN) and resource management (RM). The purpose of this study is to propose a revisited role for BM design, VN configuration and RM, with specific reference to strategy execution and monitoring under discontinuity.

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Originality/value ó By revisiting the role of BM, VN and RM, the study revives the theoretical debate on business strategy under discontinuity, and provides managers with a comprehensive model to concretely employ these three tools for strategy analysis.

Keywords: Business Strategy, Strategic Management, Business Model, Value Network, Resource Management, Discontinuity, Case Study, Mobile Telecommunications

Article Classification: Research paper

1. Introduction

«*Sic transit Gloria mundi*»

[*Thomas à Kempis, (1418), ðImitatio Christiö*]

Today, firms operating in many industries have to cope on a daily basis with a paradoxical condition: change is a constant. The quote that opens this study is borrowed from Thomas à Kempis's work *ðImitatio Christiö*, and argues that immanent fortunes are doomed to fade away. Though the quote dates back to the fifteenth century, it sounds strikingly contemporary, as it tells an undeniable truth on our world's inherently transient condition.

In business, the quote may be rephrased, suggesting that a firm's success, sooner or later, would pass.

Strategic Management, as a research field and as a practice, emerged to address the question of why firms enjoy different performance, and consequently, how these performances, when superior than competitors' (that is, deeply linked to a sustainable competitive advantage), can be maintained or even improved. A good strategy, resulting from a proper planning process, is therefore the instrument to strive for keeping high performances and preserving success.

However, as the rates of change and innovations increase rapidly (Drucker, 1969; Christensen, 1997), such strategy should be characterized by an adaptive or resilient nature (Hamel and Valinkas, 2004), to continuously create endogenous innovation or catch up exogenous changes, so as to maintain an adequate strategic fit (Grant, 1991) between the firm's strategy and the surrounding internal and external environments. In addition, sometimes change is not only incremental, it is configured as a discontinuity which radically departs from the original state and introduces unexpected, unplanned and often dramatic variations.

The adequacy of existing business strategy models to cope with discontinuity should be then subject to further research (Ebrahimi, 2000), in order to resume and potentially redesign traditional strategic planning and strategy analysis (e.g. Lorange, 1980; Ansoff, 1985). Specifically, the relationship between a discontinuous event and strategy has often focused on the activity of environmental scanning to anticipate such events (e.g., see Lawrence and Lorsch, 1967; Rudd, Greenley, Beatson and Lings, 2008), recognizing that changes in the external environment can heavily affect a firm's performance (Ansoff, 1985). Nonetheless, the concrete influence of discontinuity on business strategy (in terms of the actual changes occurring in the strategy's key elements and constructs) attracted relatively little research effort (Wu, 2010).

This study aims at closing the missing link between discontinuity and its effects on business strategy, contributing to the research that looks for modelling such effects and disclosing their influences on the strategic planning process.

In particular, it is argued that emergent business strategy models are rising as concepts and constructs with a possible impact on the advancement of Strategic Management theory and

practices with regard to discontinuity. These strategic tools are the business model (BM), the value network (VN) and resource management (RM). Currently, these models are largely considered as stand-alone items, not properly framed and merged into the process of business strategy definition and application.

The objective of this study is hence to propose a revisited role for BM, VN and RM and suggest their more formal inclusion in the universe of strategic tools and practices, with specific reference to strategy execution and strategy control/monitoring under discontinuity.

In fact, the study contributes to mend the research limitations on the relationship between discontinuity and business strategy by proposing a conceptual model (see Figure 1) which investigates how such relationship is mediated by the BM, VN and RM constructs. More specifically, the paper studies:

- (i) how a discontinuity, either external (i.e. environment-driven) or internal (i.e. enterprise-driven), impacts business model performance, value network configuration and resource management recommendations, by modifying their initial (or pre-discontinuity) status;
- (ii) how this modifications in the pre-discontinuity status of BM, VN and RM in turn influence the firm's business strategy, determining a strategy re-planning process that aims at tackling the effects of discontinuity.

<Insert Figure 1 here>

<Figure 1 ó Conceptual model>

The study builds its arguments and contribution on a theoretical framework (constituted by a literature review on discontinuity, business model design, value network configuration and resource management), supplemented by two longitudinal single case studies on two companies which went through several discontinuities affecting their business strategy.

2. Literature review

The study bases its contribution on the literature on discontinuity, business model design, value network configuration, and resource management. Table 1 summarizes the contributions of this study to each of the research streams, as well as the literature shortcomings that will be addressed.

<Insert Table 1 here>

This fourfold literature review constitutes the research theoretical framework.

2.1.A literature-derived definition for discontinuity

Discontinuity may be defined as a set of significant changes often occurring in abrupt or discontinuous bursts (Brooks, 1986), a temporary or permanent, sometimes unexpected, break in a dominant condition in society (Van Notten et al., 2005). The concept is further interpreted as a

specific phenomenon of behavioural dynamics, noticeable in sudden changes in the variables of an entity under observation and therefore, often associated with the terms of unsteadiness, instability, nonlinearity or jump (Deeg, 2007).

In Strategic Management, the nature of these changes, instabilities, or uncertainties may vary. As Drucker (1969) discusses, these changes can take place in the form of an uncertainty in technological environment, due to the rise of a new technology (or technological discontinuity) that affects the industry structure. Additionally, these discontinuities can occur in: competences and other resources necessary for designing and producing the product; changes in the product itself as physical changes; and price/performance changes (Ehrnberg, 1999).

Besides being technology-driven, uncertainties are also market environment-driven (i.e. linked to changes in the customer side in terms of preferences, needs or willingness to pay), and competitive environment-driven (i.e. related to price wars, alternative offers, etc.) (De Sarbo et al., 2004). The product lifecycle shortening and difficulties in forecasting which characterize some industries can also be a factor that contributes to environmental volatility (Wu, 2010). All these discontinuities affecting the business environment are commonly characterized by: the intensity of external influencing factors, from a simple continuum with only a few to complex continuum with many; the characteristic of change, whether it took place rapidly or slowly; and the features and amount of the information present for the decision makers (Lester and Parnell, 2007).

However, discontinuities are not only originated by exogenous business environments: they can also be triggered inside the firm, by emerging phenomena occurring within the internal environment. Such endogenous discontinuities are often linked to gaps in the work setting, tasks or relations (Watson-Manheim et al., 2002). Indeed, the discontinuity within an enterprise can manifest itself as a prominent change in processes, practices or routines (by implementing different ways to produce), or a change in products (by creating different outputs due to an innovation) (Anderson and Tushman, 1990). Interestingly, such internal phenomena may take place unintentionally, due to the risk component which resides in the planning processes of every enterprise and makes it impossible to achieve perfect forecasting, thus leaving room for the unexpected to emerge (Schreyögg and Steinmann, 1987).

As a result, after reviewing different types of discontinuities linked to diverse conditions, consistently with the purpose of this study it is argued that the nature of discontinuity is essentially twofold, and can be grouped as:

- **environment-driven**, if discontinuity is triggered by outbound phenomena and events which are not directly controllable by the single firm e.g. cross-industry technological convergence; competitors' moves triggering the rise of substitutive products or alternative offer paradigms; reshaped business area boundaries; enter of newcomers capable of leapfrogging existing entry barriers;
- **enterprise-driven**, if it originates implicitly from inbound processes or dynamics e.g. emergent resources, competencies or capabilities not resulting from a clear strategic commitment; unexpected innovations.

2.2. Business model design

The business model concept has generally referred to 'architecture of a business' (Timmers, 1998; Rappa, 2001; Weil and Vitale, 2001) where the essence was defining how the enterprise delivers value to customers, enticing them to pay and converting the payments to profit (Teece, 2010). Research on BM design evolved from elaborating taxonomies (Tapascott et al., 2000; Amit and Zott, 2001; Rappa 2001; Weil and Vitale, 2001), to defining a theory (Osterwalder, 2004), to supporting firms' strategy analysis (Ghezzi, 2012). When analysing BMs, the researchers' focus has shifted from a single firm to a network of firms, gradually transforming the BM from a monolithic entity to a multifaceted concept (Ballon, 2007), to be investigated as a combination of multiple and diverse design dimensions and interrelations.

Such multifaceted evolutionary process, though beneficial to establish BM design as a research stream, burdened the theory with a lack of homogeneity (Johnson et al., 2008). In fact, several often heterogeneous frameworks or templates have been proposed to construct maps of BMs, to clarify the processes underlying, and then to allow considering alternative combinations of these processes (also called building blocks or parameters).

According to some studies, BM components include assets, markets, customers, competitors, products, costs, prices, economic scales, marketing strategies and organizational elements (Yu, 2001), while others only mention customers, competitors, offerings, activities and organization (Hedman et al., 2003). Chesbrough (2010) suggests that BMs fulfil functions like articulating the value proposition and detailing market segment, value chain, revenue/cost structure, position and competitive strategy. Ballon (2007) claims that the recurrent parameters a BM is built on can be brought back to the general concepts of control and value. For Johnson et al. (2008), it includes customer value, profit formula, key resources, key processes: taken together, these elements create and deliver value.

BM is also defined as a conceptual model, building assumptions on customer behaviours, analysing the cost structures and competitive moves (Teece, 2010); in addition, while it is considered a valuable tool to map the existent firm in static conditions, it conserves at least a symbolic role and value to describe the internal strategic context during change (Hacklin et al., 2012): therefore it should be in constant transition to adapt (Battistella et al., 2012). Amit and Zott (2009) propose two sets of parameters: design elements ' content, structure and governance ' describing the architecture of an activity system; and design themes ' novelty, lock-ins, complementarities and efficiency ' describing the sources of the its value creation. The recent contribution from Casadesus-Masanell and Ricart (2010) argues that the BM refers to the way the firm operates and creates value; strategy, in turn, refers to the choice of the BM to compete, whereas tactics become the residual choices open to a firm due to the employed BM.

In this study, the framework selected as a reference to assess and revisit the role of BM is that proposed in Osterwalder (2004): such framework is widely adopted and employed both by practitioners (Osterwalder and Pigneur, 2010) and academics (e.g., see Chesbrough, 2010).

Osterwalder (2004) identifies four dimensions and nine parameters to decompose a business model as Table 1 shows.

<Insert Table 2 here>

Though intuitive (Bloodgood, 2007), the relationship between strategy, discontinuity and BM is under-investigated, and BM design risks to be a "second-tier" literature stream in Strategic Management (Ghezzi, 2012), due to its fragmentation and missing links to more consolidated theories. Recent proposals may drive scholars to fill the existing literature gap: BM is in turn interpreted as an integrative framework for strategy formulation and execution (Richardson, 2008), a construct interdependent with strategy and tactics (Casadesus-Masanell and Ricart, 2010), a support for innovation management (Chersbrough, 2010; Teece, 2010), a tool to provide dynamic consistency (Demil et al., 2010) and change capability (Hacklin et al., 2012). Adding to these recent research paths, the author of this study contends that deepening the analysis of BM design under discontinuity can clarify the role of BM in the overall business strategy process.

As a whole, the literature takeaways on which this study builds its contribution to the field may be synthesized as follows:

- BM design requires a better integration with traditional strategy analysis models;
- BMs may enable strategy execution and operationalization, and the choice of a given "business model parameters mix" (i.e. specific tactical decisions on the values to be assumed by the nine composing building blocks), directly affects the firm performance;
- BM performance (which in turn shapes the overall firm performance) can therefore be influenced by factors, either exogenous or endogenous, which impact or modify the models constituting building blocks or parameters.

2.3. Value network theory

The value chain model (Porter, 1985) significantly influenced the research on internal activities and external relations of firms (Normann and Ramirez, 1994). Since activities were mostly considered stand-alone entities, and value largely came from activities internalization, firms strategies often aimed at achieving a vertical control on the chain (Peppard and Rylander, 2006). However, the value chain has been questioned due to its emphasis on competition and inadequacy to consider the multi-directional relations among firms (e.g., see Hakanson and Snehota, 1989; Normann and Ramirez, 1994; Stabell and Fjeldstad, 2002; Alle, 2000; Schieffer, 2004; Huemer, 2006; Peppard and Rylander, 2006; Pil and Holweg, 2006). It is argued that Porter's view belongs to an "industrial age production line model" that is no longer applicable (Alle, 2000). Nowadays, the network of relationships, these "interdependencies" that are not linear but multidirectional, as the activities in value creation (Pil and Holweg, 2006) are getting more and more important (Huemer, 2006). Value network theory and model embraces the concept of interdependencies and widens the value chain model by including not only the traditional goods/services and revenue flow but also extended value

exchanges (Alle, 2000).

VN investigation can benefit from some notions borrowed from the partly overlapped Strategic Networks literature (Gulati et al., 2000). This crossing allows to identify those variables or drivers supporting a thorough description of a network, both from a static perspective (identifying structural characteristics as: focal firm; structural holes; critical network influences; structural equivalences; revenues streams) and from a dynamic one, which considers the network as an evolving system subject to both endogenous and exogenous forces that determine some changes in time (Eggert et al., 2005).

The extensive literature review allows inferring that BM design and VN configuration are seldom related as theoretical concepts, though they appear to be deeply interlinked scaling down to the level of those constructs employed to operationalize such concepts. At a construct level, BM design encompasses VN-related dimensions within its parameters, both in an explicit fashion (e.g. Value Network, Value Network Integration), but more often, in an implicit way (e.g. Connected Activities, Key Activities, Partnership, Vertical Integration, Relationship). Therefore, to reconfigure BMs, the environmental-driven discontinuities in VN should be also understood (Alle, 2000), and BMs should embrace the external changes VN determines as dynamic exchanges within firms, customers, new clusters and new value currencies as "knowledge" and "intangible benefits" (Alle, 2000).

The review also highlights a shortcoming referred to the analysis of value networks under discontinuity. The few studies addressing this issue (e.g., see the discussion in Goughlan et al., 2003 on how to manage collaborative relationships between manufacturing enterprises in a period of discontinuity) reveal the significance of the topic to broadly describe a firm's strategy and its changes driven by volatility: hence, this study aims at disclosing further insights on the nexus between value networks, discontinuities and their effects on business strategy.

In brief, the cross literature review allows inferring the following:

- VN structure is claimed to affect BM design and performance;
- VN altogether can be seen as a system of interconnected and interplaying BMs of different firms operating in the industry.
- VN configuration is an extension of the value chain which better identifies changes or modifications in the firm's external environment and in the overall value system (as firms are more and more influenced by mutual interdependencies with other actors in the network);
- a dynamic process of VN mapping of an industry can well support the strategic activity of environmental scanning.

2.4. Resource management

Resource-based view (RBV) and Dynamic Capabilities Approach (DCA), developed as an alternative stance than Porter's (1980) breakthrough work on competitive strategy that focused on industry-related competition, take a new perspective when analysing a firm and its ability to

achieving superior performances than its competitors. The key claim from RBV is that the sources of competitive advantage ultimately come from the firm's endowment of internal core resources and competencies. The RBV attempts to convince the managers to first look inside their firms, rather than outside, and defines firms as a unique collection of tangible and intangible core resources and competencies (Barney, 1991; Collis and Montgomery, 1995). In order to be considered core (i.e. providing the basis for competitive advantage), a resource or competence should pass five tests, namely inimitability, durability, appropriability, non-substitutability, and competitive superiority (Collis and Montgomery, 1995).

The DCA is an extension of the RBV model and tries to explain how a firm can enjoy sustained superior performance in a rapidly changing industry through continuous proactive and reactive actions. The dynamic capabilities theory's main argument is that the distinctive and difficult to replicate competitive advantage of firms lies with its firm-level distinctive competencies/capabilities mainly on processes, positions (specific assets and paths), strategic alternatives available (Teece et al., 1997).

The RBV is a theory of the firm based on the internal attributes (Chmielevski and Paladino, 2007), whereas the DCA deals with "the organizational and strategic routines by which firms achieve new resource configurations" (Eisenhardt and Martin, 2000) and "enable the most efficient and competitive use of the firm's assets" (Chmielevski and Paladino, 2007). In addition, capabilities are also defined to be fundamental to organizational renewal and driving force behind strategic change (Ljungquist, 2007; Prahalad and Hamel, 1989; Wang et al., 2004). These capabilities constitute the ability of the firm to generate new resources, new assets, new mechanisms and processes, and new ways of doing business. Therefore, it can be argued that any change in resources, competences and capabilities is a possible enterprise-driven discontinuity.

Resource management is the set of strategic choices, recommendations and guidelines concerning the orchestration of the firm's resource endowment (Hoopes et al., 2003): resources should hence be managed as a portfolio of assets, deciding which to enhance and defend (if core), which to nurture and monitor (if emerging), and which to hold or divest (if necessary to compete or not core).

A literature shortcoming this study addresses lies in the static approach characterizing resource management research: existing studies seldom include a discussion of the effect of discontinuity on the firm's resource endowment; and a concrete connection between these discontinuous effects on resources and subsequent changes in the overall business strategy is often lacking (Wu, 2010).

Literature on RBV and DCA is wide, constantly evolving and not without pitfalls. For the purpose of this study, the key points here resumed which constitute the theoretical framework are:

- resources may arise deliberately or emergently as managerial processes or routines, paths, tangible and intangible assets, and strategic approaches;
- resource status assessment is a dynamic activity, which explains much about the development of the internal/external environment a firm is embedded in. A change in the resource status results in a change in the nature and performances of advantage;
- RM is a process related to strategy execution, and is essential for achieving and sustaining

- competitive advantage, especially in discontinuous environments;
- any radical, unexpected modification in the resource endowment core status and in RM consistency with such status can be considered a discontinuity.

3. Methodology

This study on the role of business models, value networks and resource management as a tool to identify discontinuous phenomena and trigger strategic re-planning follows a strategy balancing the inductive and deductive approaches (as in Aarikka-Stenroos and Sandberg, 2012). Such method is supported in Dubois and Gadde (2002) and in Walsham (1995), who suggest modifying a framework derived from the literature with empirical data, thereby allowing new insights to emerge. Throughout the research, theory was hence employed as part of an iterative process of data collection and analysis (Eisenhardt, 1989, p.536).

Case study research facilitates holistic understanding of complex phenomena that do not separate easily from their contexts (Halinen and Törnroos, 2005; Yin, 2003) and allows the researcher to thus build new theory or extend existing theories.

To accomplish the research propositions, two in-depth longitudinal case studies were performed. The cases concern the influences of discontinuities over the business strategy developed by TIM and Vodafone, two companies operating in the mobile telecommunications industry. The cases originated from the research performed by a permanent observatory on Information & Communication Technology and Management. Consistently with the research methodology employed (Pettigrew, 1988), the firms constituting the theoretical sample were selected as they conformed to the main requirement of the study, where the processes or variables of interest (i.e. discontinuities in resources core status, business model performance and value network configuration) were transparently observable.

A multiple case study approach reinforced the generalisation of results (McGrath, 1982; Meredith 1998), and enabled a comparative analysis of findings, due to the possible presence of extreme cases, polar types, or niche situations within the theoretical sample (Meredith 1998). Still, the limited number of firms included in the sample allowed to conserve the positive properties of the single case study methodology, related to the provisioning of a thorough, extensive qualitative description and analysis of business strategy under discontinuity with the needed depth and insight, difficult to replicate when considering a wider theoretical sample (McCutcheon and Meredith, 1993; Handfield and Melnyk, 1998)

The study on the effect of discontinuity shall be inherently longitudinal, in order to compare conditions *ex ante* and *ex post* the change: thanks to the permanent research on the analysed companies, the cases on which this study is crafted rely on retrospective data collected from 2002 onward. In particular, two waves of semi-structured interviews were carried out in 2008 and 2010-2011, respectively, held with key informants (identified by means of both telephone interviews and secondary sources) involved in the companies' strategic planning process as main decision makers. (For detailed information on the processes of case data gathering and analysis, see the Appendix).

4. Findings and discussions

4.1 TIM case

The role of BM design, VN configuring and RM within the business strategic planning process emerges evidently in the TIM case analysed.

TIM is the Italian incumbent mobile network operator. Founded in 1995 as mobile telecommunications were at an early stage of development, through the years TIM's offer evolved from simple voice and short message services to rich-media value added content and services delivered through the mobile channel. As of 2008, TIM's overarching business strategy for the mobile industry was well described by a statement from its Mobile VP, delivered during the first interview performed: the company was focusing on value creation through the *“traditional voice and data messages offer, paired with innovative content and services launched in the mobile portal”*; the key assets TIM's strategy relied on were *“a set of strong internal resources”*, and *“a network of reliable partners”*.

This statement, supplemented with the information gathered through the other interviews, allows obtaining a clear picture of how BM, VN and RM were developed in 2008.

Following Osterwalder's (2004) template, TIM's designed BM was shaped around these building blocks.

1. Offer, with a value proposition bundling the traditional voice and peer-to-peer message offer and value added services;
2. Customers, represented by the mass market of subscribers getting access to such offer through the mobile portal, a virtual distribution channel pre-installed on the devices and uniquely owned by operators, who controlled it in a quasi-monopolistic fashion (e.g. proprietary offer, customer lock-in, partners' dependence on unique operators' assets);
3. Infrastructure, made of: i) key activities related to network management and operations on the one hand, and service commercialization on the other; ii) key resources resting on the possession of physical essential facilities (i.e. mobile network infrastructure, licenses, billing & payment systems, mobile portal as a distribution channel) and of relational assets (i.e. direct customer ownership, brand reputation, relationship with mobile service providers); iii) key partnerships with actors performing the activities of creation, management and promotion of the original content published in the portal;
4. Finance structure, in terms of: i) revenue streams largely coming from direct commercialization of voice and data messaging services, and, to a lesser extent, for indirect selling of value added services from the portal, in partnership with service providers (with revenue sharing agreements regulating the transactions); ii) cost structure with a high share of fixed costs for network investments and management, and smaller variable cost for services deployment (most of the expenses are borne by partners).

As partly disclosed by the BM analysis, TIM's VN was configured as a system of value creating

activities belonging to different layers: network infrastructure; device provisioning; and service creation, management and market making. While TIM covered several activities in both network and service layers, it coexisted with other actors in the VN: competing operators with a similar positioning; service providers focusing on the service layer; technology providers, enabling both layers; device manufacturers providing devices; and end users. Value exchanges involved the currencies of services and revenues (e.g. between the operators and end users), knowledge (e.g. between operators and service providers for service co-creation) and intangible benefits (e.g. between operators and device manufacturing for co-branding opportunities).

TIM's resource endowment was made of a set of core resources, competencies and capabilities (as listed for the key activities BM parameter) constituting its competitive advantage, supported by a number of not core assets necessary to operate in the industry (e.g. financial stability, relationships with actors others than service providers). RM hence focused on nurturing or enhancing the core resources, while holding or divesting from the peripheral or unnecessary ones.

In 2008, the informants argued that the external and internal environments appeared relatively stable, or *“following a turbulent but foreseeable evolutionary trajectory”* (as extracted from the Marketing Manager's words); so the business strategic planning adopted a somewhat incremental approach, assuming a sort of *“continuity with the business as usual”* (Product Manager's interview). However, this situation was to be shaken in the timespan 2008-2010 by a number of discontinuities, either external or internal, which would significantly modify the executed strategy's performance. The main environment-driven discontinuities occurring were:

1. Fixed-Mobile-Media convergence, resulting from a long and cross-industry process of technological integration;
2. Device features development, which could enable a radically different offer;
3. Apple, Inc.'s application store launch as an alternative to the traditional mobile portal channel, carrying deep business implications.

While enterprise-driven discontinuities led to the unexpected and unplanned creation of resources, competencies or capabilities. In particular, the key internal discontinuities determined the following phenomena:

1. the rise of open innovation capabilities, in response to the growing number of external sources of value (which outperformed internal resources);
2. the rise of mobile infrastructure resources, driven by the entry of heterogeneous newcomers, eager to leverage on the mobile network's functionalities to place their offer.

As all the 2010 interviews demonstrated, these changes in business strategy performance could be identified through discontinuities in: business model parameters performance; value network reconfigurations; and resources management recommendations due to resources core status.

All these re-planning actions may be summarized by another extract, taken from the 2010 interviews to the CEO, emphasizing the company's new strategic intent:

“On the consumer side, TIM is focusing on managing an innovative mobile internet and applications offer, following an open approach to third parties. [í] on the business side, we make

the most out of our assets to deliver a B2B offer to any potential partner.

4.2 Vodafone case

The second case analysed confirms and partly extends the findings from the TIM case.

With a customer base of over 30 million, Vodafone is the second largest mobile network operator in Italy after TIM. Vodafone Italy is part of Vodafone Group PLC, and was established in 2001, as the Group acquired and absorbed another Italian incumbent operator, Omnitel.

Vodafone's business strategy in 2008 was focused on closing the gap with the market leader TIM by both expanding the customer base and increasing cross and up-selling on existing customers. To achieve such objectives, respondents argued that Vodafone was acting on two distinct though interplaying levels.

Concerning the traditional voice and messaging offer, the company was well aware that the mature Italian market was oversaturated (with a mobile penetration on the population above 160%, see Cortimiglia et al., 2011): the only way to attract new customers was hence to "steal" them from competitors. This required exploiting the regulation on number portability, which granted to all customers the ability to switch from one operator to another while keeping their old mobile phone number and thus eliminating a common switching cost for telecommunications industries. Customer churn was favoured by the launch of a wider and more flexible range of voice and messaging tariffs (e.g. no activation cost; flat fees; and messages bundles).

With reference to mobile value added services, Vodafone pursued a differentiation strategy to increase the margins coming from cross and up-selling, and strived to position itself as the market innovator. Service providers were subject to quality and creativity controls: before being published in the mobile portal Vodafone Live!, the content supplied had to be checked for originality and value generation potential. Also, the company devoted a significant effort to become the market leader in customer service.

The key elements of the business model adopted by Vodafone in 2008 are described as follows (see Osterwalder, 2004).

1. Offer, characterised by a twofold focus on flexible tariffs for traditional services on the one hand, and value added services innovation and high quality on the other.
2. Customers, segmented in two main clusters: the majority of user interested in of basic services; and as those innovators looking for original content on the Vodafone Live! mobile portal.
3. Infrastructure, which, similarly to TIM and to the other operators, rested on: a set of essential facilities and resources related to the activities of network management and service commercialization; and partnerships with service and technology providers (e.g. the Chinese Huawei).
4. Finance structure, rather similar to that of its competitors. Revenue streams came from both traditional and value added services, the latter being delivered from the mobile portal in partnership with the selected service providers (Vodafone's CFO declared that the relative share of revenues coming from value added services was higher than that of its competitors; however,

such share still represented a small fraction of the company's overall sales). Capital expenditures in network investments were heavy, while operational expenditures were shared with third party providers.

The environment-driven discontinuities discussed in the TIM case (i.e. technology convergence, device development and rise of application stores) occurring in the timeframe 2008-2010 were industry-wide phenomena: as such, they affected Vodafone's strategy just as they did with reference to other competing operators.

Contemporarily, the enterprise-driven (and firm-specific) discontinuities that arose in Vodafone between 2008 and 2010 were related to the following elements:

1. rise of service innovation capabilities (developed within the newly created web community, Vodafone Lab), which led to the launch of forefront services (e.g. mobile augmented reality);
2. rise of device manufacturing competencies, which were combined to the resources of the partnering technology provider Huawei-IDEOS to manufacture the first Vodafone smartphone; the smartphone was launched in December 2010 as a co-branded Vodafone-IDEOS product.

The interplay of these external and internal dynamics led the company's executives to question the validity of the consolidated business strategy. In order to reposition the company, the management crafted a so called *“smart pipe strategy”* (quoting the company's CEO), which stressed the need to maintain a central or *“gatekeeping role”* in the delivery of innovative services within the extended Mobile, Web and Media industry. This goal had to be achieved through a set of strategic actions: a higher cooperation with third parties; heavy investments in innovation of both the service and the network layers (see, for instance, the trials performed on the enhanced Long Term Evolution or 4G network); and service differentiation to include forefront initiatives (e.g. augmented reality services).

4.3 Case discussion and model

In the cases analysed, information gathered from the respondents allow to infer that, in the period 2008-2010, the companies had gone through a period of deep discontinuity. Such discontinuity had an impact on the way business strategy was executed; this, in turn, determined the need for a re-planning process to realign the companies' strategies with the external and internal environments.

Interestingly, when discussing how these changes impacted the TIM's and Vodafone's strategy, all statements from informants ended up referring to elements related to business model design, value network configuration and resource management.

For each discontinuity pinpointed, the table below describes how the executed strategy was affected (with reference to the existing BM¹, VN¹ and RM¹), and what kind of strategic re-planning was triggered (giving rise to the redesigned BM², VM² and RM²).

<Insert Table 3 here>

These statements from multiple informants at different organizational levels, supported by the secondary sources collected, proved this study's argument that BM, VN and RM are the strategic tools through which a company executes its planned strategy, and as such, are the breakwaters which first bear the impact of and are affected by discontinuous waves of change.

The case data, analysed and interpreted through the lenses of the theoretical framework drawn from the literature review, are presented in Table 4 as the study's original findings. These findings are organized taking into consideration the following elements.

1. Strategic tool considered (both as concept and construct);
2. Revisited role for the tool at a business strategy level (where initial theoretical arguments and suggestions extracted from the literature are confirmed, modified or extended through the case study empirical analysis);
3. General template listing strategic impacts and implications on the strategic tool determined by either environment-driven or enterprise-driven discontinuity, explaining what unplanned and unexpected variations to expect when a discontinuous event occurs (the items considered are drawn and extended from the literature and the case-specific impacts – see Table 3, Impact on executed strategy);
4. Methodology and guidelines for strategy monitoring and discontinuity assessment, to: determine, for each tool, the variables which are to be controlled for spotting a discontinuity; drive the identification and evaluation of unexpected, unplanned variations for the controlled variable; and subsequently trigger a business strategic re-planning process affecting the tool under scrutiny and the overall strategy (arguments are originally reinterpreted from a combination of literature-derived hints and case analysis – see Table 4, Strategic re-planning determined).

<Insert Table 4 here>

Resuming the conceptual model, the empirical findings are reorganized around the theoretical framework and the existing literature's tenets (Figure 2). In particular, the case studies allowed to disclose: the twofold nature of discontinuity (environment or enterprise-driven); which theoretical strategic elements are influenced by either external or internal discontinuities; how these elements belong to the BM, VN and RM constructs (and, as such, how these constructs mediate the discontinuity – strategy relationship); and how, in turn, these elements influence the firm's business strategy and trigger strategic re-planning.

<Insert Figure 2 here>

<Figure 2 – Conceptual model and empirical findings>

On the basis of these findings, a conclusive approach linking business strategic planning under discontinuity with BM, VN and RM is synthesized and proposed in the model below.

<Insert Figure 3 here>

<Figure 3 ó Model for business strategy under discontinuity, revisiting the role of BM, VN and RM>

Where:

- $BM_{(P1, P2, \dots, P9)}$: vector of business model parameters (Osterwalder, 2004);
- Resource Endowment (x, y, \dots, z) : generic portfolio of firm's internal resources, competencies and dynamic capability (Hamel and Prahalad, 1994; Teece et al., 1997);
- $RM_{(x, y, \dots, z)}$ choices: recommendations and guidelines on how to manage the resources, competencies and dynamic capabilities (x, y, \dots, z) , resulting from the evaluation of the resources' core status (e.g. invest and defend if resource (x) is core; divest if resource (y) is not core; hold if resource (z) is not core, but necessary to compete);
- Firm 1, Firm 2, ..., Firm n: generic set of firms populating the value network;
- $R_{(BM1 \text{ ó } BMn)}$: generic value network relationship existing between Firm 1 and Firm n, assuming that a relationship between two firms is ultimately constituted by a relationship between the firms' business models BM1 and BMn.

Supplementing the inferences collected in Table 4, the model argues that the traditional business strategic planning process can be extended to explicitly encompass the phases of strategy operationalization and discontinuity assessment. The resulting process is hence constituted by three main phases:

1. Strategy formulation;
2. Strategy execution;
3. Strategy monitoring (discontinuity assessment).

Strategy formulation refers to the traditional planning activity (see, e.g. Lorange, 1980), which relies on the Strengths-Weaknesses-Opportunities-Threats (SWOT) analysis to define: business area boundaries and external attractiveness; internal competitive differentials together with existing resource endowment (i.e., a set of resources (x, y, \dots, z)) supporting competitive advantage (Sheenan and Foss, 2007).

Strategy formulation ends with the generation of strategic alternatives and the selection of the overall business strategy to implement (õBusiness Strategic Planning Processö box in Figure 3).

Strategy formulation is then followed by strategy execution (‘Business Strategic Execution’ box in Figure 3). The study carried out allows to infer that such step is mainly related to a concretization of strategy in terms of:

- the firm’s designed BM, which operationalizes the selected business strategy according to a set of significant parameters or building blocks ($BM_{(P1, P2, i, P9)}$), and drives performance;
- the VN Configuration, defined as the interrelation and strategic interplay (VN relationship $R_{(BMn-BMm)}$) of different BMs adopted by different firms operating within the business area;
- the RM choices and recommendations to exploit the previously identified resources, competencies and capabilities endowment ($RM_{(x, y, i, z)}$) according to: the selected strategy (e.g. mission and vision, business area definition and opportunities/threats to deal with, generic strategy to follow, competitive differentials to pursue); the adopted BM; and the business area’s VN configuration.

The strategy monitoring or discontinuity assessment phase is meant to tackle the impacts of discontinuity and change on the firm’s business strategy and on its outcomes (‘Business Strategic Monitoring’ box in Figure 3).

As anticipated in the literature review, the nature of discontinuity can be twofold:

- environment-driven, if triggered by outbound phenomena and events which are not directly controllable by the single firm;
- enterprise-driven, if unexpectedly originating from unplanned inbound processes or dynamics.

Assuming that strategy is concretely executed through designing a BM, configuring a set of VN relationships and leveraging/managing a portfolio of resources through an adequate RM, the further conclusive argument raised is that when discontinuity arises, it ultimately impacts the outcomes of the previous three elements:

- performance ó resulting from the BM application;
- VN configuration ó resulting from the interplay of strategic relationship among different firms;
- resources core status ó that is, their ability to contribute in creating a sustainable competitive advantage ó resulting from the correct resource management process.

A discontinuity in place can be spotted from the assessment of the following control variables:

- BM performance radical variations ($BM_{(P1, P2, i, P9)}$) ó outside a given range of values planned at the BM design stage for each and every BM parameter;
- VN reconfiguration ($R_{(BMn-BMm)}$) ó in terms of discontinuous restructuring of strategic relationships among different firms’ BMs;
- RM modifications ó in terms of resource core status (Resource $_{(x, y, i, z)}$: core ó not core) and contribution to competitive advantage; and consistency of RM choices with renewed Resource $_{(x, y, i, z)}$ status.

Whenever a discontinuity is identified through such analysis of variations, the overall business strategic alternative currently pursued by the firm ó and executed through its BM, its choice of

collocation within the VN and its policies for RM ó may result inconsistent or misaligned with reference to the newly emerged post-discontinuity internal and external context. Therefore, in order to maintain the adequate strategic fit (Grant, 1991), strategic re-planning appears necessary. The variations of BM, VN and RM hence become a ÷vectorö of inputs for a new strategic re-planning process meant to take into fair account the discontinuous event (thus acting as a feedback cycle that connects business strategy monitoring with the strategic planning process).

As a whole, according to the model presented above, the constructs of BM and VN, together with RM, are originally reinterpreted in a new role within the business strategic planning process, since they serve as tools to spot any exogenous or endogenous discontinuity, consequently triggering a process of re-planning on the basis of the newly emerging context.

5. Conclusions

This study aimed at illustrating how business model design, value network configuration and resource management are interplaying concepts and constructs with a significant role within the strategic planning process at a business level: such revisited role is even more evident when the business environment is perturbed by discontinuity.

Though much has been written on strategizing in volatile conditions (Drucker, 1969) and on the need to scan the environment (Ebrahimi, 2000) searching for a suitable fit between external and internal elements (Grant, 1991; Bloodgood, 2007), little research was devoted to deeply investigate what changes in a firm's strategy when a discontinuity occurs (Wu, 2010). The study's contribution focused on systematizing the relationship between discontinuity and its effects on strategy (mediated by the three emerging strategic models of BM, VN and RM), and may be valuable for both researchers and practitioners in the field of Strategic Management.

Theoretical implications range from the collocation of the strategic tools investigated in the overall business strategic planning process, to a broader proposal for formalization and acceptance of such advancing tools in the Strategic Management mainstream.

The empirical cases and the related discussion provide insights on the vertical research streams on business model design, value network configuration and resource management.

Concerning BMs, existing literature largely sets aside the discussion of discontinuous changes: those authors dealing with business model innovation point at this topic (see Chesbrough, 2010; Demil and Lecocq, 2010; Teece, 2010), though they do not elaborate on it in depth. This study fills this gap, and extends the discussion to cover how business models change when facing a discontinuous event, and how these BM variations affect strategy. By establishing a relationship between business model parameters' performance and the overall performance determined by the business strategy adopted, the study's findings are consistent with the authors claiming that there exists a link between business model design and strategy (see Casadesus-Masanell and Ricart, 2010).

Research on networks largely revolved around the concepts of partnership and alliance (Gulati et al, 2000); value creating activities were only investigated when addressing a firm's internal sources of

competitive deltas (Porter, 1985). Contrarily to such approach, this research highlights the importance of VN as an external strategy analysis tool, meant to map the value system configuration (and its changes) through a description of: the industry's value creating activities; the currencies of value exchanged; and the roles taken on by the firms involved. This study connects value network with theories on strategic networks, business models and strategic planning, proposing VN mapping as a key task for strategists (Alle, 2000; Peppard and Rylander, 2006; Dell'Era et al., 2013).

Resource Management was often treated as an implicit or trivial process, the most critical task being the identification of a firm's core resources, competencies and capabilities (Collis and Montgomery, 1995). Instead, it is argued that the resource endowment at hand shall be adequately managed, especially when dealing with turbulent environments where the resources can vary their contribution to competitive advantage. Indeed, such activity of resource management should be regarded as a fundamental part of strategy execution.

Extending and linking all the above mentioned vertical findings, the model crafted in this study attempts to frame BM, VM and RM in the strategic planning research stream. It revives the debate on planning (Mintzberg, 1994), by calling for a redesign and updated of this process to explicitly include these three theories and related models in the strategy monitoring and discontinuity assessment phase.

Despite the fact that these theories have been underestimated for their fragmentation (Johnson et al., 2008) and have often been considered a "buzzword", a miscellaneous melting pot, rather than a possible baseline for sound strategy analysis, this study argues that they should rise as advancing tools for capturing business strategy fit and competitive advantage dynamics, in particular when applied to discontinuous contexts.

As the case studies allow to infer, BM, VN and RM are a manifestation of strategy execution. Moreover, they are tools for strategy monitoring and control, to replan when the internal or external environments have changed to an extent to which the former strategy is no longer adequate. These tools should be coupled with the budgeting process traditionally used to evaluate performance gaps, as budgeting alone, with its fixed deadlines, may be unsuitable to spot and respond to unexpected changes (Hansen and Stede, 2004).

As such, they may as well deserve to receive further formalization and acceptance in the elite of Strategic Management theories. Implications for managers relate to the practical adoption of BM, VN and RM as strategy analysis tools.

Though several theories hold that managers should adopt a deliberate strategy explicitly meant to catalyse continuous or radical innovation and the subsequent discontinuities (e.g. Hamel and Prahalad, 1994; Kim and Mauborgne, 2004), managers may have to face that a fully proactive approach towards uncertainty (i.e. purely innovation-led) is virtually impossible. In practice, discontinuous events may either be clearly environment-driven, and go well beyond the single firm's deliberateness; or the discontinuity may indeed be enterprise-driven, but substantially unexpected and only implicitly embedded in the overall strategy.

Managers should then take a proactive stance anytime such option is feasible, pushing to lead change; but they also need not disregard a refined reactive stance, which is good at spotting discontinuities of any kind, and act upon them to re-plan the former strategy.

What can be inferred and generalized from literature-derived insights and the empirical analysis through the longitudinal case studies is that the proposed model which integrates BM, VN and RM can support the managerial actions of: executing the planned strategy; monitoring its performance; spotting discontinuities (through a detailed template or checklist of possible variations in the controlled variables); operationalizing the resulting uncertainties; and driving a re-planning process. On the basis of these arguments, the study suggests to include BM, VN and RM within the set of strategy analysis concepts and constructs used by managers, with a specific role as tools to obtain an indication of how strategy is being implemented and individuate discontinuities determining a significant effect on the overall firm's performance. These models for strategic control and monitoring may either give a "green light" to top managers, signalling their strategy is well implemented, or send them a clear "red alert" message that strategic re-planning and realignment is most needed.

To conclude, as any research striving to frame reality in a model, this study is not without limitations, which mainly derive from: any potential observer bias in the activities of case data gathering and analysis; the need to generalize arguments drawn from a cross-case analysis and comparison within a single industry; and the lack of a deep analysis covering the strategic interplay of the firms involved in the discontinuity.

As for the possible observer bias, the rigorous methodology employed (e.g. transcription of interviews and validation from respondents as described in details in the Appendix) attenuates this limitation. The generalization of arguments is facilitated by the replication of the longitudinal case study on two competing firms in a significant and fast developing industry; nevertheless, future research avenues should lead to validate findings in different contexts and with other firms samples. Finally, the study does not explicitly address how, from a strategic interaction perspective, the moves undertaken by a player in response to discontinuity may mutually influence the moves from other players in the industry (see the "copycat" strategic moves undertaken by other competing Mobile Network Operators, H3G and Wind, who fast-followed TIM's and Vodafone's responses to discontinuities by quickly launching similar mobile internet services and application stores). Hence, the study may benefit from a future extension which includes the discussion on related research streams in Strategic Management, such as first mover advantage (e.g. Suarez and Lanzolla, 2005), co-opetition dynamics (e.g. Brandenburger and Nalebeuf, 1996) and strategic interactions (e.g. D'Aveni and Gunther, 1994) in discontinuous periods.

6. Acknowledgments

The author wishes to thank the Guest Editors and two anonymous Reviewers for their insightful comments and suggestions, which significantly helped improving the study's quality and contribution.

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8. Appendix

Case data gathering

In the cases performed, case data were gathered through both primary and secondary sources.

Face-to-face semi-structured interviews represented the primary source of information. The semi-structured nature of the interviews employed for data collection made it possible to start from some key issues identified through the literature, but also to let any innovative issue emerge from the open discussion (Walsham, 1955; Yin, 2003).

From January to September, 2008, fourteen face-to-face semi-structured interviews were held with seven persons identified as key participants in TIM's strategy definition process at different levels. The population of informants included the following top and middle managers: Chief Executive Officer (CEO); Vice President of Mobile Value Added Services (VPM); Marketing & Sales Manager (MSM); four Product Managers (PMs). Within the same timeframe, eleven face-to-face semi-structured interviews were held with a comparable population of five top and middle managers from the operator Vodafone. The informants included: the Chief Executive Officer (CEO); the Vice President of Mobile Content (VPM); the Vice President of Third Parties Management (VPT); the Marketing & Sales Manager (MSM); and one Product Manager (PM).

The need of assessing the decision making processes of RM, BM design and VN configuring, paying attention to different subunits within the company, led to the adoption of an 'embedded' case study (Yin, 2003), with multiple units of analysis, related to the set of 'strategic decisions' on RM, BM and VN made to tackle discontinuity.

In order to assess the effects of environment-driven and enterprise-driven discontinuities on the firm's strategy, from January to June, 2010, a second wave of twelve additional interviews were held with six TIM key informants (since one PM left the company in 2009). Concerning the Vodafone case, the second round of nine interviews involved all the previously contacted informants (an exception being made for the Marketing and Sales Manager position, where the former 2008 manager was replaced by a new executive): the interviews were held from June 2010 to December 2010. These further sets of interviews provided the studies with the requested longitude, thus supporting a within-cases and cross-cases analysis of discontinuities and their influences.

In order to ensure consistency and comparability among different interviews, the main questions in the research protocol were common for all interviewees, but there were separate questions customized on the specific roles of the respondent, and follow-up questions on the emergent issues. All interviews in the first wave (2008) covered the following dimensions or units of analysis: 1) the overarching business strategy (resulting from the strategic planning process); 2) the resources, competencies and capabilities involved in such strategy, their status with reference to competitive advantage (core vs. not core), and their orchestration at a RM level; 3) the decisions at a BM design level of for this purpose, Osterwalder's (2004) template was employed as a reference framework; 4) the actors, activities and tangible/intangible value streams at a VN configuration level.

In the second wave of interviews (2010), beyond resuming the previous four dimensions, two

additional ones were added: 5) the discontinuities (either environment-driven or enterprise-driven) which came into play in the 2008-2010 timespan and affected the overarching business strategy; 6) the discontinuous changes occurred in terms of: resources core status RM guidelines; BM parameters performance; and VN configuration.

As the validity and reliability of case studies rest heavily on the correctness of the information provided by the interviewees and can be assured by using multiple sources or "looking at data in multiple ways" (Eisenhardt, 1989; Yin, 2003), several secondary sources of evidences were employed to supplement the interview data: internal documents, both official (19 for the TIM case; 15 for the Vodafone case) and informal (9 for TIM; 15 for Vodafone), study of secondary sources on the firm ó research reports (26 for both cases), Internet pages (94 for TIM; 134 for Vodafone), newsletters (36 for TIM; 21 for Vodafone), white papers (12 for both cases), newspaper articles (31 for TIM; 18 for Vodafone). This combination of sources allowed to obtain "data triangulation" essential for trustworthiness in qualitative research (Bonoma, 1985).

Replicating the case longitudinal case study on two competing firms made it possible to mend the limitations of the single case studies ó these limitations being mainly related to the poor ability to generalize results obtained from a single case (Meredith, 1998).

Moreover, the analysis of both primary and secondary sources on the other Italian Mobile Network Operators (i.e., Wind and H3G) which were excluded from the explicit discussion of this study indicated that these companies' response to discontinuity in the timeframe 2008-2010 was very similar or equivalent to that of the two firms included in the sample: in fact, the excluded operators often acted as fast followers of the two market leaders considered (e.g., see the equivalent strategic actions of: application store launch; mobile internet services launch; reconfiguration of the network of relationships and of the pool of resources available). This consideration supports the claim that the loss of information due to the sample selection process was limited.

Case data analysis

The interviews lasted 1 hour 54 minutes on average. The responses from interviewees were first recorded and transcribed; later, following the recommendations from Eisenhardt (1989), a within-case data analysis was carried out, so as to generate the necessary insight on the issues under scrutiny; then, a cross-case analysis allowed to perform a comparison between the different responses from informants belonging to the two different firms. In this phase, data from different interviews were summarized, interpreted and tabulated from the transcripts, according to the themes related to the theoretical framework (i.e. discontinuity effect on RM, BM and VM).

If any information remained unclear and/or more data was needed, informants were contacted later by telephone for additional questions. Lastly, the case descriptions and results were reviewed and confirmed by the interviewees, to mend any error or bias and ultimately ensure the correctness of interpretations.

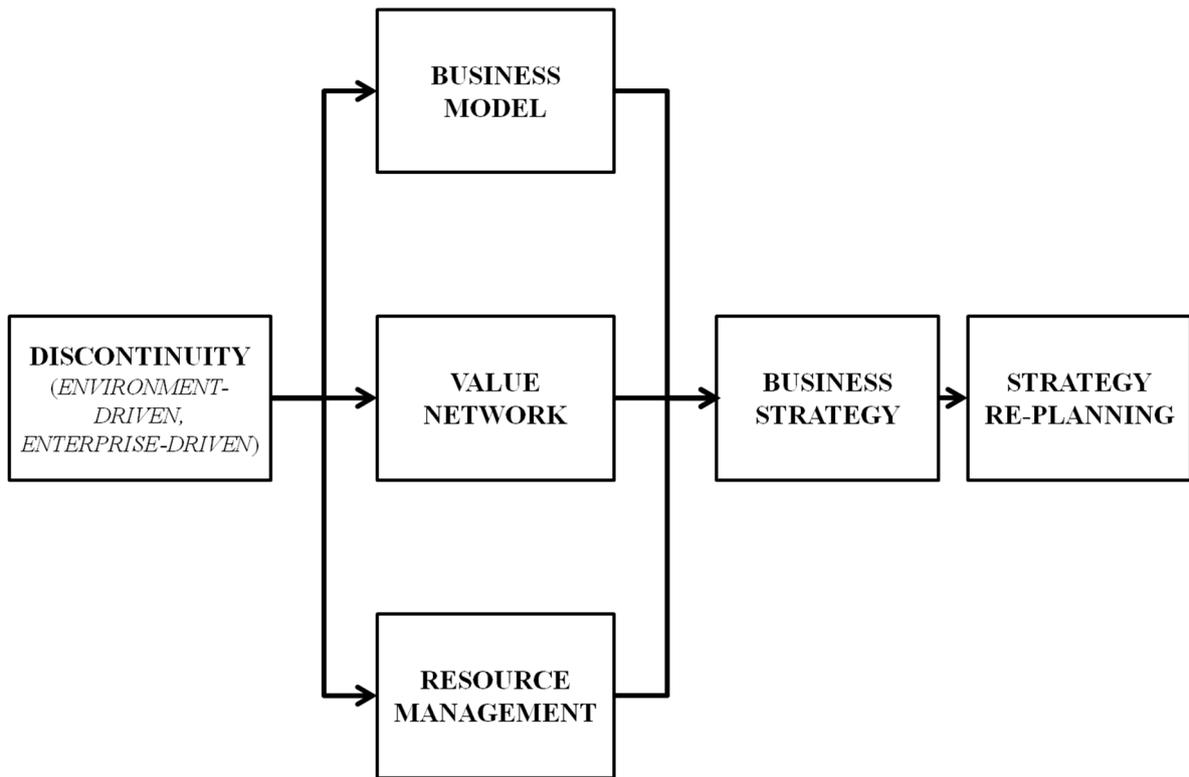


Figure 1 ó Conceptual model

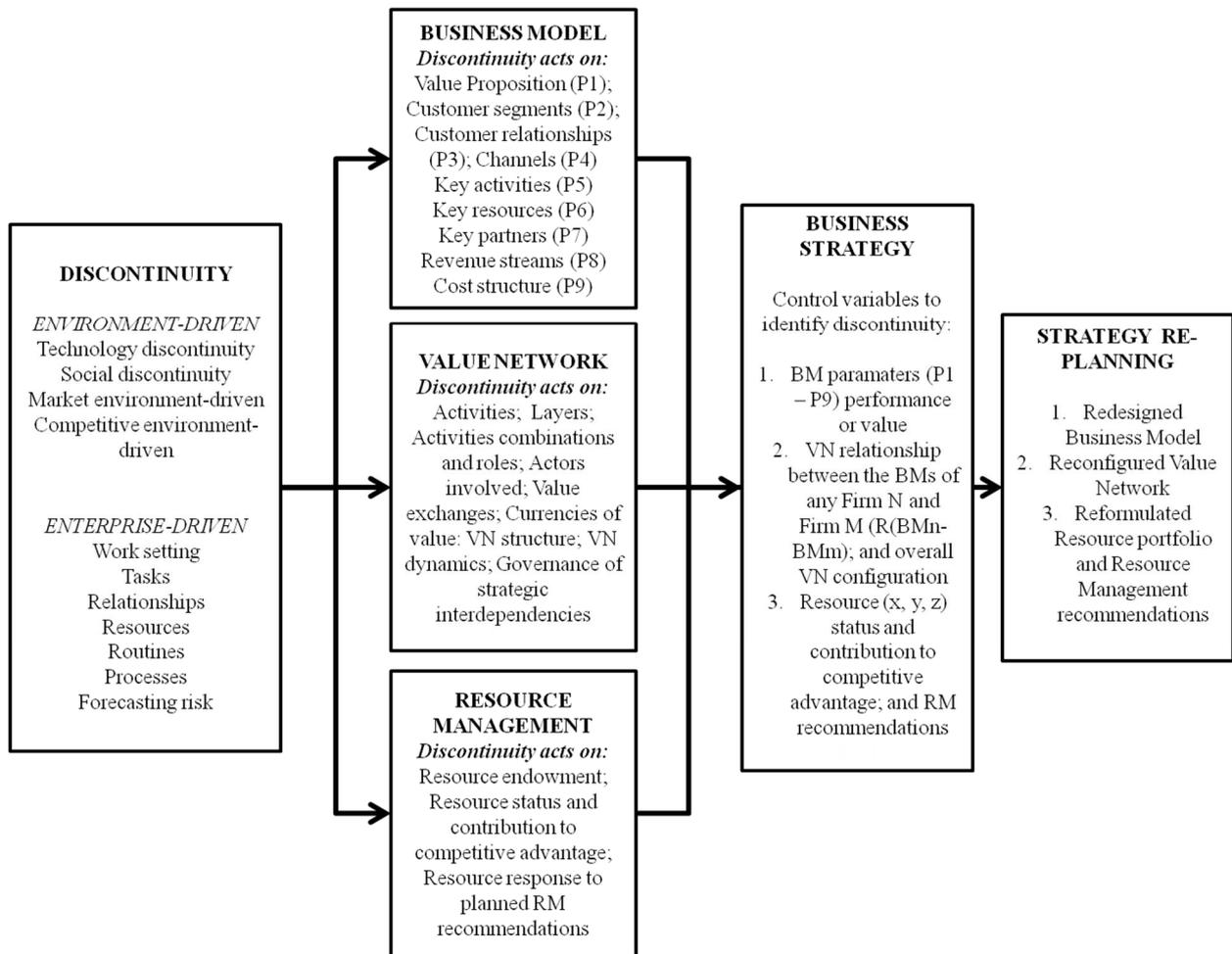


Figure 2 ó Conceptual model and empirical findings

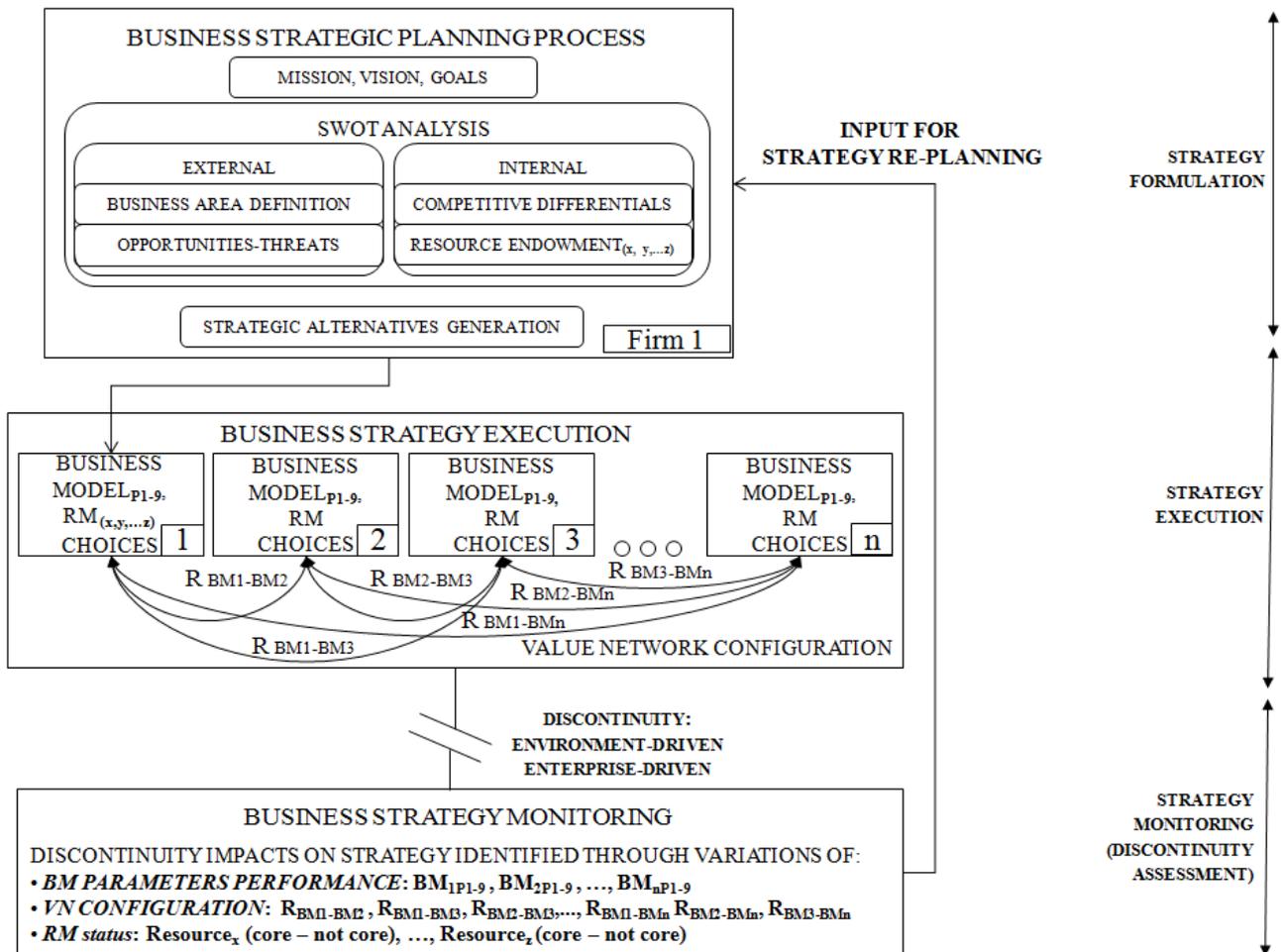


Figure 3 ó Model for business strategy under discontinuity, revisiting the role of BM, VN and

RM

Literature streams abridged and contributions to the study		Literature shortcomings addressed
Discontinuity	<ul style="list-style-type: none"> ▪ Definitions of discontinuity (e.g. Brooks, 1986; Van Notten et al., 2005; Deeg, 2007) ▪ Technological discontinuity (e.g. Drucker, 1969) ▪ Market environment-driven discontinuities (e.g. De Sarbo et al., 2004) ▪ Internal discontinuities (e.g. Anderson and Tushman, 1990; Watson-Manheim et al., 2002) 	<ul style="list-style-type: none"> ▪ Distinction between the concepts of exogenous (environment-driven) and endogenous (enterprise-driven) discontinuity ▪ Explicit relationship between external discontinuity and effects on BM, VN and RM
Business Model Design	<ul style="list-style-type: none"> ▪ Alternative Business Model definitions (e.g. Timmers, 1998; Rappa, 2001; Weil and Vitale, 2001; Teece, 2010) ▪ Business model components (e.g. Ballon, 2007; Osterwalder, 2004; Chesbrough, 2010) ▪ Business model and strategy (e.g. Richardson, 2008; Casadesus-Masanell and Ricart, 2010) 	<ul style="list-style-type: none"> ▪ Assessment of changes in BM performance caused by discontinuity ▪ Relationship between BM performance and business strategy ▪ Deepened integration of BM design within the business strategy analysis process
Value Network Theory	<ul style="list-style-type: none"> ▪ Definition of Value Network (e.g. Allee, 2000) ▪ Definition of Strategic Network (Hakanson and Snehota, 1989; Gulati et al., 2000) ▪ Network components (e.g. Huemer, 2006; Peppard and Rylander, 2006) 	<ul style="list-style-type: none"> ▪ Relationship between BM and VN concepts/constructs ▪ Assessment of changes in VN configuration caused by discontinuity ▪ Relationship between VN configuration (in terms of activities, actors, roles, value exchanges) and business strategy ▪ Deepened integration of VN mapping within the business strategy analysis process
Resource Management	<ul style="list-style-type: none"> ▪ Definition of resources, competencies and capabilities (e.g. Hamel, and Prahalad, 1990; Teece et al., 1997) ▪ Test for core resource assessment (e.g. Collis, Montgomery, 1995) ▪ Definition of Resource Management (e.g. Hoopes et al., 2003; Wu, 2010) 	<ul style="list-style-type: none"> ▪ Dynamic approach to RM ▪ Assessment of changes in resource status and RM consistency caused by discontinuity ▪ Relationship between RM and business strategy ▪ Deepened integration of RM within the business strategy analysis process

Dimensions	Parameters	Description
Infrastructure	Key activities	Core activities in value creation for customers
	Key resources	Core resources and capabilities to perform the actions necessary to create value for customers
	Partner Network	Cooperative work between two or more companies to create a collective value for customers
Offering	Value Proposition	Bundle of company's products and services that are of value to the customers
Customer	Segments	Customers that the company would like to reach
	Channels	Means of interacting with the customers
	Relationships	Link established between the company and its customer
Finance	Cost structure	representation in money of all the means employed in the business model
	Revenue streams	The way a company makes money through a variety of revenue flows

Table 2 ó Osterwalderø (2004) business model ontology

Discontinuity Environment-driven Enterprise-driven	Impact on executed strategy (BM¹ ó VN¹ ó RM¹)	Strategic re-planning determined (TIM) (BM² ó VN² ó RM²)	Strategic re-planning determined (Vodafone) (BM² ó VN² ó RM²)
Fixed-Mobile-Media convergence (environment-driven)	<ol style="list-style-type: none"> 1. Lowered entry barriers, plethora of new entrants (e.g. web companies, media companies), uncertain fate of mobile incumbents (service providers) (BM¹ ó VN¹) 2. Redefinition of business area boundaries, rise of new activities, fall of obsolete activities (BM¹ ó VN¹- RM¹) 3. Loss of revenues for traditional services (e.g. voice, messaging) (BM¹) 4. Competed-away resources (e.g. relationship with service providers) (RM¹) 	<ol style="list-style-type: none"> 1. BM²: new key partners (e.g. Google, Sky, Nokia), and partial divesture from old partnerships; acceptance of co-opetition dynamics (e.g. service providers). VN²: new actors and roles to deal with, new currencies of value and value exchanges 2. BM²: new key activities, new customer segments and customer relationships, new value proposition (e.g. . VN²: recombination of activities coverage, new role in the VN, new value sources and demand 3. BM²: exploitation of new opportunities to redesign value proposition (e.g. mobile internet connectivity); new revenue schemes (e.g. flat subscriptions) 4. RM²: new key relational resources in place of obsolete ones (e.g. web companies, media companies) 	<ol style="list-style-type: none"> 1. BM²: new key partners (e.g. Microsoft MSN, Sky, Mediaset); acceptance of co-opetition dynamics. VN²: new actors and roles to deal with, new currencies of value and value exchanges; search for a gatekeeping role in the extended industry 2. BM²: new key activities, new customer segments and customer relationships, new value proposition. VN²: recombination of activities coverage, new role in the VN, new value sources and demand. RM²: creation of a converged next generation network with LTE-4G features; rise of a multichannel social networking (Vodafone Lab) 3. BM²: exploitation of new opportunities to redesign value proposition (e.g. augmented reality); new revenue schemes (e.g. flexible and segmented tariffs) 4. RM²: new key relational resources in place of obsolete ones (e.g. web companies, media companies, technology providers); rise of resources enabled by convergence (e.g. Vodafone Lab, LTE-NGN networks)
Devices features development (environment-driven)	<ol style="list-style-type: none"> 1. Multi-network access (mobile, wifi) causing direct competition with internet services (BM¹ ó RM¹) 	<ol style="list-style-type: none"> 1. BM²: launch of mobile internet services (e.g. social networking, chats). RM²: divesture from resources related to obsolete mobile vertical services 	<ol style="list-style-type: none"> 1. BM²: launch of innovative services (e.g. social networking, online gaming, augmented reality). RM²: increasing interest towards device manufacturing-related resources and competencies
Apple's Application Store launch (environment-driven)	<ol style="list-style-type: none"> 1. Fall of monopolistic control over unique assets (e.g. distribution) 	<ol style="list-style-type: none"> 1. BM²: launch of a store (TIM appstore); gradual transition of the value proposition from the portal to the store to create new sources of revenues (i.e. 	<ol style="list-style-type: none"> 1. BM²: launch of a store (Vodafone 360); coexistence of the portal (focused on traditional content) and the store

	<p>channel/mobile portal, billing system, customer base), losing their core status and revenue generation potential (BM¹ ó RM¹)</p> <p>2. Enhanced role of developers and device manufacturers (VN¹)</p>	<p>applications); more independence left to partners, fairer revenue sharing agreements. RM²: partial divesture from previously core resources (portal), and nurturing of emerging resources (store)</p> <p>2. VN²: reconfiguration of the network of relationships to include or strengthen value exchanges with developers (for applications) and device manufacturers (for enabling their stores)</p>	<p>(focused on software applications); increased openness towards the off portal ecosystem. RM²: partial divesture from previously core resources (portal), and nurturing of emerging resources (store); increased collaboration with external firms, including Apple itself; rise of technology-specific competencies meant to solve the interoperability issues determined by the proliferation of different proprietary stores, programming languages and mobile platforms</p> <p>2. VN²: reconfiguration of the network of relationships to include or strengthen value exchanges with developers (for applications), device manufacturers (for enabling their stores) and mobile platform providers (for interoperability)</p>
Rise of open innovation capabilities in TIM (enterprise-driven)	1. Unexpected rise of dynamic capabilities related to external innovation orchestration (BM ¹ ó RM ¹)	1. BM ¹ ó RM ¹ : decreased importance of internal resource gathering, integration of open innovation processes/procedures/paths within the business strategy, to collect external sources of value	
Rise of mobile infrastructure resources in TIM (enterprise-driven)	1. Unexpected rise of demand for exploiting the infrastructure functionalities (e.g. localization) for partners offer enablement (e.g. location-based services (BM ¹ ó RM ¹))	2. BM ¹ ó RM ¹ : network infrastructure rising to a core status and directly contributing to competitive advantage; design of a business-to-business value proposition for partners interested in leveraging on mobile functionalities to launch a mobile service offer	
Rise of service innovation capabilities in Vodafone (enterprise-driven)	1. Unexpected rise of dynamic capabilities related to service innovation, enabled the Vodafone Lab platform that allowed the combination of internal knowledge and external inputs (BM ¹ ó RM ¹)		1. BM ¹ ó RM ¹ : modification of the resource endowment, to include new service innovation capabilities that resulted in the launch of forefront services (e.g. augmented reality); subsequent modification of the BM ¹ value proposition, resting on a widened range of services
Rise of device	1. Unexpected rise of		1. BM ¹ ó VN ¹ ó RM ¹ :

<p>manufacturing competencies in Vodafone (enterprise-driven)</p>	<p>competencies related to mobile device design and manufacturing (BM¹ ó VN¹ ó RM¹)</p>		<p>modification of the resource endowment to include device manufacturing-related competencies; subsequent extension of the BM's value proposition to include a co-branded smartphone offer ; strengthening of the strategic ties with the technology provider Huawei-IDEOS</p>
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Table 3 ó Reorganization and interpretation of TIM and Vodafone case data around: discontinuity; impact on executed strategy (BM¹ ó VN¹ ó RM¹); strategic re-planning determined (BM² ó VN² ó RM²)

Strategic Tool	Revisited role	Strategic impacts and implications for discontinuity (environment/enterprise-driven)	Variations to control for strategy monitoring and discontinuity assessment
<p>Business Model (BM)</p>	<p>BM enables strategy execution and operationalization.</p> <p>The choice of a given "business model parameters mix" (i.e. specific tactical decisions on the values to be assumed by the nine composing building blocks) affects the firm performance.</p> <p>BM performance can be influenced by factors, either exogenous or endogenous, which impact or modify the model's constituting building blocks or parameters: thus, it may serve as a tool to spot discontinuities.</p>	<p>Unplanned, unexpected change in:</p> <ul style="list-style-type: none"> - Value proposition (products/services value; performances/features; needs/problems addressed; bundles) (P1) - Customer segments (mass/niche market; segmentation; diversification; multi-sided markets) (P2) - Customer relationships (self-service; automated; community; co-creation) (P3) - Channels (direct/indirect; specialized/shared; internal/external; integration with customer) (P4) - Key activities (tangible/intangible; value creating/destroying) (P5) - Key resources (tangible/intangible; physical/intellectual/human/financial) (P6) - Key partners (partners; suppliers; activities performed; inputs acquired) (P7) - Revenue streams (pricing; money from sale/fee/subscription; revenue sharing) (P8) - Cost structure (fixed/variable; drivers; economies of scale/scope/learning) (P9) 	<p>Variable: BM parameter performance or value assumed (for each of the nine parameters identified, BM (P1-9))</p> <p>If:</p> <ul style="list-style-type: none"> - BM (P1-9) performance falls outside of a "value range" (planned at a BM design phase and confirmed by the business as usual); and - the performance variation is radical and appears stable (or subject to a visible trend), not determined by contingent fluctuations <p>Then:</p> <ul style="list-style-type: none"> - A discontinuity is taking place; - Strategic re-planning is required at a business strategy level, with focus on BM redesign
<p>Value Network (VN)</p>	<p>VN, as a concept and construct, is closely related with BM.</p> <p>VN configuration and BM design mutually affect each other: the VN altogether can be interpreted as a system of interconnected and interplaying BMs of different firms operating in the industry.</p> <p>VN supports the identification of changes in the firm's external environment and in the overall value system. A dynamic process of VN mapping of an industry facilitates the strategic activity of environmental scanning and discontinuity assessment.</p>	<p>Unplanned, unexpected reconfiguration of:</p> <ul style="list-style-type: none"> - Activities (tangible/intangible; value creating/destroying; emerging/falling) - Layers (emerging/falling sets of activities; bundling of processes borrowed from converging industries, enhancing/replacing old processes) - Activities combinations and roles (reshaped coverage of activities; new roles for incumbents/newcomers) - Actors involved (new entrants; exit of incumbent players) - Value exchanges (emerging/falling relationships among actors) - Currencies of value (goods/services and revenues; knowledge, intangible benefits) - VN structure (focal firm; structural holes; critical network influences; structural equivalences; revenues streams) - VN dynamics (lock-in/out effects; learning races) - Governance of strategic interdependencies/relationships (competition, partnership, alliance, co-competition) 	<p>Variable: VN configuration, defined as the interrelation and strategic interplay of different business models adopted by different firms operating within the business area (e.g. R(BM1-BM2): VN relationship between Firm1, with a given BM1, and Firm2, with a given BM2)</p> <p>If:</p> <ul style="list-style-type: none"> - VN relationship RBM1-BM2 is radically restructured (in terms of, e.g.: entry or exit of market players, emerging activities, different governance of interdependencies among firms) <p>Then:</p> <ul style="list-style-type: none"> - A discontinuity is taking place; - Strategic re-planning is required at a business strategy level, with focus on VN reconfiguration

<p>Resource Management (RM)</p>	<p>Resources, competencies and capabilities endowment is made of tangible/intangible assets, processes, paths, routines, approaches, relationships, which may rise deliberately or emergently.</p> <p>The management of such endowment (RM choices) is closely related to strategy execution.</p> <p>Resource core status assessment is at the root of competitive advantage: a change in the status results in a change in the nature and performances of competitive differentials.</p> <p>RM is a dynamic activity, which explains much about the development of the internal/external environment a firm is embedded in.</p>	<p>Unplanned, unexpected modification of:</p> <ul style="list-style-type: none"> - Resource endowment (rise/fall of resources/competencies/capabilities) - Resource status (core; not core; un/necessary to compete) - Resource contribution to competitive advantage (present/absent; rising/dropping/stable; cost/value competitive differentials supported) - Resource response to planned RM recommendations (invest/hold/divest) 	<p>Variable: RM status, defined as the core-not core condition of each Resource (x, y, i, z) (identified in the planned resource endowment) resulting from the application of the five core tests (Collis and Montgomery, 1995)</p> <p>If:</p> <ul style="list-style-type: none"> - Resource (x) modifies its status (passing from core to not core or <i>vice versa</i>) and contribution to competitive advantage; and/or - RM planned recommendations are inconsistent with renewed Resource (x) status <p>Then:</p> <ul style="list-style-type: none"> - A discontinuity is taking place; - Strategic re-planning is required at a business strategy level, with focus on resource endowment and RM recommendations
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Table 4 ó Summary of the study's findings