

Business Model Innovations in Global Energy Corporations: “The Magic and Science of Blue Ocean Strategy”

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Abstract:

In the technology and innovation management field, the business model is mainly seen as a mechanism that connects a firm's (innovative) technology to customer needs and/or to other firm resources (e.g., technologies). The business model is conceptually placed between a firm's input resources and market outcomes, and it “embodies nothing less than the organizational and financial ‘architecture’ of the business” (Teece, 2010: 173). The business model, according to this more functionalist perspective, complements technology, but technology is seen as an enabler of the business model rather than as a part of the concept per se. Neither input resources nor competition in output markets is considered part of the business model concept.

The core logic of a business model, instead, revolves around a firm's revenues and costs, its value proposition to the customer, and the mechanisms to capture value. Thus conceived, the business model can be a vehicle *for* innovation as well as a subject *of* innovation.

IOCs have sharpened strategic agility by seizing and profiting from opportunities in the new business environment, creating its own blue oceans of energy through evolving value innovations. Today, Blue ocean strategy is being used to capture opportunities and mitigate strategic risks in Oil and Gas Exploration and production (E&P). Operational and general managers with key strategic decision-making responsibilities employ it to maintain sustainable value, to enhance safety and profitably, to increase reserves and production to meet the company's share of the world's energy needs, and to make competition truly irrelevant in high velocity and uncertain energy markets. This case describes how the blue ocean strategy is being adapted by IOCs and employed to create& capture opportunities and meet the considerable challenges created by recent changes in the industry.

Keywords: Business model, value creation, value capture, unconventional, Blue Ocean Strategy

JEL Classification: Q42, Q47

Introduction:

Strategy and Business Models: Value Creation and Capture

The business model has received increasing attention from scholars and business strategists interested in explaining firms' value creation, performance, and competitive advantage. The digital economy has provided firms with the potential to experiment with novel forms of value creation mechanisms, which are networked in the sense that value is created in concert by a firm and a plethora of partners, for multiple users. This redefinition of value has attracted the attention of management scholars, who have employed the concept of the business model in their attempts to explain value creation in networked markets. However, in explaining value creation, the concept of the business model has been used not only in the context of the digital economy.

Seelos and Mair, for example, have studied value creation mechanisms in the context of deep poverty. They conceptualize a business model as a “set of capabilities that is configured to enable value creation consistent with either economic or social strategic objectives” (2007: 53). Similarly, Thompson and MacMillan (2010) propose a framework for developing new business models that can lead to societal wealth improvements (e.g., reduce poverty and human suffering). Thus, value creation can refer to different forms of value (such as social or economic).

Value creation mechanisms often go beyond the value that can be created through Schumpeterian innovation, the (re)configuration of the value chain (Porter, 1985), the formation of strategic networks among firms, or the exploitation of firms' specific core competencies. As Amit and Zott (2001) observe, the locus of value creation, and thus the appropriate unit of analysis for scholars interested in value creation, spans firms' and industries' boundaries. The authors conclude that prior frameworks used in isolation cannot sufficiently address questions about total value creation. Based on a sample of 150 firms, they propose four potential sources of value creation through business models: (1) novelty, (2) lock-in, (3) complementarities, and (4) efficiency. These value drivers can be mutually reinforcing; that is, the presence of each value driver can enhance the effectiveness of any other value driver.

Literature Review:

Value can also be created through revolutionary business models. According to Hamel (2000), to thrive in the "age of revolution," companies must develop new business models—in which both value creation and value capture occur in a value network—which can include suppliers, partners, distribution channels, and coalitions that extend the company's resources.

While some literature on the business model tends to concentrate on the firm's activities with its network of partners, scholars increasingly are acknowledging that firms do not execute their business models in a competitive vacuum (Hamel, 2000) and that firms can compete through their business models (Casadesus-Masanell & Ricart, 2010). The business model, then, represents a potential source of competitive advantage (Markides & Charitou, 2004). The novelty presented by new, effective models can result in superior value creation (Morris et al., 2005) and replace the old way of doing things to become the standard for the next generation of entrepreneurs to beat (Magretta, 2002).

Business models can play a central role in explaining firm performance. Afuah and Tucci propose the business model as a unifying construct for explaining competitive advantage and firm performance and define it as "the method by which a firm builds and uses its resources to offer its customer better value and to make money in doing so" (2001: 3). Afuah (2004) focuses on firms' profitability and introduces a strategic framework in which the business model is conceptualized by means of a set of components that corresponds to the determinants of firm profitability.

While the work of Afuah (2004) and Afuah and Tucci (2001) is conceptual, some authors have conducted empirical analyses. Zott and Amit (2007) have analyzed the performance implications of business model design in entrepreneurial firms. They refer to the business model design as the design of a focal firm's set of boundary-spanning transactions with external parties. In their view, the essence of the association between business model design and focal firm performance can be analyzed by looking at two distinct effects: the total value creation potential of the business model design and the focal firm's ability to appropriate that value. They identify two design themes around which the business model can be orchestrated: efficiency and novelty. In their empirical work, Zott and Amit see the business model as the independent variable, and they link it to firm performance, moderated by the environment.

In another empirical study on firm performance, Patzelt, Knyphausen-Aufseß, and Nikol (2008) introduce the business model as a variable moderating the effect of top management team composition and organizational performance. They analyze a set of biotechnology ventures in the German industry and focus on two types of business models that biotechnology firms might adopt: platform and therapeutics. They show that the founder-based, firm specific experience of management team members can have either a positive or a negative effect on the firm's performance,

depending on the business model adopted. Similarly, Zott and Amit (2008) acknowledge the possible contingent effect of the business model in mediating between product market strategy and firm performance. They root their study in contingency theory, and they ask, How do the firm's business model and product market strategy interact to impact the firm performance? They find that (1) business models that emphasize novelty and are coupled with either differentiation or cost leadership can have a positive impact on the firm's performance and (2) novelty-centered business models together with early entry into a market have a positive effect on performance.

Other studies on the performance implications of business model design come from business practitioners and consultants (e.g., Linder & Cantrell, 2001). Consultants at IBM, interviewing 765 corporate and public-sector leaders worldwide, found that firms that were financial outperformers put twice as much emphasis on business model innovation as did under performers (IBM Global Business Services, 2006). Giesen, Berman, Bell, and Blitz (2007), examined the relationship between business model innovation and firm performance.

They identify three types of business model innovation, namely, *industry models* (innovations in industry supply chain), *revenue models* (innovations in how companies generate value), and *enterprise models* (innovations in the role the structure of an enterprise plays in new or existing value chains). They report two key findings: (1) each type of business model innovation can generate success, and (2) innovation in enterprise models that focuses on external collaboration and partnerships is particularly effective in older companies as compared to younger ones.

Strategy and the business model: The business model extends central ideas in business strategy and its associated theoretical traditions. Scholars contend that the business model can be a source of competitive advantage that is distinct from the firm's product market position (Christensen, 2001). Firms that address the same customer need and pursue similar product market strategies can do so with very different business models; business model design and product market strategy are complements, not substitutes (Zott & Amit, 2008).

Two main differentiating factors seem to have captured the attention of scholars. The first is the traditional emphasis of strategy on competition, value capture, and competitive advantage, whereas the business model concept seems to focus more on cooperation, partnership, and joint value creation (Magretta, 2002; Mäkinen & Seppänen, 2007; Mansfield & Fourie, 2004). The second factor of interest to management scholars is the focus of the business model concept on the value proposition and a generalized emphasis on the role of the customer, which appears to be less pronounced elsewhere in the strategy literature. Our review reveals a strong consensus that the business model revolves around customer-focused value creation (Chesbrough & Rosenbloom, 2002; Mansfield & Fourie, 2004). Viewed from this perspective, the business model encompasses the pattern of the firm's economic exchanges with external parties (Zott & Amit, 2008); it outlines the essential details of a firm's value proposition for its various stakeholders as well as the activity system the firm uses to create and deliver value to its customers (Seddon, Lewis, Freeman, & Shanks, 2004).

Despite the highlighted conceptual differences between business models and certain aspects of firm strategy, scholars have also emphasized that the business model can play an important role in a firm's strategy. According to Richardson (2008), the business model explains how the activities of the firm work together to execute its strategy, thus bridging strategy formulation and implementation. In a similar vein, both Shafer et al. (2005) and Casadesus-Masanell and Ricart (2010) view the business model as a reflection of a firm's realized strategy. According to Teece, the business model

reflects a “hypothesis about what customers want, and how an enterprise can best meet those needs, and get paid for doing so” (2007: 1329).

Summary of literature on business models in the strategy field. In the strategy literature, research on business models has revolved mainly around three aspects: (1) the networked nature of value creation, (2) the relationship between business models and firm performance, and (3) the distinction between the business model and other strategy concepts. Since strategy scholars are generally interested in a firm’s activities (as these help explain, e.g., how a firm distinguishes itself from its competitors), it is not surprising that many of the business model conceptualizations proposed in this literature stream center on (or at least include) the notion of activities or activity systems.

In the absence of a commonly accepted definition, scholars’ attempts at conceptual refinement have helped clarify at least what a business model is *not*. First, the business model does not involve a linear mechanism for value creation from suppliers to the firm to its customers.

Value creation through business models involves a more complex, interconnected set of exchange relationships and activities among multiple players. Second, the business model is not the same as product market strategy (i.e., it does not refer to firm positioning in product markets based on differentiation or cost leadership in certain activities) or corporate strategy (i.e., it does not describe or prescribe the areas of business in which a firm becomes active).

Third, the business model cannot be reduced to issues that concern the internal organization of firms (e.g., control mechanisms, incentive systems); activity systems, even though centered on a focal firm, typically span firm boundaries. However, the business model can be a source of competitive advantage.

Business Models, Innovation, and Technology Management

The business model concept also has been addressed in the domains of innovation and technology management. Two complementary ideas seem to characterize the research. The first is that companies commercialize innovative ideas and technologies through their business models. The second is that the business model represents a new subject of innovation, which complements the traditional subjects of process, product, and organizational innovation and involves new forms of cooperation and collaboration.

One important role of the business model could consist of unlocking the value potential embedded in new technologies and converting it into market outcomes. Chesbrough and Rosenbloom (2002) detail an extensive case study in which they show how the Xerox Corporation grew in part by employing an effective business model to commercialize a technology rejected by other leading companies. The study also compares successful and unsuccessful technology spin-offs with comparable market potential and finds that in successful

ventures the search and learning for an effective business model was significantly higher than in failed ventures. Björkdahl (2009) employs the business model concept for studying technology diversification and cross-fertilization efforts. His central argument is that the integration of new technologies into the technology base of a product (i.e., technology cross-fertilization) can open up new subspaces in the existing technical performance and functionality space, which in turn requires a new business model if the economic value potential of the new technology is to be captured.

Business models not only can entail consequences for technological innovations but also can be shaped by them. Calia, Guerrini, and Moura (2007) show how technological innovation can trigger changes in the company’s operational and commercial activities, and hence in the business model.

Although these studies have examined the role of business models in commercializing technologies at the level of the individual firm, more recently Johnson and Suskewicz (2009) have pointed to the importance of the business model for entire industries. They argue that in large infrastructural change (such as the transition from a fossil fuel economy to a clean tech economy) the key is to shift the focus from developing individual technologies to creating whole new systems. The business model is introduced as part of a comprehensive framework for thinking about systemic change. In summary, studies on business models, innovation, and technology management have asserted that technological innovation is important for firms, but it might not suffice to guarantee firm success (e.g., Doganova & Eyquem-Renault, 2009). This is because technology per se has no inherent value (Chesbrough, 2007a, 2007b). Besides embedding technology in attractive products and services, a firm needs to design a unique business model to fully realize its commercial potential. Indeed, business models matter even for general purpose technologies (i.e., “half polished” applications sold at intermediate development stages), which upstream firms license to downstream firms rather than developing final product themselves (Gambardella & McGahan, 2010).

Business model innovation: In addition to adopting business models to facilitate technological innovation and the management of technology, firms can view the business model itself as a subject of innovation (Mitchell & Coles, 2003). Chesbrough (2003) introduced the notion of *open innovation* as a mode of innovation in which firms, rather than relying on internal ideas to advance business, look outside their boundaries in order to leverage internal and external sources of ideas. A concept similar to open innovation is *collaborative entrepreneurship*, which is “the creation of something of economic value based on new jointly generated ideas that emerge from the sharing of information and knowledge” (Miles, Miles, & Snow, 2006: 2). Open innovation requires the adoption of new, open business models designed for sharing or licensing technologies (Chesbrough, 2007b, 2010). The business model itself can become part of intellectual property (Rappa, 2001; Rivette & Kline, 2000).

Open business models, apart from being a subject of innovation, may prompt additional business model innovation in complementary markets as a consequence of the reconfiguration of downstream activities and capabilities (Gambardella & McGahan, 2010). From the point of view of the focal firm, the activities of external innovators can be organized as a collaborative community or as a market (Boudreau & Lakhani, 2009), which in turn implies different business model configurations: in the former (community), members are often willing to collaborate and work for free, while in the latter (market) innovators develop multiple competing varieties of complementary goods, components, or services, with little cooperation among them.

There is an increasing consensus that business model innovation is key to firm performance. A significant number of scholars focus on business model innovation as a vehicle for corporate transformation and renewal (e.g., Demil & Lecocq, 2010; IBM Global Business Services, 2006; Ireland, Hitt, Camp, & Sexton 2001; Johnson, Christensen, & Kagermann, 2008; Sosna, Trevinyo-Rodríguez, & Velamuri, 2010). Bouchikhi and Kimberly (2003) and Chesbrough (2010) have identified barriers to business model innovation in existing firms, such as the configurations of assets and processes, which may be subject to inertia, as well as the cognitive inability of managers to understand the value potential of a new business model. How can these barriers be overcome? Some scholars contend that the business model takes shape through a process of experimentation (Hayashi, 2009; McGrath, 2010), which might differ for different organizations in different competitive landscapes. Sheehan and Stabell (2007), for example, propose a three-step process of analysis to help managers in knowledge-intensive organizations improve their business models. A

specific leadership agenda might be required for business model innovation (Svejenova, Planellas, & Vives, 2010). To overcome the rigidity that accompanies established business models, Doz and Kosonen (2010) propose that companies be made more agile, which can be achieved by developing three meta-capabilities: strategic sensitivity, leadership unity, and resource flexibility. In a similar vein, Smith, Binns, and Tushman highlight how the effective management of complex business models “depend[s] on leadership that can make dynamic decisions, build commitment to both overarching visions and agenda specific goals, learn actively at multiple levels and engage conflict” (2010: 448). Santos, Spector, and Van Der Heyden (2009) also emphasize the importance of the behavioral aspects involved in business model innovation. They suggest that mutual engagement and organizational justice are needed and that managers should focus on the relational dynamics at the level of informal organization.

Summary of literature on business models and technology management: In the technology and innovation management field, the business model is mainly seen as a mechanism that connects a firm’s (innovative) technology to customer needs and/or to other firm resources (e.g., technologies). The business model is conceptually placed between a firm’s input resources and market outcomes, and it “embodies nothing less than the organizational and financial ‘architecture’ of the business” (Teece, 2010: 173). The business model, according to this more functionalist perspective, complements technology, but technology is seen as an enabler of the business model rather than as a part of the concept per se. Neither input resources nor competition in output markets is considered part of the business model concept. The core logic of a business model, instead, revolves around a firm’s revenues and costs, its value proposition to the customer, and the mechanisms to capture value. Thus conceived, the business model can be a vehicle *for* innovation as well as a subject *of* innovation.

Discussion

Throughout our review, we have shown that the business model concept has been used to address different research questions in different contexts and in different management areas. Scholars have used the same term (i.e., *business model*) to explain and address different phenomena such as e-business types, value creation or value capture by firms, and how technology innovation works. Research about the role of business models has proceeded in largely isolated fashion within these “silos.” There has also been a range of conceptualizations of business models within each silo. This multitude of (sometimes ad hoc) conceptualizations has prevented, or at least significantly slowed, cumulative research.

Given that interest in the concept has emerged only recently, it is not surprising that the literature is currently characterized by a lack of clarity about the meaning of the business model concept. Definitional and conceptual disagreement is to be expected during the emergent phase of any new potentially big idea of general usefulness (Gladwin, Kennelly, & Krause, 1995).

Our literature review reveals that scholars in different fields use the same term to explain different phenomena. In other words, the term *business model* in its current use is not one

Table 1: Comparing and Contrasting Literatures on Business Models

	Strategy	Technology and Innovation Management
Purpose (why the business model)	To explain new network- and activity system-based value	To understand how technology is

concept is offered)	creation mechanisms and sources of competitive advantage	converted into market outcomes
		<ul style="list-style-type: none"> To understand new networked modes of innovation
Business Model is not	<ul style="list-style-type: none"> Business processes (Shafer, Smith, & Linder, 2005) 	<ul style="list-style-type: none"> Technology (Chesbrough & Rosenbloom, 2002)
	<ul style="list-style-type: none"> Market adoption strategy (Ojala & Tyrväinen, 2006) 	<ul style="list-style-type: none"> Open innovation, collaborative entrepreneurship (Chesbrough, 2003; Miles, Miles, & Snow, 2006)
	<ul style="list-style-type: none"> Corporate strategy (Richardson, 2008) 	<ul style="list-style-type: none"> Management teams (Patzelt, Knyphausen-Aufseß, & Nikol, 2008)
	<ul style="list-style-type: none"> Product market strategy (Zott & Amit, 2008) 	<ul style="list-style-type: none"> Policy (Johnson & Suskewicz, 2009)
	<ul style="list-style-type: none"> Senior leadership team processes and structures (Smith, Binns, & Tushman, 2010) 	
Antecedents of business models	<ul style="list-style-type: none"> Value drivers (Amit & Zott, 2001) 	<ul style="list-style-type: none"> Technology (Chesbrough & Rosenbloom, 2002; Chesbrough, 2007a)
	<ul style="list-style-type: none"> Choices (e.g., Shafer et al., 2005; Casadesus-Masanell & Ricart, 2010) 	<ul style="list-style-type: none"> Technological development, innovation (Calia, Guerrini, & Moura, 2007; Björkdahl, 2009)
	<ul style="list-style-type: none"> External pressures, regulation (Tankhiwale, 2009) 	
	<ul style="list-style-type: none"> Discovery-driven experimentation (McGrath, 2010) 	
Mechanisms through which business models influence outcomes	<ul style="list-style-type: none"> Competitive advantage, unique value propositions (Teece, 2007) 	<ul style="list-style-type: none"> Connection of technology with customers (Chesbrough, & Rosenbloom, 2002)
	<ul style="list-style-type: none"> Total value creation and distribution of bargaining power through business 	<ul style="list-style-type: none"> Network plays (Calia et al., 2007; Björkdahl, 2009)

		model design themes (Zott & Amit, 2007, 2008)	
		<ul style="list-style-type: none"> • Advantageous cost structures (Teece, 2007) 	
		<ul style="list-style-type: none"> • Schumpeterian innovation (Teece, 2010) 	
Outcomes and consequences of business models		<ul style="list-style-type: none"> • Total value creation (Amit & Zott, 2001) 	<ul style="list-style-type: none"> • Creation and appropriation of value from technology (Chesbrough & Rosenbloom, 2002)
		<ul style="list-style-type: none"> • Competitive advantage (Christensen, 2001) 	<ul style="list-style-type: none"> • Value creation (Hedman & Kalling, 2003)
		<ul style="list-style-type: none"> • Firm performance, e.g., measured as stock market value (e.g., Zott & Amit, 2007, 2008; Casadesus-Masanell & Ricart, 2010) 	<ul style="list-style-type: none"> • Innovation network dynamics (Calia et al., 2007)
			Relationship infrastructure (Björkdahl, 2009)
Blue Ocean Strategy Business Model		Kim & Mauborgne 2005, 2017	Re-constructionist View, Reconfiguration, Creating new markets. Value Innovation as main component. Making competition Irrelevant.

concept; it is many concepts. Hence, the adoption of more precise concepts and terminology that indicate the researcher's main analytical focus will greatly enhance clarity. Examples of such concepts could be *e-business model archetype* (for studies on e-business model types), *business model as activity system* (for strategy studies focusing on boundary-spanning activities), or *business model as cost/revenue architecture* (for technology management and innovation scholars interested in explaining the economic mechanisms that allow a firm to commercialize technological innovations).

Our literature review offers a second possible avenue for advancing research on business models by suggesting the emergence of some common ground among various business model researchers, despite the disparity of their approaches in terms of concepts used and phenomena explained. It is our hope that the four common themes identified in this review, and elaborated below, will pave the way for future conceptual convergence and breakthroughs.

First, the business model is—explicitly or implicitly—considered as a new unit of analysis which spans or bridges traditional units of analysis, such as the firm or the network. Some researchers view the business model closer to the

firm (e.g., Casadesus- Masanell & Ricart, 2010; Hurt, 2008), others place it closer to the network (e.g., Tapscott et al., 2000), and for others still it is nested between the firm and the network (e.g., Amit & Zott, 2001). Most business model scholars would agree, however, that it is a new, distinct concept, worthwhile of academic study and relevant in practice. Second, as evidenced by the large number of studies attempting to provide business model typologies, business model researchers generally adopt a holistic and systemic (as opposed to particularistic and functional) perspective, not just on *what* businesses do (e.g., what products and services they produce to serve needs in addressable market spaces) but also on *how* they do it (e.g., how they bridge factor and product markets in serving the needs of customers).

The business model perspective thus involves simultaneous consideration of the content and process of “doing business,” which explains part of the challenge in defining and operationalizing the construct.

Third, many scholars include activities, performed either by a focal firm or by its suppliers, partners, or customers, as part of their conceptualization (McGrath, 2010; Teece, 2010; Zott & Amit, 2010). In many business model definitions, the activity perspective is recurrent, either implicitly or explicitly. Some scholars point directly to activities (e.g., Afuah, 2004; Hedman & Kalling, 2003; Seddon et al., 2004), whereas others imply them indirectly, for example by pointing to processes (e.g., Alt & Zimmerman, 2001; Johnson et al., 2008; Morris et al., 2005), functionalities (e.g., Van Der Vorst, Van Dongen, Nouguier, & Hilhorst, 2002), or transactions (Amit & Zott, 2001). All these concepts are related to the notion of activities.

Combined with the first and second emerging common themes, identified above (i.e., business models are a new unit of analysis and represent a system-level concept), the third theme suggests a view of the business model as a firm-centric, yet boundary-spanning, activity system. This view is consistent with the representational nature that is often attributed to the business model (e.g., Applegate, 2000; Morris et al., 2005; Shafer et al., 2005; Stewart & Zhao, 2000; Weill & Vitale, 2001) as well as its systemic nature (e.g., Dubosson-Torbay et al., 2002; Timmers, 1998). A business model can be viewed as a “system that is made up of components, linkages between components, and dynamics” (Afuah & Tucci, 2001: 4). And many of the modeling tools that have been proposed with the aim of representing the business model can be conceptualized as systems of activities. In a nutshell, the received literature on business models seems to support an activity system perspective.

A fourth insight that emerges from our review of the literature is that business model scholars have shifted emphasis from value capture to value creation, highlighting the latter without ignoring the former. Indeed, the business model promotes a dual focus on value creation and value capture. The centrality of the notion of value in the business model literature is apparent from the various conceptualizations of the business model that have been proposed. For example, an analysis of the business model components first- and second-order themes reveals that the most prevalent component is related to the concept of value. The customer value proposition, for instance, is a recurrent component in the various definitions that have been provided. The centrality of the concept of value in the business model literature is evident in all three areas around which we have organized our review: e-business, strategy, and innovation. Even those business model scholars who tend to focus on how value is appropriated by the focal firm recognize that value is created through the focal firm in concert with its exchange partners. Taken together, these four emerging themes—the business model as a new unit of analysis, as a system-level concept, centered on activities, and focusing on value—could serve as important catalysts for a more unified study of business models.

International Oil and Gas Corporations (Adaptation of Blue Ocean Strategic Business Model):

IOCs have sharpened strategic agility by seizing and profiting from opportunities in the new business environment, creating its own blue oceans of energy through evolving value innovations. Today, Blue ocean strategy is being used to capture opportunities and mitigate strategic risks in Oil and Gas Exploration and production (E&P). Operational and general managers with key strategic decision-making responsibilities employ it to maintain sustainable value, to enhance safety and profitably, to increase reserves and production to meet the company's share of the world's energy needs, and to make competition truly irrelevant in high velocity and uncertain energy markets. This case describes how the blue ocean strategy is being adapted by IOCs and employed to create & capture opportunities and meet the considerable challenges created by recent changes in the industry.

To explore the contribution of the Blue ocean value innovations for E&P strategy of IOCs, "We:

- a. Explicate the fact that blue ocean strategy is a dynamic process and not a static one.
- b. Describe how new opportunities and challenges within the E&P industry have created an inflection point that requires a transformative approach to strategy and strategic management.
- c. Demonstrate how the blue ocean strategy is relevant to today's E&P strategic context of IOCs.
- d. Describe how the value innovations have empowered E&P strategic imperative. As this case demonstrates, the need to create & capture value and increase production, the very considerable economic potential created by new exploration opportunities, and the complexity of the challenges facing energy strategists and managers require a new and more effective approach to strategic oversight and execution of Blue Ocean Strategy."

Research Methodology (Hybrid Blue Ocean Strategy- Delphi Paradigm):

The Delphi method was developed at the RAND Corporation to obtain the most reliable consensus of opinion from a group of knowledgeable individuals about an issue not subject to objective solution (Dalkey and Helmer, 1963). It is a structured group interaction that proceeds through multiple rounds of opinion collection and anonymous feedback. Although Delphi dates back to early 1950s, the most recognized description of the method was offered by Linstone and Turoff (1975). Fischer (1978), Schmidt (1997), Okoli and Pawloski (2004) and Keeney et al. (2006) also provide excellent reviews.

A common group decision making activity is evaluating and deciding upon various alternatives (Ngwenyama and Brysona, 1999). Decision making bodies in organizations are often formed as groups to evaluate decision alternatives by collecting and synthesizing information from different perspectives. Group decision making is an effective way to overcome judgment errors in organizations due to human fallibility (Koh, 1994). Maier (2010) summarizes the virtues of

group decision making as follows: first, if every group member exerts effort to become informed, groups can gather more information than individual members. Better information can lead to better decisions. Second, if all group members have the same information, they may not reach the same conclusion since group members typically have different backgrounds and experiences. Third, if some information is erroneous, a group can pool signals and reduce uncertainty. Fourth, groups provide an insurance against extreme preferences of individual managers.

We used the Delphi rounds technique for group classification of the relevant synthesized factors affecting IOCs, which were further used in Blue Ocean Strategy Formulation and Analysis through Strategy Canvas.

The following Group classified relevant synthesized factors were found significant for international oil and gas companies through the Delphi rounds technique:

1. Technological Progress
2. Strategic partnerships
3. Alternative & non-conventional
4. Improved explorations
5. Enhanced Oil and Gas Recovery(EOR)
6. Minimizing environmental risks
7. Integrating HR, information , Technologies & work processes
8. Enhancing performance management
9. Managing enterprise-wide risk
10. Focusing on operational excellence
11. Increasing capacity through effective people
12. Designing adaptive Business model

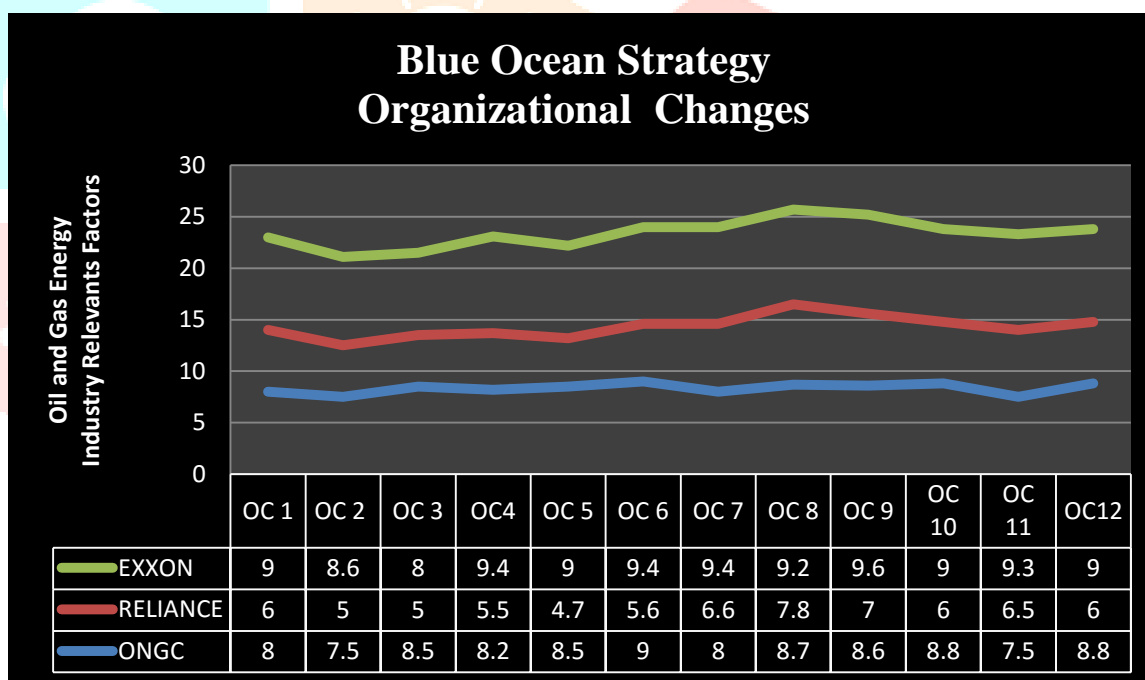


Figure1. Strategy Canvas of International Oil and Gas Corporations

Table 2: Delphi Relevant Factors of IOCs

S.NO.	Blue Ocean Strategy Oil and Gas Energy Relevant Factors	CODE [OC]	VALUE EXXON [E]	VALUE RELIANCE [R]	VALUE ONGC [O]
1.	Technological Progress	OC1	9[E]	6[R]	8[O]
2.	Strategic Partnerships	OC2	8.6[E]	5[R]	7.5[O]
3.	Alternatives & Non-conventional	OC3	8[E]	5[R]	8.5[O]
4.	Improved explorations	OC4	9.4[E]	5.5[R]	8.2[O]
5.	Enhanced oil and gas recovery (EOR)	OC5	9[E]	4.7[R]	8.5[O]
6.	Minimizing environmental risks	OC6	9.4[E]	5.6[R]	9[O]
7.	Integrating HR, information , Technologies & work processes	OC7	9.4[E]	6.6[R]	8[O]

8.	Enhancing performance management	OC8	9.2[E]	7.8[R]	8.7[O]
9.	Managing enterprise-wide risk	OC9	9.6 [E]	7[R]	8.6[O]
10.	Focusing on operational excellence	OC10	9 [E]	6[R]	8.8[O]
11.	Increasing capacity through effective people	OC11	9.3[E]	6.5[R]	7.5[O]
12.	Designing adaptive Business model	OC12	9[E]	6[R]	8.8[O]

Conclusion:

- The Blue Ocean Framework provides the leaders of upstream E&P firms a method to effectively and efficiently capture opportunities, create value, and mitigate risks through perfect industry game-changers in the turbulent times when industry faces a “strategic inflection point”. At least twelve factors have triggered a climacteric for upstream entities; some have been building for decades, others are very recent. Only the confluence of several factors could bring about such a perfect storm of upheaval Blue Ocean Transformations that has strategic implications for all producers: the national oil and gas companies, the super-majors, and the independents.
- The Blue Ocean Strategic Business Model of technologies, new geographies, processes, adapting opportunities and the need for continuous evolutions e.g. unconventional energies are the perfect energy industry game changing blue oceans. Given the increasing scarcity of relatively cheap conventional hydrocarbons, upstream companies are investing in Unconventional oil and gas to grow reserves and production (RRR). Unconventional operations focus on shale plays which yield natural gas, NGLs, gas condensates and crude oil. Tight gas, coal bed methane, oil sands, and heavy oil are non-shale Unconventional resources. The move toward Unconventional requires the development and application of new technologies and new processes in new geographies. With Unconventional plays, managers confront both great opportunity and considerable challenge. This requires “Organizational Change”, learning and a different set of managerial priorities. The development and application of cost effective fracking technologies, beginning first in the U.S., is a monumental game changer. In the last 15 years, horizontal drilling and hydraulic fracking have made large quantities of tight shale gas and oil reserves viable. Today over 60% of all new oil and gas wells are hydraulically fractured, employing over 2.5 million people worldwide, approximately 1 million in the US. US domestic gas reserves have tripled; China’s by an order of magnitude. The International Energy Agency has projected that due to the recent tight oil boom, the US will surpass Saudi Arabia and Russia to become the world’s largest oil producer by 2017-2020.
- The rise of national oil and gas companies, large independents and service companies alongside the super-majors provides both competitive challenges, as well as collaborative possibilities. The characteristics and differences among these entities with regard to access to strategic focus, resources, technical and non-technical capabilities, experience with conventional megaprojects vs. unconventional resource plays, learning, agility, and responsiveness are well documented in the literature and are generally acknowledged throughout the industry. One example of such comparisons, consistent with the “Blue Ocean Transformations” framework, concerns recent research on “clock-speed”. A large-scale study of “time-to-build” of oil and gas facilities worldwide (1996-2005) suggests that firms with faster “clock-speed” or intrinsic execution speed capabilities have a performance and valuation advantage. Firms in faster clock-speed industries are encouraged to design

and assemble assets as well as their supply, distribution and alliance networks to gain a series of temporary competitive advantages. Exxon, Shell and Chevron are identified as firm-level “clock-speed” leaders in their set of 6 IOC super-majors; ENI, ONGC and Stat Oil in their set of 6 public-private partnerships (NOCs) using the proxies of workflow speed, improvement of risk and portfolio value accrual .

- Strategic investment decisions about what to drill need to be connected to an analysis of current organizational do-ability. A particular project or venture may have high-potential economic value, but may not be doable given the level of technical competencies or available human assets. Many firms do not ask the “do-ability” and “Organizational Transformations to achieve the do-ability status” question when making strategic decisions about investments.
- Health, Safety, Security and Environmental risks throughout the Energy Business Ecosystem is an integral part of Blue Ocean Strategy Business Model Ecosystem. On April 20, 2010, an explosion and subsequent fire on the Deepwater Horizon semi-submersible Mobile Offshore Drilling Unit (MODU), killed 11 workers and injured 16 others. The unit was owned and operated by Transocean, which was drilling for BP in the Macondo Prospect oil field about 40 miles (60 km) southeast of the Louisiana coast. The explosion caused the Deepwater Horizon to burn and sink, triggering a massive offshore oil spill in the Gulf of Mexico. This environmental disaster is now considered the second largest in U.S. history, behind the Dust Bowl. Not only was the explosion disastrous for Transocean, BP and Cameron International, it also led to severe criticism of the oil and gas industry as a whole and curtailment of drilling operations in the Gulf of Mexico. Many factors contributed to the disaster. Together they indicate that the management of health, safety, security and environmental (HSSE) risks requires attention and asset orchestration activities not only throughout the organization but also in the wider business ecosystem. This kind of management task differs from other kinds of risk management, such as regulatory or compliance risk, where point-of risk solutions may be adequate. Since the origins of these risks are complex, since the impacts of these risks cross boundaries of the organization, involving partners to whom key operational activities are outsourced, and since the impacts of these risks simultaneously affect several drivers of economic value, not just for one company but for all E&P companies, a comprehensive, systemic, cultural and strategic organizational transformations approach around HSSE must be developed and applied by firms seeking longer term survival, growth, and prosperity.

Future Research: (The Blue Ocean Strategic Business Model of International Oil and Gas Corporations): IOCs must follow a dynamic evolutionary Blue Ocean Strategic Business Model Framework for creating blue oceans of energy and making competition irrelevant. Future Research must go in a well defined direction for better results in energy industry:

- *Evolutionary new dynamics in the industry landscape, including end users’ increasing use of alternative energies?*
- *Risk identification and mitigation embedded in organizational governance, processes and culture and how to prioritize improvements to risk management?*
- *Selectively increasing investments in both R&D and new technology to achieve the necessary technological breakthroughs? How to improve collaboration with external parties for research development and deployment?*

• In what new ways, collaborating and partnering with NOCs or other semi-government bodies, especially in emerging markets?

• Long-term strategies to develop a flexible and appropriate future skill mix?

• Integrating diverse operational models, including challenging conventional, unconventional and manufacturing.

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