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Abstract

The development of business models for eBusiness is helpful in allowing researchers and practitioners to organise their thoughts about different eBusiness options. However, it can be argued that many of the business models for eBusiness are static in nature and only provide a historical view. Indeed, these models are of limited value in providing guidance as to how to link the broad strategic concept with the detail of the required business processes in the operating eBusiness. This paper draws upon the emergent knowledge of eBusiness models together with traditional strategy theory to provide a simple integrating framework for the evaluation and assessment of business models for eBusiness. The framework allows for the simultaneous reflection of both top-down and bottom-up perspectives. That is, an entrepreneurial view based on the identification of a market need or business opportunity triggering the search for appropriate delivery mechanisms. In contrast, a technical view which builds up from an internal review of business process and ICT resources and capabilities which could suggest new electronically-based business options. Moreover, the paper provides a simple framework for the evaluation of possible business processes and business solutions.

Keywords

Business Models, eBusiness Modelling, Business Strategy, Design Framework

INTRODUCTION

In most organisations the development of a suitable strategy, based on a set of objectives, is used as a means to guide the direction of the organisation to obtain a level of value or return while taking into account the threats and opportunities that exist in their current market place and environment. Managers can call on a raft of approaches, tools, methodologies and methods to elucidate possible strategies that enable them to gain new insights(Checkland, 1981, Iansti and Levien, 2004, Kaplan and Norton, 1996, Mintzberg, 1978, Porter, 1980, Weill and Vitale, 2001). However, these are generally static in nature and do not take into account the dynamic nature of an organisation and its relationship with its external environment, and the dynamics within the organisation. Nor do they provide effective means to assess and evaluate the strategies and implementations that are possible in a particular industry segment.

Indeed, the field of strategy and strategy formulation is quite fragmented with theory of the strategic concept and commonly generated strategy formulation often being subjectively and mono-dimensionally derived. That is, the strategy is taken from the perspective of industry position, value chain position, geographical market(s) of interest, customers or suppliers perspective, industry culture and/or structure. Hence, managers are often unable to formulate effective strategies in the face of a wide range of influencing forces and different perspectives (Checkland, 1981, Coyle, 1996, Eden and Ackermann, 1998, Senge, 1990, Sterman, 2000). Moreover, researchers and practitioners are often unable to draw logical boundaries around the current strategy and the perceived environment that they are attempting to understand. Incorporating these into a strategy capable of being communicated effectively is extremely difficult. A common challenge in using any form of model-based or supported thinking is in the surfacing and communication of different actors' mental models. In thinking about the building of an electronically based business, there are at least three simultaneous views of what it is expected to achieve and how this can be made to happen:

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- entrepreneurs have their ideas for successful businesses;
- technologists envisage ways to implement new complex technological or information systems to achieve business value; and
- operational managers have their ideas as to how business processes could be enhanced and extended to benefit from new opportunities.

Each of these views could form the basis for a business model for eBusiness. Extending down from the entrepreneur's vision of how to create value in the business environment, or upwards from the views of operational managers and technologist as to what new opportunities could be exploited to create value from new and alternate applications the company's assets and processes and/or emerging technical capabilities could provide. However, these originating ideas are typically personal and retained in peoples' minds and not made explicit. Any unifying framework must provide a way by which the entrepreneurial mental models can be surfaced and articulated, and then the models shared with other actors in such a way that they can see within them the business processes and technological infrastructures that are the basis of their thinking.

Building from arguments that strategy can be distilled into a business model capable of describing to a manager what an organisation is currently attempting to achieve in a particular market to generate value. This paper presents a framework that, it is suggested, can capture such broadly-based strategic models for eBusiness design in a way that a chosen business model's implications for business process modelling and information infrastructure development can be established. The framework provides a method to assess and evaluate the business model for eBusiness that is being envisioned by allowing technologists, entrepreneurs and managers to have a clear understanding of the options that are facing them. In doing so the framework underpins the strategic thinking and takes into account the characteristics of the industry being discussed, the resources of the organisation, their current business processes and enabling technology. Moreover, the view of strategy and strategy formulation are used to provide a top down approach in the development of a business model while simultaneously providing a bottom up approach, utilising the business process modelling perspective and techniques. In section 2, we examine strategy formulation by focusing on emergent strategy formulation, environmental models of competitive advantage and the examination of the strategic resources of an organisation. Section 3 examines the current research into eBusiness models. This section focuses on the both the components and description of business models for eBusiness and concludes by proposing a strategic conceptual framework for eBusiness. Section 4 provides an assessment and evaluation process of eBusiness models utilising a morphological matrix highlight the different strategic views while in section 5 we conclude the paper.

2. STRATEGY CREATION

Strategy theory development by organisations has been one of considerable interest to both academics and practitioners alike and there is a wide diversity of approaches. Importantly, a central theme of strategy is the interplay of the environment the organisation is attempting to compete in, the resources of the organisation and how these are arranged by the management of the organisation to gain value and confer a level of advantage. Taking this theme further we examine the development of a suitable strategy by carefully considering the firm's resources (Barney, 1991), the organisations role and the current value chain the organisation is involved in (Porter, 1985) and the possible utilisation of a well implemented generic strategy (Porter, 1980, Mintzberg, 1978).

2.1 Emergent Strategy Formulation

In the evolution of strategy there is a strong emphasis on how an organisation can influence its competitive environment as well as on how the competitive environment influences its organisation. Mintzberg (1978) argues strategy formulation in most organisations as the interplay of three basic forces revolving around the:

- dynamic environment that changes continuously but at irregular intervals with frequent discontinuities and wide swings in the rate of change in the environment;
- organisational management or bureaucracy that attempts to stabilise the actions of the organisations while operating in the dynamic environment; and
- leadership role of organisations is to mediate between the two forces in an attempt to maintain the stability of the organisation and their practices while adapting to the many changes of its operating environment.

Mintzberg's model goes on to highlight that strategy is best viewed as a "set of consistent behaviours by which the organisation establishes for a time its place in its environment, and strategic change can be viewed as the

organisation's response to the environment change, constrained by the momentum of the bureaucracy (organisation) and accelerated or damped by leadership." Importantly, he argues that there is interplay between the intended strategy and realised strategy. Moreover, the time delay for an intended strategy to manifest itself can be quite long; in some cases longer than the time it takes an environment to actually change. As a consequence the intended strategy, at best, could be irrelevant or, at worst, actually detrimental to the organisation.

2.2 Environmental models of competitive advantage

Porter (1980) extends the interrelationship of the three forces defined by Mintzberg and argues that external forces affect the work of managers in developing strategies. Porter's five forces model provides a framework to identify the external environment in which an organisation works. These forces are exemplified as: threat of new entrants and substitute, the relationship of the suppliers and clients and the present competitors. This approach provides a simplistic method for managers to describe their environment by isolating the threats and opportunities within the described industry and can determine the strategy choice of the organisation and the possible outcome in the competitive environment. Importantly, it focuses managers into understanding that they form a part of the environment. That is, their attempted strategy will be influenced by the environment and will conversely influence the environment. The generic strategies of "low cost" and "differentiation" are often used to develop a level of strategic or sustainable advantage within a market segment. In an extension to this previous work was the development of the *value-chain model* (Porter, 1985).

Porter's value chain model focuses on the activities and functions of the organisation and their relationship with their suppliers and customers. Following from the generic strategies of low cost and differentiation organisations can identify the underlying factors that drive cost and possible differentiation potentials. It allows an organisation to control and group activities with the possibility of utilising cost potentials by creating economy of scale advantages or through product differentiation by developing innovative products and services.

However, this generic approach does not capture the complexity of the numerous value chains, complementary or competitive, that are present in the environment in which an organisation is competing. Nor is it able to describe that an organisation's strategy must be in harmony with the environment and the numerous complementary or competitive value chains with which it is currently competing (Iansti and Levien, 2004). This focuses managers on the interplay of environment and the organisation's role within the environment. Porter's value chain model and five forces model can highlight the core elements for managers to understand the external environment key resources that can provide a level of advantage and value. In Porter's value chain model there are two underlying simplifications. First, organisations within an industry are assumed to have access to and control of the same strategically relevant resources and compete with a similar strategy. Second, should an industry participant gain specialised resources (resource heterogeneity) capable of providing a competitive advantage, it will be short lived as industry competitors can easily obtain these resources.

2.3 Resource Based View

Barney (1991) introduces the concept of the resource based view, *RBV*, to address the limitations of environmental models of competitive advantage and attempts to provide a link between heterogenous resources controlled by an organisation, mobility of the resources within the particular industry and the strategic or competitive advantage enjoyed by an organisation. A firm's resources are used to enable it to establish strategies to improve the overall efficiency and performance of the organisation and these can be quite wide ranging. Barney classifies these resources into three categories.

- Physical Capital Resources: includes the physical resources of the organisation such as plant and equipment, technology, location and access to raw materials.
- Human Capital Resources: includes the training, experience, judgment, intelligence, insight from managers and workers within the organisation.
- Organisation Capital Resources: includes the formal structure of the organisation, planning, controlling and coordinating systems, formal and informal reporting and planning systems, as well as informal relationships among groups within the organisation and between external organisations in the competitive environment.

Hence, the resources that an organisation controls can be examined in terms of its attributes: heterogeneity (i.e., its uniqueness) and immobility (i.e., its obtainability by other competing firms). In terms of these two attributes, if two organisations that have the same resources and conceive the same strategy they both will improve their efficiency and effectiveness in the same way and importantly to the same extent.

In order for an organisation to have the potential of sustainable advantage then each critical resource should have four attributes (Barney, 1991). They are:

- It must be valuable in the sense it provides opportunities or neutralises threats to the organisation's environment;
- It must be rare among an organisation's current and potential competitors;
- It must be imperfectly imitable; and
- There cannot be a strategic equivalent substitute for the resource that is valuable but neither rare nor imperfectly imitable.

If a firm has access to resources that are valuable, rare, imperfectly imitable and non-substitutable these can provide sources of sustained competitive advantage. In this context a resource is particularly viewed as *valuable* if it has the ability to reduce cost or increase the price customers are willing to pay for a product or service. An extension to this is the organisation's position within an industry and/or value chain and their ability to create value (Barney, 1991).

3. BUSINESS MODELS FOR eBUSINESS

The term *business model* is one that is a topic of hot debate and draws considerable comment and differing opinion in both academia and practice (Alt and Zimmermann, 2001, Applegate, 2001, Chandra et al., 2002, Chesbrough and Rosenbloom, 2001, Hedman and Kalling, 2003, Oliva et al., 2003, Timmers, 1998, Rappa, 2003, Weill and Vitale, 2001). The main driving force behind the re-evaluation of the (traditional) business model has been the development of eBusiness, eCommerce and eMarketing. The focus of the re-evaluation has been on how new technologies, especially the *Internet*, alter the business model and subsequent strategy. Interestingly, a deep analysis of the business model concept highlights that there is a diversity of views and understanding of the business model for eBusiness. This causes a confusing and incomplete picture of the dimensions, and core issues of these business models (Alt and Zimmermann, 2001). The empirical use of the concept has been criticised for being unclear, superficial and not theoretically grounded (Porter, 2001). Indeed, to provide a clearer picture of the concept we will use the more widely cited business models for eBusiness.

3.1 Components of the Business Model for eBusiness

A major criticism of the business model can be seen when we examine the strategy theory in the field of business research. In strategy formulation research many, if not all, of the theoretical components of the business model are covered. By focusing on the components of the business model for eBusiness we are able to draw on underlying theory of strategy.

Timmers (1998) defines an eBusiness model as "an architecture for the product, service, information flows, including a description of potential benefits for the various actors, and a description of the sources of revenue." Weill and Vitale (2001) propose a similar definition of: "a business model is a description of the roles and relationships among a firm's consumers, customers, allies and suppliers that identifies the major flows of product, information and money and the major benefits to participants." Underlying the two definitions we can break these down into the components of the business model: business strategy, organisation form and structure, business process, value chain, core competencies and financial structure. Alt and Zimmerman (2001) presents six components: mission, structure, processes, revenues, legal issues and technology.

Afuah (2001) defines an eBusiness model as *"how a firm plans to make money long term using the Internet."* Although simplistic as a statement, in its nature Afuah builds a framework of components including: customer value (low cost or innovative), scope (products/service), price, revenues sources, connected activities, implementation (required resources), capabilities (organisation skills) and sustainability. Interestingly, the proposed list of components is applicable to both eBusiness models and the traditional business models. However, the causality between the components, processes and change are not addressed.

Applegate (2001) provides a considered business model framework consisting of three basic components: concept, value and capabilities. It addresses the role of the change process and the relationship between the components of the model. Concept, or business concept, describes the products and services offered, evolutionary business strategy, competitive dynamics, market opportunities and strategy to gain dominant market share. The value of the business model is measured in terms of the revenue to the stakeholders, return to the organisation, market share, brand and reputation, and financial performance. Capabilities are delivered by the organisation's marketing and sales model, management model, development model and infrastructure model and built by people and partners, organisational structure and culture. Amongst components described in the business model are interdependent and traditional strategic framework tools (e.g., value chain analysis, RBV),

which can be used to evaluate the suitability of the business model. Importantly, the major difference between the traditional business models and eBusiness models are the underlying assumptions and rules of how business will be undertaken in the particular industry.

3.2 Description of the Business Models for eBusiness

The wider group of business models for eBusiness provide descriptions for particular scenarios and situations. Moreover, eBusiness models aim to describe specific business models, which explain how businesses use the Internet to interact and how value is created for the customer and the other stakeholders (Applegate, 2001). There has been an explosion in the number of academic papers that outline a wide range of taxonomies for eBusiness models.

An early attempt was Timmers (Timmers, 1998) who identified eleven eBusiness models: e-shop, e-mall, e-procurement, third-party marketplace, e-auction, virtual community, collaborative platform, value-chain service provider, value-chain integration, information brokerage and trust service. Rappa (Rappa, 2003) extended this and classified nine categories for eBusiness models: brokerage, advertising, 'infomediary', merchant, manufacturer, affiliate, community, subscription and utility. Under these Rappa identifies thirty-six models that can be classified under his nine categories. Interestingly both Timmers and Rappa highlight that there is no single comprehensive taxonomy for classifying eBusiness models and yet they do provide taxonomies of eBusiness models.

Applegate (2001) outlines a taxonomy of business models for eBusiness by using: generic market role (i.e., producers, consumers, distributors and customers), digital business (if dependant on the Internet) and platform (i.e., infrastructure provider for 3rd party eBusiness). Applegate provides five general categories: focused distributor, produces, portals, infrastructure portals and infrastructure producers in which there are 22 individual instances of eBusiness models that fit within the classification of the taxonomy.

Weill and Vitale (2001) define eight finite eBusiness models: direct customer, full service provider, intermediary, whole of enterprise, shared infrastructure, virtual community, value net integrator and content provider. These business models are based on a systematic and practical analysis of several case studies. This work describes eight basic structures as ‘atomic’ models. These eight structures form the ‘atoms,’ which firms may adopt singly or in more complex arrangements (‘molecules’) to construct their business model. The models are defined in terms of the actors in the structure of: the firm, 'complementors', customers, and suppliers and the inter-linkages between them. This includes the movement of product, money and information. These atomic models may be described as an ‘analysis agenda’ for managers attempting to interpret the complexity of an eBusiness model in terms of the resources required to implement each or a specific business model.

3.3 A Proposed Strategic Conceptual Framework for an eBusiness

In order to provide a framework to evaluate business models for eBusiness we must establish a method to highlight the resources involved and the causal relationships with the organisation and environment. Figure 1 provides a simple business model strategic conceptual framework to highlight the interrelationships between business strategy, business models, business process models and the underlying business processes that are capable of utilising the enabling technology (i.e., Information Technology and Information Systems). At the centre of the framework is the business model. It provides a method to create an eBusiness model by examining the particular context based on the industry - organisation environment. The conceptual framework allows entrepreneurs, managers and technologists to bring their thinking together for a common understanding, integrating the strategic formulation within a particular market and the strategic issues specific to eBusiness within the organisation. Hence, a business model is an envisioned strategy that is capable of describing what an organisation is currently attempting to achieve in a particular market - environment to generate value and confer advantage.

The framework utilises the traditional tools of strategy formulation and provides a foundation for identifying the underlying business model or developing a new business model. Value chain analysis provides a method to identify the business process model that is either in place, highlighting its important business processes, or a new and innovative approach that could be developed. In an eBusiness case we need to consider how enabling technology, especially Internet based technology, can provide new variants of business processes and/or business process models. RBV could provide a guide to identify the resources required by the organisation to support the business model under consideration. Importantly, it provides managers with a way to classify them in terms of the strategic importance at an organisational level and industry level. At business strategy level managers are able to examine the business’ external environment, the organisation attempting to compete in and how the actors (customers, suppliers, competitors, etc) interact with the business model under consideration. Indeed, managers could use conventional approaches of Porter’s Five Forces model.

The conceptual framework identifies market place based strategies and technology based strategies. From the perspective of market place strategies are derived from the market itself and are considered to be the emergent strategies of the market. Knowledge based entrepreneurs fall into this category. Conversely, technology delivered strategies generated from within the organisation and often from research and development or a specific resource of the organisation.

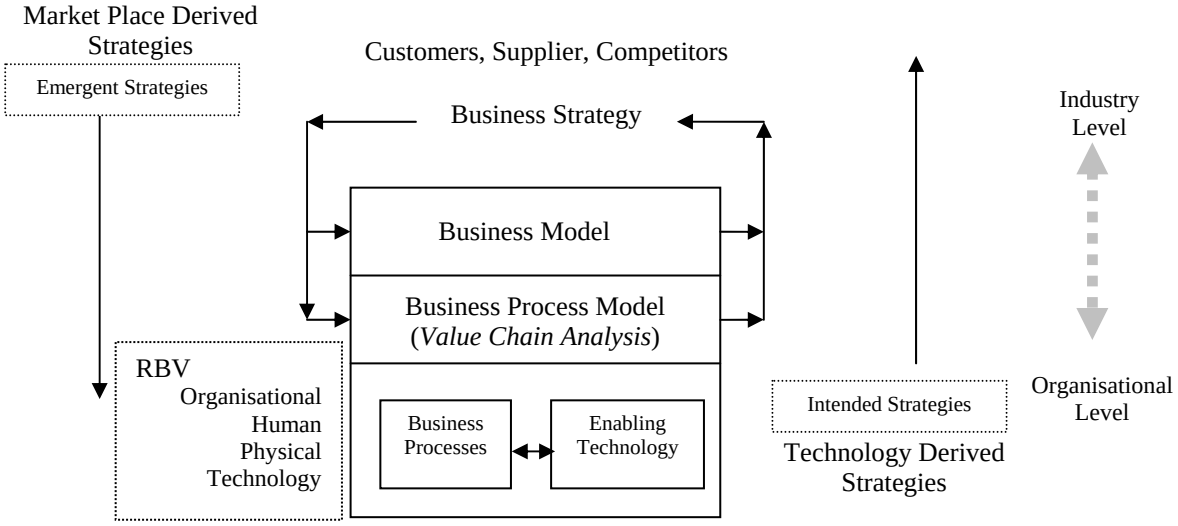

Figure 1: Business Model Strategic Conceptual Framework

RBV has been extended in this framework to include technology capital resources as a part of the resource based view of business models for eBusiness. In this sense, technology cannot only be seen as the rare and valuable resource of competitive advantage, as experienced by the early adopter of Web based eCommerce (e.g., Amazon.com). It can also be an enabler of business in a new and innovative way that supports an organisation within a particular market (e.g., Porter's Five Force and Value Chain Analysis). Or it can simply provide effective back office processes and information management (e.g., general strategy – low cost).

Similarly, market placed strategies often have a strong effect of the emergent strategies of the organisation. Conversely, intended strategies bubble up for the organisation and in the eBusiness area are often based on the use of technology as means to communicate with customers, suppliers and competitors. This includes interaction with their customer and supplier and allows them to revisit their current market and the possibility of moving to new markets. There is a growing realisation that the "economic value from technology can only be derived from the economic and social structure of the situation rather than the inherent characteristics of the technology itself." (Chesbrough and Rosenbloom, 2001)

A major criticism of business models for eBusiness has been the lack of assessment and evaluation techniques for the models that have been generated. Many of these models are anecdotal or retrospective in nature. Moreover, there has been no evaluation of the taxonomies. Therefore, re examination of the activities that form the basis for many of these models must be undertaken. This can only be achieved by utilising innovative modelling approaches to gain a greater insight into the complexity of business models for eBusiness.

4. ASSESSMENT AND EVALUATION OF EBUSINESS MODELS

This framework offers two distinct approaches to the conceptualisation, design and implementation of a new electronic business. A top-down perspective reflects an entrepreneurial view, which starts with an identified market need or business opportunity that could be exploited. Business design then works down to identify the processes and then ICT infrastructures that would be needed to deliver that service. The design process firstly requires that the various features and functions of the delivery mechanism have to be identified, and then the precise business processes necessary to deliver the envisaged product or services how to be configured. In the case of many of the features and functions there might be alternate options and these have to be identified and evaluated. The phases in this process are given in Figure 2. Consider an entrepreneur envisioning an eBusiness opportunity, for example, the creation of an electronic auction site. S/he would start with this envisioned opportunity and work through the identification and selection of the necessary business processes and the specification of the necessary ICT infrastructure.

The second is a bottom-up, or technology capability view. Here, the process starts with an organisation identifying its strengths, capabilities and resources, and building from these, new business opportunities that exploit them. The phases in this process are more complex as it cannot be a purely bottom-up sequence. The

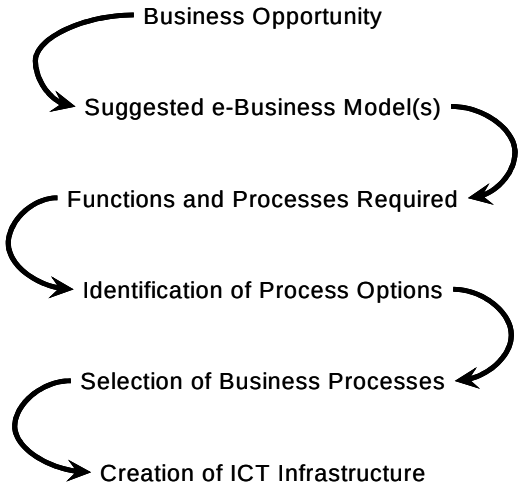

Figure 2: An entrepreneurial process for eBusiness development

identification of exploitable capabilities is likely to suggest a number of possible eBusiness opportunities. However, not all of these would offer viable or valuable business propositions. There must therefore be a cycle of opportunity identification and evaluation, before the target business opportunity is settled. The process must then go back down to the organisation to confirm that all necessary capabilities are in place, and ensure that any gaps between the needs and existing capabilities identified in the audit must be bridged (Figure 3). This approach is more likely to be adopted where an organisation already has business process or ICT capabilities and wishes to investigate diversification into new eBusinesses based on these existing capabilities.

Within these strategy development sequences, mechanisms are required that can structure the functional processes in a form that permits the development of the delivery system. The *morphological matrix* used in engineering product and process configuration (Twiss, 1992) could support this process. The morphological matrix requires that all the necessary key functionalities of the proposed system are listed (on the vertical axis of the 2 dimensional matrix). On the other axis, all feasible means for providing each of the required functionality are listed. An example of this approach is shown in Table 1.

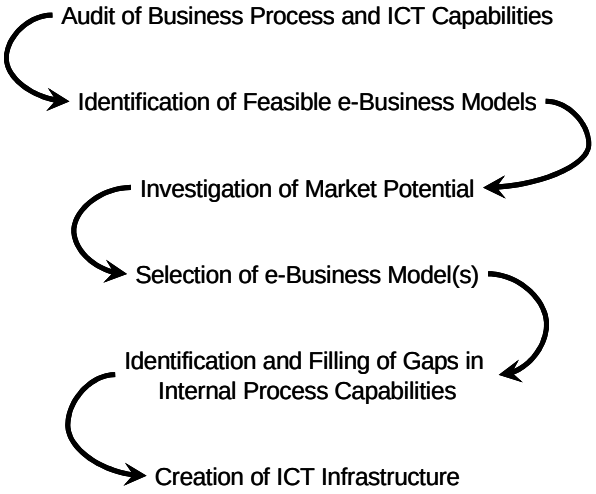

Figure 3: A bottom-up or technical capability based eBusiness development strategy

Business Processes ↓ Needed	**Process Delivery Options →**						
Delivery of Goods	Courier	National mail /package service	Company's own transport	Contract carrier	Customers collection	Clearing house service	Etc. …
Return of Goods	Courier	National mail /package service	Company's own transport	Contract carrier	Customers return to store/depot	Clearing house service	
Payment	Cheque	Credit card	Mail / postal order	3rd. party collection	Direct funds transfer		
Refunds	Cheque	Credit card	Mail / postal order	3rd. party collection	Direct funds transfer	Credit note / allowance	
Customer order mechanism	Email	Company web-site	e-Mall	Distributor's website	e-Auction		
Etc ….							

Table 1: Morphological Matrix (Twiss, 1992) for Direct to Customer eBusiness Model (Weill and Vitale, 2001)

In this example, we suggest the functionality that might be required for the development of a simple *direct-to-customer* business model (as identified by Weill and Vitale (2001) and others). The analysis process then comprises the elimination of infeasible delivery options and the putting together of feasible combinations to create the business. Typically, these delivery options can be categorised into three key two-way flow structures - information, goods/service and money - which Joyce and Winch (2003) have shown can also be used as constructs for linking the proposed eBusiness model with the detail of the business processes selected for the business design. It is critical for all players involved in the process of developing new business ideas to understand the thinking underlying general strategy formulation. This can include the resource-based view of the firm, if they are to work together to build new eBusiness, which fully exploit opportunities – internal and external – to create business value. We offer as a starting point our merging into an integrating framework of classical strategic thinking, the notion of the business model, especially the eBusiness model, and the reflection of the links between internal resources and capabilities and external opportunities. This framework can now serve as the valuable basis for further academic research into design philosophies and integrating models, and also for the development of practice.

5. CONCLUSIONS

The framework proposed in this paper reinforces to all players in the eBusiness development process that sustainable eBusiness models should encompass the traditional thinking of business strategy (RBV, Value Chain Analysis, Porter's Five Forces, etc). That is, the business model for eBusiness being envisioned and development by the managers and the developed strategy must be undertaken with clear understanding of the organisational, economic and technical resources of the organisation and how they are managed, allocated and controlled to provide value to the organisation. Moreover, managers must also envision the impact the eBusiness model will have on the environment they are attempting to compete in and the role and status they hold within their value chain and the competing value chains. This must be done alongside a detailed understanding of the necessary underlying business processes and ICT infrastructures to support the model under consideration. Importantly, it provides an integrating vehicle for all managers, entrepreneurs and technologists to surface and

share their views and perspectives, and thereby offers an explicit process for assessing and evaluating possible eBusiness models.

Criticism of business models for eBusiness has largely been centred on the fact that they tend to be passive snapshot characterisations of the various ways in which ICT can be exploited in the creation of new businesses. This paper begins by recognizing that there is a well-developed literature on general business strategy formulation, into which eBusiness falls as a particular sub-set. That literature is reviewed alongside the literature for eBusiness models and business process design. This paper then draws together the current thinking in general strategy management, eBusiness models, and business process design and presents a holistic view of eBusiness evaluation and design and suggests tools for eBusiness designers to use to configure the business.

From this holistic view of eBusiness conceptualisation, the paper argues that any electronic-based business can be conceived from two perspectives. The top-down perspective is an entrepreneurial view, which starts with an identified market need or business opportunity. Business design then works down to identify the processes and then ICT infrastructures that would be needed to deliver that service. The second is a bottom-up, or technology capability view. Here, the process starts with an organisation identifying its strengths, capabilities and resources, and envisioning from this audit how new business opportunities can be developed which exploit them. Ideally, perhaps, there should not be an *either/or* dichotomy as outlined here, but rather a new eBusiness is envisioned concurrently from both perspectives. However, in all likelihood, the mental models of the key players – entrepreneurs, process managers, and technical specialists are so dissimilar that such 'meeting of minds' is unlikely without explicit processes to support the surfacing and sharing of mental models.

The paper has closed with the synthesis of outline processes for both these approaches and the suggestion that tools like morphological matrix analysis can support the process of system configuration. We would argue that this framework for eBusiness is a starting point for a process that allows entrepreneurs, technical and business managers alike to understand the possible business models that may be enacted allowing for the development, assessment and evaluation of the many difficult issues facing managers.

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