The applicability of Grant's framework in the dynamic digital age: a review and agenda for future research

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Introduction

In the current dynamic digital age, the use of the Internet and electronic technologies for selling products and delivering services is deemed essential to achieve operational efficiency and yield competitive advantage (Jantarajaturapath and Ussahawanitchkit 2009; Bharadwaj et al. 2013). Advanced information technologies have changed the way that products, services and information are bought and sold. In fact, they have transformed the mechanisms through which firms communicate with their customers, partners, competitors and stakeholders (Ramanathan, Ramanathan and Hsiao 2012). There is, therefore, a growing consensus on the critical role of the Internet and its various applications in every aspect of our lives, from the way we live and communicate to the manner in which new business models and architectures are evolved (Chong et al. 2013). As a result, e-business has gained the attention of both scholars and practitioners (Wiengarten et al. 2013).

Despite the tremendous amount of interest in and growing literature on e-business research, there is still ambiguity about the nature and scope of the information age and how it differs from the traditional types of businesses. Specifically, managers and scholars alike have been facing more pressure to answer the question of whether the development of an e-business strategy should be distinguished from the traditional dominant one and how an e-business strategy can create value for the e-businesses (Hsu 2013). A review of previous research pertinent to the potential of e-businesses to create value seems to suggest a different sort of theoretical and empirical understanding. Whilst according to some (e.g. Peppard, Lambert and Edwards 2000; Carr 2003), the Internet and IT have no inherent value as every e-business can easily access to it, for others (e.g. Kim, Nam and Stimpert 2004; Luse and Mennecke 2014) the value creation potential of e-businesses relies, in the main, upon a modified and revised list of concepts, models and frameworks which characterise the essence of the dynamic digital age.

This paper addresses this crucial issue by investigating how the Grant's (1991; Ricardo, 1951-1973; Penrose, 1959) resource-based view framework could better fit and apply to the Internet-driven e-business environment. Our rationale for the choice of the Grant's (1991) strategy framework (among other paradigms in the strategy literature such as Porter's competitive positioning, and Delta model) relates to the fact that the performance impact of IT as one of the several resources of a firm cannot be evaluated in isolation and therefore is not sufficient to bring about a competitive advantage for a firm. Rather, as the resource-based view (RBV) of the firm states, it is the synergistic combination and integration of sets of resources that result in a sustainable competitive advantage (Black and Boal, 1994; Broadbent, Weill and Neo, 1999). Hence, according to the RBV, the impact of technology resources on firm performance and competitiveness should be viewed in the light of other organisational resources which (compared to IT resources) are rather heterogeneous and immobile in nature (Clemons, 1991). To this end, we have utilised Grant's (1991) seminal work on competitive strategy formulation and analysed the extent to which it can be applied to today's e-business environment. As a foundation for the current and future paradigm of strategy formulation process (Bharadwaj et al. 2013), Grant's (1991) framework has the potential to bring about new insights into the ways that e-businesses can takeaway tangible benefits from a well-defined e-business strategy.

Whilst the existing research sheds light on the application of Grant's framework in different aspects of e-business (e.g. Soto-Acosta and Meroño-Cerdan 2008; Ashurst, Cragg and Herring 2011; Perrigot and Pénard 2013), they have also left room for further empirical scrutiny of how the resource-based view could inform and develop e-business strategy (see Barney, 1997; Powell and Dent-Micallef, 1997; Teece et al., 1997; Bharadwaj, 2000; Santhanam and Hartono, 2003; Bensebaa, 2004; Wade and Hulland, 2004; Boateng et al. 2008; Boateng, Molla and Heeks, 2009). Hence, the aim of this paper is to make a critical review of Grant's notion of firm's resources and capabilities as the building blocks for strategy formulation and to assess its applicability to the dominant Internet-based e-business environment. Although Grant's framework has initially been designed for the traditional bricks-and-mortar business environment, we argue that it has potential to bring about tangible benefits to e-business, if it takes into account the essence and requirements of the ever-changing e-business digital market.

This paper is organised as follows. We start by the choice of Grant's framework as offering insights into the nature of resource-based strategic analysis. Then Grant's framework is discussed in terms of its underlying assumptions, significance to strategy formulation, and more importantly its potential weaknesses in the light of the Internet-based e-business market. In response to the identified shortcomings of Grant's framework, the paper suggests some working propositions for further empirical scrutiny and presents a modified version of Grant's framework. Finally the paper presents several concluding remarks and discusses the application of the framework for further research.

The choice of Grant's (1991) framework as the theoretical lens

Overall several main paradigms exist in the business strategy literature. Chief among these are: Porter's competitive positioning framework (1980; 1985) and the resource-based view of the firm (Ricardo 1951-1973; Penrose 1959; Grant 1991). Drawn from the work of organisational economists, Porter's competitive positioning puts the emphasis on the industry as the central focus of strategic attention. In other words, variation in performance of a firm is subject to the nature and characteristics of a firm's industry. In order for a firm to outperform and become the dominant competitor in the industry, Porter proposes two strategies, namely low cost or product differentiation (Porter, 1980; 1985). In contrast to the Porter's notion of industry as the primary source of profitability, the resource-based view of the firm explains variations in firm performance by pointing to the resources and capabilities that are available to the firm. Of these two conflicting views on strategy and in line with the primary aim of this paper, we focus on Grant's (1991) RBV framework as our theoretical lens for a number of reasons which are briefly discussed below. In the context of RBV of the firm, IT in its multitudes of form is viewed as a 'resource' which has the potential to generate Ricardian rents and make a firm different from another. According to the RBV of the firm IT as a resource needs to be managed in accordance with a firm's needs and priorities and more importantly along with other resources and capabilities within a firm. This implies that IT alone as a resource may not create sustainable value and performance for a business (Carr 2003). Rather, to lift a firm's competitive value, IT resource should be complemented by other internal resources and capabilities of a firm. Given the focus of this paper on technology as a resource and source of value, Grant's (1991) resource-based strategy framework constitutes an appropriate theoretical lens to examine its appropriateness for the current dynamic e-business market. Moreover, in comparison to other resource-based models of strategy formulation (e.g., Winter 2003; Sirmon, Hitt and Ireland 2007) which are characterised by their complex evolutions (Barney 2011), Grant's (1991) strategy framework is perceived to be more flexible and generalizable. So the choice of Grant's (1991) RBV framework as our theoretical lens does not imply that other strategy frameworks (e.g. Porter's competitive positioning, 1980, 1985; Delta model) are unimportant. As Hax and Wilde (2003, pp. 1-2) have observed, while there exist competing schemes in the business strategy literature, their conflicting nature arises from the fact that each framework emphasises different dimensions of strategy and that they can richly complement each other.

Grant's framework: a review

Grant (1991) proposes his framework on competitive strategy formulation based on the notion of 'resources and capabilities as a source of direction and the foundation for strategy'. In the extant literature on strategic management, this has been termed 'resource-based view' (RBV) of the firm. Grant posits a five-step framework, starting with evaluating the firm's resources and capabilities, which is followed by assessing the ability of resources and capabilities to provide competitive advantage. The fourth step is called strategy selection, which deals with exploiting internal resources and capabilities and external opportunities in the optimum way. In the light of the ever-changing business external environment, Grant perceives a firm's resources and capabilities as the most reliable and enduring bases for developing competitive strategies. The final step of the framework is the need to extend and upgrade the firm's resources. He reckons that not only resources and capabilities need to be considered to develop strategies, but also they are to be renewed and maintained by strategies.

Grant's framework in the e-business environment

Despite the significance of Grant's framework in the traditional business context (e.g. Amit and Schoemaker 1993; Fahy and Smithee 1999; Priem and Butler 2001), we do not have sufficient knowledge of its applicability to the emerging Internet-based e-business market. To further explore this question, we first provide a review of the extant literature to elucidate the characteristics of e-business and the ways it is different from the traditional business models (e.g. Ashurst, Cragg and Herring 2011; Soto-Acosta, Colomo-Palacios and Loukis 2011; Grant et al. 2014). The outcome of the review will then provide us a platform to better assess the appropriateness of Grant's framework to the present Internet-based e-business environment.

The modern business environment is characterised by its complexity, dynamics and uncertainty as well as by the fierce global competition and access to unlimited markets, suppliers and customers – largely owing to the dominant role of the Internet. The Internet provides firms with borderless connection and unlimited geographical coverage (Peng, Quan and Zhang 2013), thereby offering firms (i) the opportunity for a high level of innovation and invention (Teece 2012) and allowing them (ii) to increase their agility, flexibility and streamlining processes and transactions at both inter and intra-firm levels (Bakker et al. 2008). Whilst these features suggest the potential of gaining added value through technology-driven business models, they put a challenge to the management of the organisations to seek new ways to compete effectively and delight their customers (Phillips and Wright 2009; Nachtigal 2011). The Internet-based e-business environment also signals the need for adopting new technologies and for adapting and diffusing new quality/productivity initiatives, reengineering processes and more importantly business agility to fulfil the dual objectives of cost efficiency and flexibility (through firm's human resources) towards the ever-changing demands of the customers (see Nikos et al. 2002; Gunasekaran et al. 2002; Dyer and Ericksen 2009). Under such dynamics, Internet-based e-business environment, competition and business viability are not simply about the use of the Internet and technology-driven tools to serve the market. Given that IT-driven business models can be easily copied and adopted by competitors and cannot be regarded as permanent currency for long-term viability of the firms, there is a need for a more viable approach to strategy formulation and competitiveness in e-businesses which will guide the management of the organisation to gain added value through developing synergy among different resources and capabilities.

In this respect, Grant's (1991) framework has emerged as one of the most influential models to assist organisational scholars and practicing managers to use a bundle of (in)tangible resources and maintain a sustained competitive advantage in the long-term (see Barney 1991, 2001; Makadok 2001; Sirmon, Hitt and Ireland, 2007). The question remains, however, as to what extent Grant's (1991) framework can assist the management of organisations in the age of e-business (see Barney 2001).

Our review of the extent literature pertinent to the application of Grant's framework shows a lack of systematic research which in turn necessitates a re-examination and modification of Grant's framework in the on-going open economy of the digital era. In fact, the current literature lacks sufficient evidence on the adoption and diffusion process of Grant's framework in the current information-based marketplaces. The literature has so far (i) identified the characteristics of resources and capabilities which enable a firm to create competitive advantage (e.g., Zhuang and Lederer 2006), and (ii) examined the direct/indirect impact of resources and capabilities on the firm's performance (e.g. Lu and Ramamurthy 2011), yet they have left room for further exploration of the potential synergies arising from the combinations of resources and capabilities in the existing turbulent, dynamic, e-business environment (see Gruber et al. 2010). This observation is essentially that of Soto-Acosta and Meroño-Cerdan (2008), who note that the existing body of research on the application of RBV in the current digital age is still very poor. We take this as indicative of the lack of capacity to appreciate dynamic capabilities. The intention to highlight this limitation and the way forward constitutes the primary focus of this paper.

In this respect, strategy development based on internal factors has recently gained more attention. For Spanos and Lioukas (2001), the emerging approach to strategy formulation is more internally-driven than external – largely due to the rapidly changing competitive environment, which is perceived to be unstable, risky, highly flexible and innovative (Mitchell, Shepherd and Sharfman 2011). Quite clearly, such a turbulent, unstable and unpredictable e-business environment is not conducive to strategy formulation. Rather, internal resources and capabilities (referred to as the most enduring and reliable bases for competition, Schmidt 2013), should come to the forefront of scholars', managers' and practitioners' campaign for competitive strategy formulation, if the organisation is to succeed and improve its operational and overall performance (Gruber et al. 2010).

The importance of dynamic capabilities

Internal resources and capabilities are regarded as a firm's abilities, which can reflect the firm's strategic initiatives by using the Internet (Zhu and Kraemer 2005). In this sense, a particular type of capabilities, namely dynamic capabilities, has been advocated as a necessary part of any strategy making process in the current dynamic environment of e-business (Kor and Msco 2013). Dynamic capability is "the firm's ability to integrate, build and reconfigure internal and external competencies to address rapidly changing environments" (Teece et al. 1997, p. 517). The significant role of dynamic capabilities in developing value-creating strategies is undeniable (Eisenhardt and Martin 2000). It has been suggested that the fast moving e-business market requires dynamic capabilities to enable managers to make correspondingly rapid strategic decisions (Johnson 2013). Although several prior studies (e.g. Teece et al. 1997; Teece 2011) have examined dynamic capabilities, these studies are subject to a number of limitations. Firstly, there are very few studies (e.g. Wang and Ahmed 2007; Rashidirad, Soltani and Salimian 2014) which examine the relationship between dynamic capabilities and strategy, while dynamic capabilities, as the mirror of competitive strategies (Zhu 2004), should be laid at the core of strategy development in a digital environment (Sher and Lee 2004). Secondly, research on the application of dynamic capabilities in strategy development is sparse. Although the existing literature (e.g. Pavlou and El Sawy 2011; Lin and Wu 2014) has made an attempt to explore how dynamic capabilities can enhance performance, it has failed to take into account the important role of strategy in performance. So the question remains as to the nature and role of dynamic capabilities in the strategy formulation of Grant's framework based on RBV. To further explore and enhance our understanding, we gain insights from RBV (the underlying theory of Grant's framework) to explicate the relationship between resources, capabilities and strategies.

The role of RBV in strategy formulation in the digital age

RBV has been the dominant paradigm in strategic management since the 1980s (Lockett, Thompson and Morgenstern 2009). As a platform for the competitive advantage of a firm, there has been a remarkable academic consensus on "its widespread dissemination", "its heterogeneous character", and "its reputation as a mainly strategic management approach" (Acedo, Barroso and Galan 2006, p.621). This theory posits that firms must be seen as a bundle of resources and capabilities, and that the heterogeneous nature and imperfect resource mobility have the potential to create value, and therefore gain competitive advantage for the firm (Barney, 1991; Costa, Cool and Dierickx 2013). Several studies (e.g. Eikebrokk and Olsen 2007; Kunc and Morecroft 2010; Drnevich and Kriauciunas 2011) highlight the importance of a firm's resources and capabilities (referred to as the RBV constructs) as the foundation of any strategy development to enhance a firm's performance. In order to exploit opportunities, neutralise threats and even transform the environment and consequently achieve competitive advantage, firms need to lay a heavy emphasis on internal factors and resources (Teece 2007). This assumption is particularly crucial in the more dynamic and highly changing environment of e-business, which is characterised as unstable, and as having the need for quick response (Perrigot and Pénard 2013). In fact, it has been suggested that those firms whose competitive strategies complement their resources and capabilities, are less vulnerable to market uncertainty and therefore, they are more able to respond to the market and even shape it to create their intended value (Theodosiou, Kehagias and Katsikea 2012). Market responsiveness (i.e. meeting and generating customers' needs) and the ability to effectively respond to the market/environmental forces rely, in the main, upon the Internet and other means of information technology. A number of studies have pointed to the importance of dynamic capabilities of a firm (ability to reconfigure internal and external competencies to address rapidly changing business environments) to counteract the adverse impact of unpredictable environmental forces and gain sustained competitive advantage (Teece et al. 1997). Teece (2007) asserts that firms that have strong dynamic capabilities are able to not only adapt to the environment, but can also shape the environment through their high level of innovation and collaboration with other businesses. So the ability to attain a synergy between a firm's internal resources and capabilities and external opportunities will ensure a sustained competitive position for the firm in the current dynamic environment (Lin and Wu 2014). In a similar vein, Lawson (2001, p. 389) talks about the need to factor in the uncertainty embedded in the existing business environment as a key ingredient of strategy formulation. Similarly, Teece et al. (1997, p. 529) take a more holistic perspective and view strategy formulation as a process of "choosing among and committing to long-term paths or trajectories of competence development." In effect, strategy formulation based on internal resources and capabilities can aid firms to effectively handle the existing risk in the marketplace and minimise the uncertainty and instability inherent in the current changing e-business environment.

Whilst Grant's framework has paved the way for further theoretical and empirical scrutiny of RBV as a basis for the competitive advantage of a firm, and despite the recent increasing trend in citing Grant's work (see Web of Knowledge, 2014), it has been left rather under-applied in the current e-business environment. A review of the studies which utilised Grant's framework as their theoretical lens reveals that they have primarily focused on the impact of resources and capabilities 'on value creation' (e.g. Craighead and Shaw 2003; Soto-Acosta and Meroño-Cerdan 2008; Ashurst et al. 2011), 'competitiveness' (e.g. Fahy and Hooley 2002; Pavlou and El Sawy 2006) and 'performance' with a focus on e-business environment (e.g. Ha and Jeong 2010; Kim 2010). Hence, they have offered the opportunity to further explore the relationship between resources, capabilities, value and strategy from a holistic view with a focus on the existing dynamic e-business environment. Therefore, the aim here is to utilise Grant's (RBV) framework for competitive advantage to examine the process of strategy formulation in the context of Internet-based e-business environment. In so doing, the next section makes an attempt to revisit Grant's framework and seeks ways to make most of its potential for the current Internet-based environment.

A critical review on Grant's framework

As a review of the extant literature on strategic management for competitive advantage reveals, both traditional and e-business environments share many similarities and the two concepts may not be totally different from each other. However, a close examination of the two business environments and their operational and strategic requirements to remain competitive in the marketplace reveals fundamental differences on several fronts (see Kim, Nam and Stimpert 2004; Luse and Mennecke 2014). The nature of the business model, product capacity, distribution channels, the pace of changes and geographical coverage are the most notable examples. The implications of these differences is that whilst Grant's notion of "a firm's resources as the core to its strategy formulation" remains an organisational (whether traditional or modern one) pressing necessity, some aspects of the framework (Grant 1991) require a revisit to better suit the peculiarities and context-specific requirements of the emerging e-business environment. In what follows, we provide a generic assessment and critique of Grant's framework. It should be noted that this overview of Grant's framework is not restricted to the e-business context. Rather, it presents a critical review of the framework based on the relevant published work in the broad field of strategic management. These critiques can be classified into three main categories of: definitional, relational and core resources. Each of these categories is briefly discussed below.

First, Grant has gained insights from Hofer and Schendel's discussion on strategy formulation (1978, p. 12) and defined strategy as "the match an organization makes between its internal resources and skills (…) and the opportunities and risks created by its external environment" (1991, p. 114). As the definition indicates, Grants lays more stress on firms' internal (as supposed to external) resources for strategy formulation – an indication of underestimating or even ignoring the importance of external environment in strategy development. Grant's focus on the traditional RBV of competitive advantage highlights the importance attached to the 'static' resources and capabilities which are only appropriate for a rather stable and predictable business environment. Such static focus, however, is not fit for purpose of the current dynamic and unpredictable e-business environment. Contrary to the static nature of resources and capabilities in a traditional marketplace, the Internet and IT in its multitude of forms have changed the nature, format and speed of business and have the potential to bring about a reliable and sustained competitive advantage for e-businesses. Meanwhile, the current fast-moving and uncertain economy of e-business (Pavlou and El Sawy 2011; Wang, Mao and Archer 2012) is in need of dynamic capabilities. This is because dynamic capabilities could assist firms to effectively handle the major issues facing business through offering them the opportunity to be more innovative, flexible and provide a quick response on an on-demand basis to the marketplace (Grant et al. 2014). The importance attached to the notion of 'dynamic capabilities' is due to the fact that they are not only internal factors, but also outward-looking, thereby enabling firms to capture environmental changes in any strategy making process (Teece 2007). The term 'dynamic capabilities' has been brought to the management literature by Teece and Pisano (1994), which has been met with huge appreciation by scholars (e.g. Wheeler 2002; Zollo and Winter 2002; Zahra, Sapienza and Davidsson 2006; Peteraf, Stefano and Verona 2013). Hence, dynamic type of capabilities is core to the performance of e-businesses in the current digital environment. In short, an explicit presence of dynamic type of capabilities prevents the appropriate application and usefulness of Grant's framework in the present e-business models of firms.

Second, there are sequential unidirectional links from resources to capabilities, competitive advantage, and finally to strategy development in Grant's framework. A review of the extant literature shows that these relationships are not as simple as Grant has assumed, especially in the context of rapidly changing e-business environment. For instance, Grant demonstrates a link from 'strategy' to 'resources' as a means to update the resources in the process of planned strategies. Capabilities, on the other hand, have been left out of Grant's assessment of the planned strategy, and they need to be included. The inclusion of capabilities in the process of planned strategy is necessary because strategies not only need resources and capabilities, but they also need to upgrade, renew and rebuild the strategy formulation in an iterative process (Wang and Ahmed 2007). That is, strategy can help a firm's resources, capabilities and dynamic capabilities create value (Teece et al. 1997); it enables a firm to reconfigure its bundle of resources in such a way that results in more efficiency, effectiveness and therefore, competitiveness. Such lack of (explicit) focus on capabilities and the rather complicated nature of the relationships between different components of his framework would bring into question its appropriateness for the e-business environment.

Third, Grant refers to six major groups of resources (i.e. financial, physical, human, technological resources, reputation, and organisational resources) of which he considers human resources or people-based skills as the most important and strategic resources of any firm. Human resources are based on knowledge and expertise, in which individuals need to act uniquely and with novelty (Barney 1991; Coleman 1998). Physical resources consist of factors such as building, equipment and raw materials. Technological resources are composed of (i) IT infrastructure, and (ii) business applications (Melville et al. 2004). In contrast to human resources, physical and financial resources are rarely strategic resources (Grant 2013), not least because they may be easily available and tradable in the marketplace. However, Schroeder, Bates and Junttila (2002) argue that not all human resources with general skills are sources of competitive advantage, but only those human resources who are highly specialised or experts can be considered as strategic ones. Whilst Grant believes all six major groups of resources are to be taken into account in strategy development process, Schmidt (2013) takes a different view and argues that only those resources which can achieve and sustain competitive advantage for firms are qualified to be taken on-board in strategy examination. On a related note, several authors (e.g. Kim and Mauborgne 1998; Sveiby 2001) argue that knowledge can be a source of competitive advantage and therefore it needs to be core of any strategy formulation. As an integral part of informational and intellectual resources, knowledge seems to be (at least explicitly) ignored in the Grant's framework. Of course, one can also argue that Grant assumes knowledge to be embedded and an integral part of the human resources. However, this assumption could have been true until some years ago, when knowledge bases and knowledge management systems had not been developed to capture, share and transfer knowledge as a stand-alone and separate resource. In the light of the recent technological advances, informational and knowledge resources must be considered as the major resources for e-businesses, owing to the fact that electronic firms are extensively involved with intangible knowledge products offerings and business solutions (Trethewey and Corman 2001).

In conclusion, the main limitations of Grant's framework can be summarised as follows:

1) Underestimating dynamic capabilities and their impact on the process of strategy formulation;

2) Oversimplifying some of the key relationships between internal resources and strategy;

3) Undermining the process of strategy formulation as a network of interlinked components; considering several non-strategic resources and underestimating several other crucial strategic resources (e.g. knowledge).

In the light of these limitations, the next section makes an attempt to offer a response and pave the way for better utilisation of Grant's framework in the emerging Internet-based business environment.

Extending and modifying Grant's framework

Dynamic capabilities in the process of strategy development

The static nature of much of the research on RBV has made the application of RBV in strategy development rather limited (Priem and Butler 2001). By considering dynamic capabilities in the strategy making process based on RBV, the dynamic nature of strategy development can be reinforced, especially in the current turbulent e-business environment. Although some scholars (e.g. Day 1994; Lawson 2001; Helfat and Peteraf 2003) assume that dynamic capabilities are a subset of capabilities, the recent strand of research tends to consider dynamic capabilities as a stand-alone, separate component in RBV (e.g. Giudici and Reinmoeller 2012; Vogel and Güttel 2012). This is due to the considerable importance of dynamic capabilities in a more dynamic and turbulent business environment (Teece 2011). Therefore, dynamic capabilities, as a crucial group of internal factors in strategy development, must be given a higher weight in Grant's framework for a number of reasons.

Sher and Lee (2004) have referred to the evolution of a "dynamic capabilities school of strategic management", which is one of the major requirements for managing any firm in the current e-business environment (Pavlou and El Sawy 2011). They posit that one of the three critical success factors of strategic competition in the current turbulent business market is sustained investment in developing dynamic capabilities. Moreover, dynamic capabilities are perceived to be at the centre of the success/failure of firms (Teece 2007) and should therefore be taken into consideration in any strategic decision making (Mathews 2003). Liu et al. (2011) view the development of dynamic capabilities in e-businesses as a necessity, not least because they enable firms to achieve their strategic goals. To do so, dynamic capabilities can scan, assimilate, respond to and even change the environment (Teece 2011), primarily by configuring a firm's resources and operational capabilities (Wheeler 2002), and secondly by contributing to the development and implementation of competitive strategy (Sirmon and Hitt 2003). The current strategic competition in the e-business market demands new dynamic capabilities, which might be able to alter the competition rules by using the Internet. Dynamic capabilities should not be merely perceived as a source of growth and profitability in the short run. Rather, they should be considered as a prime source of sustainable value development in the long term (Boateng et al. 2010). In order to make sustainable value, they must therefore be kept in strategic alignment with competitive strategy, as without a strategy, a firm may not be able to deal appropriately with managing its internal resources and capabilities as well as external opportunities and threats.

As the above discussion suggests, dynamic capabilities are linked to strategy as well as capabilities. The link from capabilities to dynamic capabilities reinforces the idea that dynamic capabilities are another group of a firm's internal factors, which need to be identified and assessed in terms of their ability to generate rent and gain competitive advantage (McGee and Thomas 2007). Dynamic capabilities are necessary to accumulate, reconfigure, develop, upgrade or maintain firms' capabilities by considering existing opportunities and threats in the market environment. In this regard, Mills, Platts and Bourne (2003) assert that capabilities (including dynamic capabilities) are all related to support each other. Therefore, we propose that:

Proposition 1: *To develop a competitive strategy and gain/sustain competitive advantage, dynamic capabilities should be positively aligned with capabilities.*

Relationship between resources and capabilities

The idea of considering resources and capabilities in strategy development in a hierarchical model has been presented by several authors (e.g. Montealegre 2002; Parnell 2011). They argue that since resources are the fundamental building blocks of other internal elements (Valentin 2001), they should be identified in the 'zero-order' level. Capabilities must be examined on the first level, after considering resources. This has been admitted in Grant's framework. These two stages have been delineated as the crucial steps for effective strategic management (Duncan, Ginter and Swayne 1998). According to Grant (1991, p. 122), "a key issue in the relationship between resources and capabilities is the ability of an organisation to achieve co-operation and co-ordination between teams." He has also asserted that a firm's style, values, traditions, and leadership can be seen as crucial facilitators of this co-ordination and integration, which can be considered as "intangible resources and common ingredients of a wide range of organizational routines (p. 122)." In contrast to Grant's view, however, the relationship between resources and capabilities is not a one-way link. Rather, as Amit and Schoemaker (1993) have pointed out, there is a two-way flow between resources and capabilities. The necessity of considering the return flow from capabilities to resources can be explained as follows.

The link indicates that since capabilities are based on resources, any changes in capabilities should directly result in some changes in resources. These changes are more remarkable in an e-business context due to the rapidity and unpredictability of technological and market turbulence (Buganza, Dell'Era and Verganti 2009). For instance, if a firm needs to acquire a capability due to its new planned strategy, this capability then requires a particular set of resources, which in turn needs a reconfiguration, or reintegration on existing resources, or even the firm may need to develop a new set of resources. This link must exist, and it needs to be taken on board largely due to the fact that the increasingly changing external market environment make the process of strategy development a dynamic one, which in turn requires a regular revision, particularly in current turbulent environment of e-business. The stronger the link between resources and capabilities, the higher the level of flexibility and agility that an e-business must have to upgrade its internal resources and capabilities based on its planned strategy. Hence, it can be concluded that the lack of this relationship in e-businesses may lead to poor integration and a low-level of flexibility in its internal processes, which in turn prevent the firms from gaining and sustaining their competitive advantage. Consequently, this can delay or even deny a timely strategy implementation, and negatively affect firms' performance. A low level of flexibility, integration and response rate might damage a firm's market position, and therefore it could result in a firm lagging behind its competitors to gain and/or sustain its intended competitive advantage. In this respect, Olavarrieta and Ellinger (1997) posit that resources and capabilities are complementary and they can reinforce each other. They exemplify the relationship between brand name as a resource, and logistics capabilities as follows:

> *"For example, having a strong brand may enhance customer perceptions of the firm's logistics capabilities. Equally, having superior logistics capabilities may help the organization to build its reputational assets." (p. 579)*

Similar examples can be found throughout the literature to further validate a need for a two-way relationship between resources and capabilities. For instance, knowledge resource as one of the main resources in electronic firms for creating competitive advantage (Barrutia and Gilsanz 2013) can underpin all of a firm's capabilities, including IT capabilities (Ross, Beath and Goodhue 1996), trust creation (Saini and Johnson 2005), and governance (Dehning and Stratopoulos 2003; Peppard and Ward 2004). Such research evidence highlights a link between knowledge resource and other capabilities. Moreover, the aforementioned capabilities can enhance a firm's knowledge resource over time. For example, by developing trust among customers and the IT capabilities of a firm, and by enhancing the firm's processes and systems of business governance, a firm can improve its knowledge level to accelerate its performance in the market. Such research evidence has led us to suggest the following proposition:

Proposition 2: *To develop a competitive strategy and gain/sustain competitive advantage, capabilities should be positively aligned with resources.*

Relationship between strategy and a firms' internal factors

As noted earlier, strategy selection is an iterative process due to constant changes in the external environment, as well as internal determinants such as resources, capabilities and dynamic capabilities. In this regard, not only has Grant considered the last step of his framework as a return flow from strategy to internal factors to fill in resource gaps, but this flow can also be found in the work of several other scholars (e.g. Daniel and Wilson 2003; Grant 2013). This link emphasises the fact that strategy is not only affected by internal factors, but it can also affect a firm's internal determinants to achieve competitive advantage (Yang et al. 2006). This idea has also been acknowledged in the literature on RBV, which argues that in any attempt to develop strategy, postulating not only existing resources, but also developing and extending new resources and capabilities is crucial. This has been referred to as filling 'resource gaps' in strategy literature (Caldeira and Ward 2003), or 'resource maintenance' (Mosakowski 1993), which requires strategic direction itself (Grant 1991). So, the return flow from strategy to a firm's internal determinants stresses organisational learning (Whitaker, Mithas and Krishnan 2010; Muehlfeld, Sahib and Witteloostuijn 2012), which is tightly integrated with resource maintenance (Olavarrieta and Ellinger 1997). Akgün, Keskin and Byrne (2012) highlight the significance of this learning in a highly turbulent e-business market, which demands early and high attention to empower electronic firms in sustaining their completive advantage (Otim et al. 2012).

It should be noted that the identified gap (see Caldeira and Ward 2003) is not always in resources, as Grant (1991) shows in his framework, but perhaps according to the whole process of internal and external analysis and a firm's selected strategy, the gap could also be in capabilities. Although this link has not been depicted in Grant's framework, he has referred to upgrading capabilities as well as resources by asserting, "Commitment to upgrading the firm's pool of resources and capabilities requires strategic direction in terms of the capabilities that will form the bases of the firm's future competitive advantage" (Grant 1991, p. 132). Therefore, all that has already been referred to in support of the theoretical background of the link between strategy and strategic resources can also be noted in this section underpinning the return link from strategy to capabilities. This relationship has been confirmed by several authors (e.g. Song, Nason and Di Benedetto 2008; Theodosiou, Kehagias and Katsikea 2012). For instance, Parnell (2011) has empirically supported the view that strategies, particularly the generic strategies of Porter (1980), are associated with capabilities to contribute to firms' performance. He has investigated this relationship in retail business, and concluded that:

> *"Effective strategies are necessarily linked to established strategic capabilities. Hence, understanding an organization's strategic capabilities vis-à-vis those possessed by key competitors is an important prerequisite to successful strategy formulation and execution." (p. 125)*

In sum, the impact of a firm's resources and capabilities should not be overlooked in any strategy consideration (i.e. strategy development, design and implementation). This is because firms cannot appropriately deal with managing their internal determinants as well as external opportunities without strategy. Moreover, strategy cannot be developed and implemented without the firm's internal resources and capabilities to undertake the strategy processes. In the light of the aforementioned discussion, the following proposition can be suggested:

Proposition 3: *To develop a competitive strategy and gain/sustain competitive advantage, competitive strategy should be positively aligned with capabilities.*

As noted earlier, the relationship between competitive strategy and its internal determinants should not be restricted to resources and capabilities. Rather, dynamic capabilities are also related to strategy development (Rashidirad, Soltani and Syed 2013). In this respect, dynamic capabilities can be viewed as a group of internal factors which assist a firm to be innovative in meeting strategic issues facing the firm (Lichtenthaler 2012). In other words, dynamic capabilities should also be maintained, upgraded and developed based on selected competitive strategy. Such upgrade in dynamic capabilities is meant to respond to those environmental challenges and to achieve the desirable strategy. Given the need to dynamic capabilities as a response to environmental and external dynamism, we propose that:

Proposition 4: *To develop a competitive strategy and gain/sustain competitive advantage, competitive strategy should be positively aligned with dynamic capabilities.*

A Modified version of Grant's framework

As the previous sections serve to emphasise, a modified version of Grant's framework is demonstrated in Figure 1.

Insert Figure 1 here

As can be seen from Figure 1, Grant's framework has been modified in the light of the aforementioned list of working propositions. The nature of the changes made to the framework is briefly outlined below.

First, we have considered 'strategic resources' instead of 'resources' in the framework. The reason is that not all resources are perceived to be of strategic nature in the process of strategy development. So the emphasis here is on only those resources which can confer competitive advantages to firms. The word 'strategic' in 'strategic resource' concept implies four main attributes, namely value, rareness, inimitability and non-substitutability, which are known as VRIN (Barney 1991). Hence threshold resources are excluded in the process of strategy development not least because they have rather insignificant impact on firm's performance (Lin and Wu 2014).

Second, 'dynamic capabilities', which are linked to 'capabilities', have been added, mainly to address and capture highly environmental changes. This represents the main difference between Grant's original framework and our modified version which intends to capture the rapidly changing environment of e-business.

Third, the link between strategic resources and capabilities has been considered as a reciprocal flow to stress the fact that these two groups of internal factors should underpin each other and any changes in one must lead to some modifications in the other.

Lastly, the return flow from 'strategy' to 'strategic resources' has been extended to 'capabilities' and 'dynamic capabilities'. This is because these are all firms' internal factors, which need to be maintained, filled, renewed and upgraded in accordance to a selected competitive strategy.

Conclusions

The central theme of this paper was a critical review of Grant's framework of strategy formulation and competitive advantage (1991). Such a review is a response to the emerging and inherent characteristics of the current e-business marketplace. The two main critiques of Grant's framework were related to (i) the role of dynamic capabilities in strategy development process and (ii) the assessment of the actual relationships between a firm's internal factors (i.e., resources, capabilities and dynamic capabilities) and competitive strategy. By reviewing these two main limitations of Grant's framework and the need to upgrade the usability of the framework to suit the requirements of current dynamic e-business market, a modified version of Grant' framework was proposed. Rooted in RBV, this framework puts forward a theoretical foundation on how to create competitive advantage from a firm's internal factors (i.e. strategic resources, capabilities and dynamic capabilities). To pave the way for future research and to lay a foundation for further empirical scrutiny of modified framework, a list of four propositions was proposed. Our review of Grant's framework contributes to the RBV literature by considering dynamic capabilities, as the firms' most crucial factor in the current dynamic digital market. Theoretically, the modified framework puts forward a holistic approach to strategy formulation in that all three identified factors, competitive advantage, and strategy have been considered in a single framework. We hope that this can raise researchers' understanding of the relationship between these factors and how to obtain a thorough view on the process of strategy development. Further attempts could be made to study these factors from a holistic view of strategic alignment as opposed to the dominant reductionistic approach. In contrast to the reductionistic approach, in which a bivariate relationship between factors is assessed (e.g. Drnevich and Kriauciunas 2011), the holistic approach has a greater potential to capture the complex interrelationships between strategic resources and capabilities (Venkatraman and Prescott 1990). Future research could synthesise the literature in order to conceptualise the holistic view of strategic alignment between strategic resources, capabilities, dynamic capabilities and competitive strategies and the way it can lead to gain/sustain competitive advantage.

Future research can increase the degree of applicability and practicability of Grant's framework in dynamic e-business markets. Although Grant has viewed his proposed framework as a practical procedure to develop strategy based on RBV, it seems that the technical and practical side of the framework has been partially articulated. Whilst Grant has made a reference to intangible resources and capabilities, he has not offered a thorough set of practical guidelines for firms on how to measure rent generation of these types of resources and capabilities. His framework therefore may not still be practical as it suffers from a lack of detail on its application in strategy formulation. This is not only related to the existing turbulent business environment; rather, Grant's framework has also not been practically applied to traditional bricks-and-mortar firms. Moreover, the extant literature reveals that the rent generating/value creation of firms from internal resources and capabilities in the electronic marketplace is context-dependent. For example, Wu et al. (2003) and Zhu and Kraemer (2005), among others, argue that organisational, technological and environmental contextual factors can strengthen or weaken the ability of firms to gain/sustain competitive advantage. Accordingly, further research can assess the nature and extent to which the ramifications of the relationships among firms' internal factors, strategy and competitive advantage may alter in different type of firms in different contexts. Understanding the moderating effect of these factors is crucial, as they are largely controllable by managers and, therefore, can be altered to suit their target market positioning and gain/sustain competitive advantage (see Rashidirad, Soltani and Salimian 2014).

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