A Reformulated Value Chain Framework Useful for Different Kinds of Markets

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Abstract

With the emergence of new kinds of markets, scholars recognize that Porter’s (1985) value chain framework is no longer sufficient for analyzing business firms. To confront this challenge facing managers and entrepreneurs, this paper generalizes previous works to establish results that are equally applicable to the analysis of firms that offer tangible products, services, or informational goods. Through logical reasoning and investigation of aspects of the fast-changing world of business, such as market competition, innovation, and resource, formal propositions are established. Accordingly, practical and reliable general recommendations are offered, as well as a few unsettled questions for future research.

Keywords: market invitation; product; resource; value
VALUE CHAIN FRAMEWORK

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As the landscape of business has become fast-changing, new ways of wealth creation have begun to appear (Forbes, 2018; Forrester Research Report, 2000). For example, emerging virtual markets – where end-to-end business transactions are processed electronically through various channels of communication – have altered the conventional way of market competition and opened doors to a seemingly unlimited number of business opportunities. The changing form and intensity of competition, and continuously emerging business opportunities have attracted the attention of scholars, decision-making managers, and entrepreneurs from around the world (Hitt & Ireland, 2017). The corresponding emergence of new avenues of wealth creation has led to accelerated knowledge development and acquisition, the sharing of information and know-hows, and it has enthused quick turnovers of innovative products, services, and informational goods (Amit & Zott, 2001; Priem, Wenzel, & Koch, 2018). Although it has been widely employed to analyze manufacturing firms for various purposes such as investment, improvement of operations, etc., the value chain framework proposed by Porter (1985) has become inadequate in the current world of business due to an increasing speed of turnover of innovations, either incremental or disruptive. For example, Vendrell-Herrero, Bustinza, Parry, & Georgantzis (2017) and Stabell and Fjeldstad (1998) find that this framework, which is more than thirty years old, is not quite applicable for analyzing service firms. To address this issue for its theoretical importance and practical significance, this work addresses the following question: What, then, is an adequate value chain framework that can be applied to the presently rapidly changing world of business?

As such, to address this question this paper establishes formal propositions by employing the concept of systems and logical reasoning based on three axioms by respectively looking at competition, innovation, and resources. Then, based on these formal propositions, a new value chain framework is developed that generalizes Porter’s (1985) earlier version and can also be applied harmoniously to analyze firms that offer physical products, services, or informational goods.

The rest of the paper is organized as follows: Section 2 provides a literature review, while pointing to what this work contributes to the literature. Section 3 introduces relevant terminology. Section 4 establishes propositions on value creation in a market of free competition by means of innovation. Section 5 examines the relationship between idiosyncratic systems of resources and value creation. Section 6 presents the result that generalizes the earlier version of the value chain framework initially developed by Porter (1985). Section 7 concludes this presentation with practical recommendations for managers and entrepreneurs, as well as open questions for future research.

Before moving to the next section, let us use this opportunity to explain how the seemingly not closely related conclusions developed in different sections wrap around the main result – a
reformulated value chain framework. To make this main result theoretically valid and practically useful for value analysis at the firm level, we have to present this new framework as a procedure. The particular steps of the procedure need to provide what to do in terms of how to spot potentials of value creation, how to create and evaluate value(s) and related issues. Because the detailed steps touch on all aspects of a business operation, including, but not limited to, market trend sensing, adoption of a new strategy, plan of relevant activities, design of products, prediction on the values to be created and captured, etc., the conclusions that underlay the value chain framework have to cover the related theoretical foundations of reasoning. Speaking differently, the established conclusions throughout this paper, although they seem not very closely related in certain sense, jointly provide the logic for why the steps are necessary and how they would jointly and collectively work in real life.

Literature Review

Since the time Adam Smith (1776) stated that innovation represents a critical economic activity that fosters wealth, a very large body of studies has been conducted on the concept of innovation. Over time, the primary focus of investigation has been on what potentially makes a firm innovative. In this research direction, scholars have identified nearly sixty different environmental and internal factors that underlie the innovativeness of a firm, although the concept of innovation has been measured in different ways, some of which are not entirely consistent with each other (Becheikh, Landry, & Amara 2006). Different from mentioned literature, this current work establishes a much clearer relationship between innovations and value creation.

In terms of resources, Penrose (1959) first declares the importance of organizational resources for the success of firms. With the involvement of many scholars, the resource-based view of the firm has emerged since the 1980s for the reason that resources can naturally explain synergistic and differential effects on firms’ performance and the contingencies associated with each effect (Dotzel & Shankar, 2019; Fang, Palmatier, & GreHwal, 2011; Hoskisson, Gambeta, Green, & Li, 2018; Porter, 1979; Wernerfelt, 1984; Kozlenkova, Samaha, & Palmatier, 2014). For example, Dutta, Narasimhan, & Rajiv (1999) and Moorman and Slotegraaf (1999) suggest that when resources are externally focused and market-based, while also complemented by internal resources, the firm that has access to the resources could enjoy the greatest benefits. This suggestion agrees with Day’s (1994) argument that inside-out capabilities are needed for a firm to exploit outside-in capabilities. Barney and Hesterly (2012) look at the question of how sustained competitive advantages of a firm can be generated based on available resources, while also maintaining that some of the firm’s resources need to be valuable, rare, imperfectly imitable, and that the organization of the firm is capable of exploiting those resources. Cacciolatti and Lee (2016) generalize the resource-advantage theory to analyze the capability-performance relationship. The work enables them to explain how different types of marketing capabilities contribute to firm performance. Ombaka Awino, Machuki, & Wainaina (2015) find that resources possess mixed influences on firm performance indicators, and specifically that resources have a statistically significant influence on the non-financial performance of insurance companies. Enriching this literature, this paper shows that resources can assist their controlling firms to create value for consumers.
For information and value creation, the literature can be roughly classified into the following three categories – information and innovation, interior and exterior of an organization, information and business successes. For example, in terms of the relationship between information and innovation (a confirmed source of value creation), Howell, Beers, & Doorn (2018) consider the challenge of bringing value to end consumers by examining the role of information technology (IT) in frugal innovation - the process of reducing the sophistication and costs of a goods and its production so that the goods can be affordably sold in a less developed market. They demonstrate how IT has introduced new frugal innovations and influenced new business models in Africa. Based on the past finding that foundational innovations are often contingent upon access to technologies of diverse influence and sourcing innovations from outside a firm’s focal industry, Datta (2016a) confirms empirically that technologies of diverse influence enhance foundational innovations, while sourcing diversity impedes them.

Regarding the relationship between the interior (or knowledge about specific characteristics of individual organizational entities) and exterior (smooth sharing and exchange of information and goods with the outside world) of an organization, by using the Standard & Poor’s (S&P) 500 database from 1996 to 2009, Datta (2016b) empirically shows at micro-firm level that:

- Both sourcing innovation from outside of a firm’s focal industry (or exterior sourcing) and wider-range applications of technology than what is pre-defined (or technology distinctness) have an inverse U relationship with the radicalness of an innovation, and
- Exterior sourcing negatively moderates the relationship between technology distinctness and radicalness such that high technology distinctness and fewer and focused exterior sourcing will have the strongest relationship with radicalness.

So, the author suggests that there were an optimum recombination of exterior sourcing and technology distinctness in which the radicalness of innovations is maximized. At the macro-level of nations, Uzuegbunam, Geringer, & Oberst (2018) study the relationship of national culture and global connectedness with the creative destruction process. These authors developed hypotheses regarding the extent of a nation’s adoption of creatively destroying technologies based on cultural dimensions of uncertainty avoidance and cultural tightness (vs. looseness), and global connectedness dimensions of depth and breadth. By using the data of agricultural biotechnology adoption in 58 nations, they find significance for interaction between tightness and dimensions of global connectedness.

Concerning information and business successes, Stryja and Satzger (2018) derive recommendations, based on the data from an in-depth interview study with seven providers and consumers of electric cars, for the design and use of information systems for consumers to test new innovations in order for them to complete the purchase of the consequent products. In their review paper, Li and Nguyen (2017) highlight when firms would engage in opportunities of collaboration that involve information and what critical elements are for success in terms of economies of scale, knowledge sharing, market size and volatility, strategic partner selection, intellectual property rights, spillover effects, collaboration costs, trust and commitment, opportunism and overall collaboration strategy.
Against the backdrop of this literature on information and value creation, one contribution of this paper is the development of a general fact that the faster information circulates, the more often creative destruction appears. By joining this fact with Theorem 1, this work demonstrates that market information and challenges motivate entrepreneurs with their correspondingly disparate circumstances and varied cognitive aptitudes to introduce their different solutions. It is market information, challenges and corresponding entrepreneurs’ efforts that underlay the appearance of various incremental and disruptive innovations.

**Background Information**

In order to assist in the seamless flow of logical reasoning, this paper assumes that each business firm considered herein exists for the purpose of satisfying a particular market niche with its operation financially maintained by a positive cash flow as a consequence of its business conducts. Although in the past such positive cash flows were backed by firms’ performance and profits (Sobel, 1999), that is no longer the case in recent times, where positive cash flows can be assured through investment inflows based on promises or potentials (Li & Ma, 2015). For example, within the landscape of global e-commerce, online retailers have focused on pumping up their future promises and potentials so that they can continuously attract sufficient amounts of venture capitals by emphasizing increasing their market shares instead of solely on making profits. Insomuch, some well-known retailers have been losing money one year after another since their inception.

By value in this paper, it stands for the benefit offered by a product, service or good to an economic agent, even though it is defined differently by competing schools of economics. Value in fact has been widely studied in various disciplines, such as computer science, economics, investment, marketing, mathematics, music, philosophy, semiotics, etc. Because the related literatures are enormous, we omit a review of the studies here. By value creation, it stands for a process a firm goes through to offer its output that is valuable to an economic agent. Such a process consists of two components: creating value either for consumers or for shareholders. When consumers are the target, value(s) are created to satisfy certain market demands. When shareholders are the end purpose, the process aims at attracting future investment capital. Opposite to the concept of value creation is that of value capture. It stands for the value a firm captures by implementing a value creation process that satisfies market demand(s).

By consumers, we mean the end users of products, services or goods; and, by customers those firms that employ those products, service or goods as inputs to produce their outputs. By resource, it stands for an asset of a firm that it can mobilize to introduce and implement its business strategies (Barney & Arikan, 2001; Harmancioglu, Droge, & Calantone 2009). That is, a resource of a firm is anything that the firm can employ to realize its business objectives; it can take a physical, financial, intellectual, or organizational form. Beyond resources, it is innovative mobilization of resources that practically provides a firm with alternative facilities that differentially improve its internal efficiency and create value externally for consumers or customers. By advantage (or competitive advantage), it represents a special way for a firm to mobilize its resources, such as a strategy or particular way of operation, production, or management, so that the firm is able to generate more value than other firms, considered marginal or just break even, in its market (Peteraf & Barney, 2003).
Here, the term *virtual market* means such a setting whereby internet infrastructure helps facilitate business transactions and business deals. The internet infrastructure is a world-wide electronic network. It helps create virtual communities and unconventional commercial arrangements (Hagel & Armstrong, 1997); it enables knowledge and know-hows to be widely shared among firms and instantly avails product information to consumers.

Several additional characteristics of virtual markets include:

- Convenient connectivity (Dutta & Segev, 1999),
- Easy completion of transactions (Balakrishnan, Kumara, & Sundaresan, 1999),
- Self-serving platform for cross-regional and inter-organizational networks to form (Shapiro & Varian, 1999), and
- A provider of free or low-priced information (Evans & Wurster, 1999).

Entrepreneurial startups and corporate ventures have been – and still are – successfully riding the quick emergence of virtual markets while creating tremendous amount of new wealth (Amit & Zott, 2001).

**Value Creation Through Innovation**

To start, let us define the general concept of products as follows: product stands for a tangible or intangible thing, produced by a business entity, which consumer(s) demand. For example, a piece of furniture is a (physical) product that can be materially used by consumers in their lives. An insurance policy represents a (intangible) product, consisting of promises that consumers can count on when predetermined conditions are met. Services provided by a firm, such as a coin-operated laundry service, indoor tanning, etc., are products that the public and consumers can ‘receive’ through enjoying the services. A financial firm’s investment recommendations are (informational) products, produced by the firm through gathering, organizing, and analyzing data. It should be noted, that in economics, it is well known that these listed items are all seen as products. However, in the literature of management and marketing, they are not (for relevant references, see the following discussions).

For our purpose of this work, let us define innovation as follows, based on how it is defined for the manufacturing sector (Forrest, Tucker, Lin, & Mondal, 2018): By innovation, it means either one particular activity or a collection of several activities that relate to the offering of a product or a bundle of products, while the product or the bundle leads to exceptionally added value for a firm when compared to other activities that are taking place at the same time in the same economic sector. In this definition, the phrase ‘the offering of a product’ means implicitly the design and production of an original product that creates exceptionally added value for the firm. In this context, innovation means all relevant activities that lead to the introduction of the product.

On the contrary, the phrase ‘the offering of a bundle of products’ is profoundly different. It means packaging (or bundling) several products together in one delivery to consumers. Here,
each of the packaged products may or may not be special or original. The creativity and the innovativeness underlying such bundles of mundane products lies in the potential development of simultaneous consumer utilities and multi-sided markets. For example, for a university town located in the northern USA where winters are long and cold, bundling self-service, coin-operated laundromats and indoor tanning services can create demand-side synergies (Ye, Priem, & Alshwer, 2012). More specifically, simultaneous consumer utilities are produced for those university students, living on tight budgets, to wash their clothes and tan their skins concurrently. The concurrency saves the students the otherwise fruitless and costly waiting time. And whilst formed is a two-sided market, where male and female students can potentially meet and establish relationships, because the bundled services provide a location and opportunity for students to meet, where women’s greater participation in the tanning service attracts a larger number of men to the laundry service, while the increasing number of men using the laundry service encourages additional women to use the particular location for one of the bundled services.

Furthermore, the abstraction of our definition and its emphasis on the comparatively added value indirectly make our notion of innovation contain many practical aspects. For example, the emphasized added value suggests that:

- An exceptional degree and quality of creativity have to emerge over time;
- Creativity has to come from either the current or forecasted future demands and must be comprehended within a firm and accepted externally by market;
- Adequate processes exist for developing, producing and pushing products into market in order to create and capture the expected value;
- Intended values are actualized;
- Beyond inventions this concept of innovation also indicates the translation of relevant inventions into products or processes that satisfy the identified market demand;
- This concept of innovation allows the possibility of relative newness in product and process development; and
- Even though not explicitly mentioned, this definition incorporates potential roles of relevant technological changes in particular and processes and outcomes in general.

From this definition of innovation, it can be understood that new and exceptional value is created through innovative creativity, as claimed by Schumpeter (1934), and that innovation transpires from diverse contexts and in dissimilar means, including, but not limited to, the design and production of new products, the establishment of new production methods, the implementation of efficient procedures, the development of brand-new markets, the location of new supply sources, and the reformation of industries (Schumpeter, 1934). All the originality and the relevant scarcity in different facets associated with innovation afford entrepreneurs the collection of highly priced rents. The values of these rents gradually diminish as the originality becomes usual and as established exercises and the scarcity vanish. That is how the notion of creative destruction emerges (Schumpeter, 1942). The initial rents are high due to risky initiatives undertaken by entrepreneurs. The entrepreneurial insights underlying the initiatives are subject to self-destruction when knowledge amasses and disseminates over time.

Within this thread of thoughts, the following question arises naturally:
How could an innovative idea (equivalently, a collection of activities that later leads to exceptionally added value) appear?

Existing literature implies that a new innovation appears when particularly smart people suddenly and randomly hit on some bright ideas (Ridley, 2016); and that the creation of innovative demand-side synergies comes from deep understanding of consumers’ wants and intimate familiarity of commonly available resources (Ye et al., 2012). That is, the literature that is based mostly on anecdotes suggest that innovative ideas emerge randomly within the prepared minds of particular individuals who happen to be at the right place at the right time. However, contrary to this passive empirical and anecdotal literature, recent theoretical studies (Yang, 2018) show that innovative ideas can be very well logically and systematically generated. For our purposes in this paper, let us cite the following game-theoretic result to fully understand what is in the play in the appearance of innovative ideas:

**Theorem 1** (Forrest, Buttermore, & Wajda, 2017). Assume that the oligopoly market of concern is perfectly competitive without any interference from outside. Then, in the Nash equilibrium, at least one new enterprise enters the market competitively and profitably, if and only if the magnitude of consumer surplus is greater than or equal to the size of the loyal consumer base of any incumbent firm, where the consumer surplus is defined as the totality of all consumers who make purchase decisions based on whose price is lower.

This conclusion explains why Schumpeter (1934) stresses the significance of entrepreneurs and underscores innovations and products, out of creative combinations of available resources. Specifically, with their respectively disparate circumstances and varied cognitive aptitudes, entrepreneurs grasp the same market invitations differently, as signaled by growing scales of consumer surpluses in product markets. These entrepreneurs come up with their individually particular solution(s), believing that their product(s) will answer the market invitations. Such collective efforts for new products benefit creative and efficient usages of available resources and lead to discoveries of new and substitute resources. Simultaneously, these new products upsurge the magnitude of market competition, obliging incumbent firms to either improve their products or introduce new ones. That is, it is entrepreneurs, acting individually and independently, who constantly rejuvenate markets through offering forever renewing energies and opportunities of value creation.

Summarizing what has been discussed so far, this paper concludes that each innovation can be seen as a collection of determined activities devised to satisfy an acknowledged demand of the marketplace, either large or small. The role played by technology in innovation is manifested through the improvements it provides, including, but not limited to, improving production efficiency, producing more targeted discoveries, and reducing the overall expenditure, etc. With each market invitation, entrepreneurs, who provide their individually different innovations based on their dissimilar understandings of the market signal, jointly transform markets and industries, leading to continuous economic development.

**Proposition 1.** The availability of information affects the emergence of creative destruction. Simply stated, the faster information circulates, the more often creative destruction appears.
To understand why this conclusion holds true, let us first see how information affects economic development. In primitive times, people made their living through exploiting whatever was available within their immediate environment, as each family built or crafted everything necessary for survival. Driven by the need for survival and for better living conditions, relevant information started to circulate from one family to another, from one tribe to another, and from one location to another. People started to produce products/goods in increasingly larger quantities and quality improved. Hence, family-based workshops appeared to satisfy the rising demands from other families, followed by other tribes, then by other locations. The growing demands led to the incubation of commerce, although only locally in today’s standard.

As production speed accelerated and circulation spheres increased to extended distances, demands from further out places started to appear. Correspondingly, orders were filled and shipped across lands and waters, encouraging the development of technology for mass-production, transportation, and communication. Such development connected originally isolated local markets through long-distance shipments and movements of information and knowledge. That is, the disconnected workshops of the earlier times, initially family-based, became more associated through supply chains.

With the circulation of goods, information, and knowledge throughout regions, small workshops began to serve their corresponding regional markets, elevating consumer demands to a higher level. The elevated market demands reciprocally encouraged the small workshops to advance into large factories equipped with advanced technologies. With this economic development, large-scale leaps in industrial development appeared one by one, accompanied by the worldwide spread of information and knowledge of know-hows (Wen, 2016). The history of past several hundred years demonstrates how powerfully accelerated circulation of information and knowledge has induced the growth of business enterprises (Sobel, 1999), be they either a global player or a small startup. For a more in-depth discussion on the evolution of manufacturing firms, see Forrest et al., 2018.

Returning to the reasoning of our stated conclusion, creative destruction represents a process through which an organization evolves by relentlessly revolutionizing its organizational, economic, or cultural structure from within, leading to the destruction of its old structure and the establishment of a new one (Schumpeter, 1942). Here, and from the discussion in the previous paragraphs, we see that the underlying revolutionizing forces are the availability of new information and knowledge, and the business entity’s desire to survive and grow. Hence, the magnitudes of these forces increase with the circulation speed of information. In other words, the faster information circulates throughout land, the more rapidly a firm needs to revolutionize its structure and, consequently, the faster creative destructions appear one after another.

The phenomenon of e-commerce is an example of application of Proposition 1. Functioning as a worldwide communication network, the internet combines all traditionally regional economies into a giant system of world markets, with little trouble in terms of long-distance delivery. And virtual markets emerge simultaneously as connection increases. These virtual markets reconfigure creatively and have revolutionized the traditional commerce. With an enormous amount of openly shared information and knowledge, businesses that can innovatively interpret market signals and create value in unprecedented ways, on both the supply side and the
demand side (Ye, et al., 2012). Entrepreneurs now find ways to collaborate through virtual markets in new forms that involve business entities spanning different markets over long distances, parties in a supply chain, and additional consumers. These unprecedented possibilities of collaboration, which transcend boundaries of firms and industries as traditionally defined, encourage value creation and capture. Based on this discussion, Proposition 1 infers that with the development of e-commerce, creative destructions in all areas of business will appear in increasing speed until the full potential of the internet system, if such exists, is reached.

**Value Creation and Systems of Resources**

By a system we mean an organization (or a structure) within which component parts are organically associated with each other in unique ways (Forrest, 2018). Hence, through using the concept of systems, we can naturally identify each firm with its specific system of resources. For example, two firms might possess a same collection of resources, including human resources, but mobilize the resources differently. So, the firms are different from each other by their individually unique ways of mobilizing their identical sets of resources. Thus, the resource-based view (RBV) or theory of a firm (Kozlenkova, et al., 2014) can be formally developed from three basic and quite intuitive axioms (Forrest, Shao, McKinney, & Shao 2019), known as Resource Heterogeneity, Resource Immobility and Different Levels of Efficiency, as the starting points.

**Fundamental Properties of Resources**

In this subsection, we look at three systemically intuitive axioms in order to lay down the foundation for the logical analysis of the rest of this presentation. First, let us look at the axiom

**Resource Heterogeneity**: Different firms possess respectively different systems of available resources, even when firms operate within the same industry.

In fact, each firm is naturally a non-trivial system of human organization, where a system is non-trivial provided that the component parts of the system are indeed related to each other somehow in the formation of the system. This firm system consists of hard component parts, such as buildings, equipment, office spaces, investments, etc., and particular ways that organize these hard component parts into an organic whole. The very existence of these specific ways of organizing the hard component parts into an identifiable social entity makes the firm visible – either physically or intellectually or both. That is the reason why we can identify each firm with its unique system of resources, including such hard components (or resources) as employees and such soft components as missions and goals. When two firms are different, there must be some aspects of their underlying systems of resources that separate the firms from one another.

We formulated this axiom of resource heterogeneity based on the work of Peteraf and Barney (2003) by looking at the systemic composition of a general, representative firm.

Second, let us look at the axiom
Resource Immobility: Differences in firm systems of available resources may persist over time because of practical difficulties of trading resources across firms and of connecting available resources in particular ways.

This axiom of resource immobility is formulated based on the work of Barney and Hesterly (2012). It formalizes the general phenomenon that differences between the systems of firm resources materially persist over time. In real life, such differences stem from the specific historical paths, social networks, knowledge composites, established routines of operation, etc., of the firms.

Third, let us look at the axiom

Different Levels of Efficiency: Performance differences in firms stem from differences in their systems of available resources and intrinsically different efficiency levels of the resources.

This axiom of different levels of efficiency is based on the work of Peteraf and Barney (2003). It reflects the real-life situation that different firms have individually different ways in mobilizing and utilizing available resources. It is these different ways of resource mobilization and utilization that performance characteristics of firms are naturally different from one to another. That is the reason why resources available to firms have intrinsically different levels of efficiency.

When a Firm is Able to Create Value

A resource is valuable to a firm (Barney, 1997) only if the resource empowers the firm to upsurge its profits by implementing a specific strategy by paying attention to external opportunities and threats, beyond the would-be case without the resource. By combining the RBV and the concept of value creation, we have following result:

Proposition 2. Assume that a firm controls a system of valuable resources that few other firms share. If the firm is also able to mobilize those resources, then this firm will be able to create values.

The rationale of this conclusion is based on the scarcity of resources and the firm’s capability to make use of these resources such that they enable the firm to establish its particular competitive advantages, of which few other firms can compete with successfully until the scarcity goes away.

Proposition 3. Assume that a firm has developed policies and procedures to exploit its valuable and rare resources. Then, the firm possesses a capability to create additional values.

This conclusion follows readily from Proposition 2. For relevant empirical studies, Morgan, Slotegraaf, & Vorhies (2009) shows that if brand management resources are employed appropriately, firm performance improves. Zheng, Yang, & McLean (2010) observe the positive dependence of a firm’s performance on the effective integration of policies and procedures into the firm’s organizational culture.
Proposition 4. Assume that a firm possesses a system of simultaneously valuable and rare resources. If the management and shareholders have accordant interests, then this firm is able to create value sustainably by mobilizing its resources.

In fact, the hypothesis that the management and shareholders have accordant interests implies that the firm’s valuable and rare resources can and will be effectively exploited by the management. So, Proposition 2 indicates that this firm will be capable of creating value sustainably through employing these resources.

In short, Propositions 2 – 4 imply (from the point of view of the RBV) that marshaling a system of specialized, valuable and scarce resources can potentially lead to value creation. Speaking differently, when a firm is identified with its individually unique system of resources, the firm can potentially create value from its resources that are valuable and rare. This conclusion has been more or less empirically established by various scholars, such as Amit and Schoemaker (1993), Barney (1991), Peteraf (1993), Wernerfelt (1984), and others, since the time when Penrose (1959) first acknowledges the importance of organizational resources, to the success of firms.

**General Value Chain Framework – The Main Result**

The value of a product stands for either how much consumers are willing to pay for that product or the total revenue generated by the product (Payne, Frow, Eggert, 2017). For a firm to be profitable, its revenue from its product(s) must be greater than the production and delivery costs of the product(s) (Porter, 1985). A value driver for a business is any factor that boosts the business’ total value (Amit & Zott, 2001), which is equal to the sum of all values captured by the participants of transactions in the business (Brandenburger & Stuart, 1996).

To produce useful results for value analysis at the firm level, no matter whether the firm of concern produces physical product(s), service(s), or information good(s) to satisfy certain consumer demand, let us reformulate Porter’s (1985) value chain framework as follows:

1. Comprehend market signal innovatively,
2. Configure a firm’s strategic direction accordingly,
3. Ascertain the essential activities that will practically direct the firm onto the desired path,
4. Design the products that will adequately satisfy market demand(s), and
5. Calculate the values that will be both created and captured by each activity.

Within this framework, a firm’s leadership first recognizes the market signal and then understands what it means creatively (Theorem 1). Thus, the creativity within the firm’s unique understanding of the market signal is employed to determine an adequate strategic direction for the next stage of development for the firm in terms of what resources are available and the firm’s capabilities (Forrest et al. 2017). Second, in the chosen strategic direction the leadership identifies and engages all relevant stakeholders in the crucial activities and decisive procedures required in order to successfully implement the adopted strategy. Third, the product(s) must be designed in order to answer the deciphered market call. And fourth, the leadership scrutinizes the economic implications of these identified activities and procedures and assesses the fitness of the imagined
products by means of value creation and capture. After all these due diligences are carefully done, the imagined new products are produced and offered to the market.

Specifically, when a consumer demand of sufficient depth arises, an invitation for research and development (R&D) and for introducing respectively innovative products appears in the marketplace in terms of consumer surpluses (Forrest et al. 2017). Because each decision maker is naturally constrained by his/her background of knowledge and experience, as well as his/her ability to comprehend, it is critical for a firm’s leadership to understand creatively the market’s telling and to introduce its consequent strategic direction, plan, and actions in order to offer its imagined products (McGrath, 2013). That is, in this general value chain framework, the most fundamental is the first step, and the other steps develop naturally. In practice, before rushing into anything, the leadership must carefully understand these 5 steps. Such preliminary studies reconfirm that the received market signal is adequate, provide images particularly on what needs to be internally implemented accordingly, how the identified market demand can be satisfied, and what offer the firm can potentially provide and deliver to the market.

Regarding managerial decision-making and planning, this framework helps to address the following main questions: (i) what should a firm do and how? (ii) What are the conceived activities that would enable the firm to add value to its catalog of product(s) in order to compete in the marketplace? And (iii) what are the strategic and operational alignments of the firm in order for it to materialize its initial recognition of the market signal?

Specifically, the ‘what’ in question (i) is self-encompassing, including what to design and produce innovatively, what method(s) of production to adopt, etc. The ‘how’ looks at such detailed aspects of operation as: ‘how could deliveries be done?’, ‘what advertisements need to be employed?’, ‘which territories or segments of the market could and should be entered?’, ‘how could the market entry barriers be overcome?’ ‘how should the overall business operation be run?’, and others. Answers to these and related questions need to possess novelty and improved efficiency. Appropriate answers to questions (ii) and (iii) will unreservedly consider issues concerning complementarities of products and the lock-in effect. Here, product complementarity represents the possibility of packaging together several different but somehow related products for sale in order to provide more simultaneous consumer utilities than the sum of selling each of the products separately (Mantovani, 2013; Sheikhzadeh & Elahi, 2013; Yan, Myers, & Wang, 2014). The lock-in effect describes the motivation for consumers and business firms to participate in repeated transactions. Amit and Zott (2001) empirically identify the lock-in effect as a major value driver – along with efficiency, complementarity, and novelty – for value creation in e-business.

When this general value chain framework is employed to investigate a firm, the analysis identifies the firm’s primary and supporting activities. The former impact on the firm’s value creation, while the latter affect the expected value through their effects on the performance of the former. Here, primary activities are those activities that directly relate to the design and production of innovative products. They include such details as internal logistics, operational routines, production procedures, outbound logistics, marketing, sales, and services.

The concept of products, as defined earlier, implies that value chain analysis can now be utilized to examine opportunities of value creation and capture in the traditional manufacturing
space, virtual markets, and service firms. This means that our general value-chain framework contains Porter’s (1985) version as a special case (Stabell & Fjeldstad, 1998), and generalizes Rayport and Sviokla’s (1995) virtual value chain, consisting of gathering, organizing, selecting, synthesizing, and distributing information. In particular, gathering information, which is the first step in the virtual value chain, is equivalent to acquiring raw materials for the case of manufacturing firms; organizing information, the second step, is equivalent to the initial processing of raw materials; selecting and synthesizing information, the third and fourth steps, are equivalent to those of manufacturing or producing the eventual goods; and distributing information is the same as offering ready-made products to consumers. In other words, in practice, one needs to follow an appropriate parallelism exactly when he/she employs our general value-chain framework.

Beyond investment purposes, managers and entrepreneurs can also use our general value chain framework to discover opportunities of value creation. For example, an increasing number of traditional brick-mortar businesses have established their e-components through adequately processing their information flows. Also, many established e-enterprises have constructed their brick-mortar outlets to showcase their products and to speed up their deliveries of online orders. That is, by using our general value chain framework, one can discover value opportunities by joining informational and physical products, intangible and tangible products, on-site and off-site services, creative methods of transactions, innovative use of resources, and associations between suppliers, stakeholders and customers, to name a few.

In our value chain framework, although a holistic view is emphasized, the total value is still created little by little throughout each of the steps. These pieces of value are created through offering differentiated products that reduce costs for both the firm of concern and its consumers; or, they are produced through raising consumers’ utilities. According to Theorem 1, product differentiation is the true driver underneath the value creation, while a true differentiation comes from an innovative recognition of the market invitation and the adoption of appropriate strategies. The recognition and strategy adoption consequently determine what to carry out and how, when, where, as well as the sharing of responsibilities among suppliers, channels, and business divisions.

**Final Words**

To survive and grow in today’s stormy business world, firms can no longer exploit their established, sustainable competitive advantages. Instead, they must constantly look for ways to ride waves of transient and unconventional opportunities to create and to capture value (McGrath, 2013). A noticeable global trend is that an exponentially increasing number of business entities conduct at least portions of their transactions through virtual markets (Forbes, 2018; Forrester Research Report, 2000). In other words, market competitions are changing in terms of their forms and rules as technology develops further. The effort of directly connecting sellers and buyers has become either free or affordable. Systems for buyers to place orders and for sellers to deliver products have become extremely efficient and effective (Amit & Zott, 2001). To both academically and practically accommodate such speedy changes, this work expands the usability of the well-received value chain framework by Porter (1985) so that our general framework can be equally employed to analyzing and investigating firms, no matter whether they offer tangible products, or useful services or informational goods. Beyond its theoretical value, the established conclusions
in this paper are expected to provide managers and entrepreneurs with a dependable way to make their decisions instead of suggestions of limited validity derived on anecdotes and data.

To accomplish its purpose, this paper studies the global scenery of the shifting world of business by using the concept of systems and logical reasoning starting from three basic and intuitive axioms from the angles of competition, innovation, and resources. From the angle of market competition, this work explores how markets specifically gesture invitation for improved and new products, and how the appearance of creative destructions is becoming more frequent than before. This work also demonstrates when innovations provide additional potential for value creation and when resources’ latent values can be made visible through value creation.

Regarding practical applications, conclusions developed in this paper provide general recommendations, rather than suggestions for decision makers, such as entrepreneurs, managers, and retailers. Specifically, this paper expresses the critical need for entrepreneurs to innovatively spot market signals in their individually different ways so that they can produce their idiosyncratic products (Theorem 1). And managers can potentially create additional value from the resources by encouraging information sharing and idea exchanges (Proposition 1). Managers must adopt and implement policies and various procedures to mobilize their firm-specific resources and to acquire new resources (Propositions 2 and 3), while tying their interests with stakeholders’ (Proposition 4). Lastly, it is necessary to continuously introduce new products, even if only incrementally innovative, in order for a firm to stay ahead of the changing market environment (Theorem 1).

At this point of presentation, we like to have a few words on the methodology – logical reasoning – used in this paper and how our conclusions compare to the related ones in the literature, as detailed earlier. Although logical reasoning is more or less used in most research papers on value creation and capture, the logical reasoning we employ here is fundamentally different. It is parallel to the reasoning solely employed in Euclidean geometry and the naïve and axiomatic set theories of mathematics (Kline, 1972). It starts with a few basic and intuitive axioms to develop generally true propositions. This methodological approach has been universally employed for knowledge exploration in natural science and produced magnificent successes for such well-established disciplines as physics, chemistry, etc., where derived conclusions are not limited by data- and/or anecdote-specific constraints (Kuhn, 1962). Speaking differently, conclusions established herein are more theoretically reliable and practically useful than those derived from data and anecdotes. In particular, one can derive general managerial recommendations reliably from our conclusions, instead of suggestions of limited validity from data- and/or anecdote-based theories. Hence, one can differentiate between conclusions established in this paper and the related ones from the literature as follows: The latter are pioneering works that help make initial discoveries of potential facts and provide empirical evidences for the truthfulness of the former.

There are several limitations to this work. Regarding methodology, there are many available tools developed for theoretically (instead of statistically) analyzing organizations and their evolutions and interactions (Lin, Duan, Zhao, & Xu, 2012). Therefore, when employing these different tools, one can expect to establish finer conclusions that are employable in real life with reliability. Another limitation is that all logical reasoning in this work flows on the assumption of why a firm actually exists. However, in real life, business entities exist for various reasons, and therefore, some applications of the conclusions developed in this paper might not work in practice if the firms of concern are not established to satisfy a market niche through generating positive
cash flows. This implies the following problem for future research: How can similar results (as those in this paper) be established for each particular scenario of why a firm is brought into being?

References


VALUE CHAIN FRAMEWORK


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