

E-Definitions: Review, Rethink And Redefine

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ABSTRACT

E-business and e-commerce are commonly used to describe business ventures and activities that make use of computing and telecommunication technologies, especially those related to the use of the Internet. However, despite widespread use of these terms, there are no generally accepted definitions of them. This paper reviews contemporary definitions of e-business and e-commerce and examines problems of these definitions. A new value-centric approach is proposed to redefine e-business and e-commerce. Examples of e-business and e-commerce organizations are provided to illustrate this new approach. Implications of the new approach to practitioners and potential research opportunities based on the new approach are discussed.

1.0 INTRODUCTION

The application of computing and telecommunication technologies in business operations is nothing new. Electronic Data Interchange (EDI) systems utilize these technologies to form proprietary networks for inter-organizational procurement process. The development of EDI can be traced to from 1960s (Clarke, 1998). However, until 1980s, the use of such systems was largely limited to automotive, retail and transportation industries (Hayes, 2003). The commercialization of the Internet, coupling with advancements in technologies, accelerated the development in applications of computing and telecommunication technologies in business operations. The Internet provided an open platform for organizations to communicate with individuals and other organizations without the need of prior arrangement. It allows organizations to enhance their existing business processes as well as operating in new ways.

In late 1990s, a new breed of organizations emerged from the Internet boom. They use Internet as primary communication medium and conduct business without direct physical contact with customers. Many terms were used to describe this type of organizations. One of the most famous terms is dot.com. However, after the burst of the Internet bubble in 2000, this term is rarely used now.

In the new millennium, electronic business (e-business), and electronic commerce (e-commerce) are the most commonly used terms for business organizations and activities that make use of computing and telecommunication technologies, especially those related to the use of the Internet. However, despite the widespread use of these terms, there are no generally accepted definitions of them.

Practitioners and academics define these terms with their own interpretations of "practice" with little, if any, explanation or justification of their interpretations.

As individuals have different perceptions of what the "practice" is, a large number of incompatible definitions of e-business and e-commerce were produced under such heuristic approach. There is no agreement on whether any real distinction exists between e-business and e-commerce. When they are considered as two different concepts, the boundary of the two terms is unclear. Definitions of the terms are based on the types of activities that organizations conduct rather than the nature of organizations. Nevertheless, they are often used to refer to business entities rather than business activities. It appears that no serious attempt is made to link any theory or analytical tools that are applied in the discipline to the definitions of the terms.

Without consensus on what constitute e-business and e-commerce, it is difficult to develop a coherent theoretical framework for the discipline. Discussants in the discipline usually assume others have same interpretation of the terms as theirs. Unfortunately, it is often not the case. Consequently discussions become pointless debates as participants are in fact expressing views on different concepts.

This paper reviews the contemporary definitions of e-business and e-commerce from 2001, discusses the problems associated these definitions and proposes a value-centric approach to define e-business and e-commerce. E-business and E-commerce are considered as two types of organizations that employ different strategies in application of computing and telecommunication technologies to their business operations.

The remainder of this paper is organized as follows. Section two reviews the contemporary definitions of e-business and e-commerce provided by governments, professions and academia. Section three discusses the problems of contemporary definitions. Section four discusses the considerations in defining e-business and e-commerce and the two terms are redefined in the fifth section based on a new value-centric approach. Examples of e-business and e-commerce organizations will be provided in the sixth section to illustrate the new approach. Implications of the new approach to practitioners and potential research opportunities based on the new approach are discussed in the last section.

2.0 CONTEMPORARY DEFINITIONS OF E-BUSINESS AND E-COMMERCE

2.1 E-BUSINESS

The use of the term e-business became popular in late 1990s as large corporations such as IBM used this term in their advertising activities. Most people seem to agree with a broad concept of “conducting business electronically” (DCITA, 2002, 2004a, Jelassi and Enders, 2005, Mitchell, 2001) and derive their own specific definitions of e-business based on this concept. However, individual interpretations of “conducting business” and “electronically” vary significantly.

In some cases, people consider the term “business” as self-explanatory and provide no further elaboration of the term (Beale et al., 2003, Schneider, 2004, IBM, 2004). In other definitions a more restrictive approach is adopted in interpreting “business” in the context of e-business. Some provide lists of specific activities (DCITA, 2004b, Turban et al., 2004) and others consider “exchange of information” as “conducting business” in e-business context (Glover et al., 2003, Samson, 2004).

As the widespread adoption of the Internet is a major facilitator of using computing and telecommunication technologies in business activities, some people equate the use of the Internet as doing things “electronically”. Under this presumption, e-business is defined as “conducting business (or individuals’ interpretations of conducting business) with the use of the Internet” (Beale et al., 2002, DCITA, 2004a). Business activities conducted via proprietary networks like EDI and the business application of customized networks based on the Internet technologies (i.e. the Intranet and Extranet) are excluded in such definition.

Since EDI is widely conceived as the precedent of contemporary e-business, some people use the term “computer network” instead of “Internet” in e-business definition (Lawrence et al., 2003, Turban et al., 2004) in order to cover EDI in their definitions. While computer network is a broader concept than the Internet, it is still restrictive in the sense that only the network of computers is regarded as “computer network”. The use of mobile computing and telecommunication devices like personal digital assistants (PDA) and mobile phones in business activities are excluded in the definition as they are not “computer”. A new term, mobile commerce (m-commerce), has been invented to describe the use of mobile devices in business activities (Turban et al., 2004).

A more generic concept of “telecommunication network” is used in other e-business definitions (ATIS, 2000, DCITA, 2004b, Glover et al., 2003, IBM, 2004, Samson, 2003, Schneider, 2004). This definition covers not only the use of computers and

the Internet in business activities but also the business applications of proprietary computer networks like EDI and application of networks of non-computer devices such as PDAs in business activities.

2.2 E-COMMERCE

E-commerce is another widely used term for business organizations and activities associated with applications of computing and telecommunication technologies. Its use can be traced back to early 1990s when EDI was still a predominant term used in the discipline. Some people use e-business and e-commerce interchangeably and regard the two terms as equivalent (Beale et al., 2002, DCITA, 2004b, Schneider, 2004). For others, e-commerce is considered as a different, and arguably narrower, concept. It is usually regarded as a sub-set of e-business (DCITA, 2004a, Glover et al., 2003, IBM, 2004, Jelassi and Enders, 2005, Turban et al., 2004). The term is usually used to describe organizations that interact with customers primarily through the Internet.

People tend to equate “transaction” with “commerce” when they consider e-commerce as a sub-set of e-business and use a generic notion of “conducting business” in defining e-business. For example, DCITA (2004a) defines e-commerce as “using the Internet to order and pay for products or services” while e-business is defined as “using the Internet for doing business”.

There is no agreement on what constitute the “e” part of e-commerce. OECD (2002) provides two virtually identical definitions of e-commerce. The “broad” definition uses the terms “electronic transaction” and “computer-mediated network” and the “narrow” one uses “Internet transaction” and “Internet” instead. Others apply their own interpretations of “e” in their definitions.

3.0 PROBLEMS OF CONTEMPORARY DEFINITIONS OF E-BUSINESS AND E-COMMERCE

3.1 INCOMPATIBLE DEFINITIONS

Mitchell (2001) reviewed the definitions of e-business and e-commerce provided by the governments, profession and academia during 1998-2000. It was found that the scope of e-commerce in the definitions changed towards different directions every year. From 1998 to 1999, there was a trend of widening the scope of e-commerce in the definitions. However, the trend reversed in 2000. There was no consensus on the definitions of e-business and e-commerce and on which direction that the definitions were developed. Unfortunately, the situation has not been improved in the new millennium.

Contemporary e-business and e-commerce definitions vary significantly in terms of activities and the medium involved and the variations are resulted from

differences in individual perceptions of what should be included in the definitions. For example, when people think that electronic fund transfer point of sales (EFTPOS) system is one kind of e-commerce, they use broader terms like “electronic mediums” or “telecommunication network” in their definitions of e-commerce. Otherwise narrower terms such as “Internet” or “computer-mediated network” are used. As individual perceptions are different, there is no consensus on the scope of the two terms.

As the scope of e-business and e-commerce varies in different definitions, the differences between the two terms also vary. Some people use e-business and e-commerce interchangeably (Beale et al., 2002, DCITA, 2004b, Schneider, 2004), some people only use one of the terms with the implicit assumption that two terms are the same (ATIS, 2000, Lawrence et al., 2003, Mitchell, 2003, Rayport and Jaworski, 2001, Samson, 2003) and others use the two terms with different meanings (DCITA, 2004a, Glover et al., 2003, IBM, 2004, Jelassi and Enders, 2005, Turban et al., 2004). Therefore, it is impossible to identify whether two individuals are communicating the same concept when they use the term “e-business” (or e-commerce) unless they explicitly express their own interpretations of the terms. Communication breakdown may occur when people participate in discussions on the basis of their own definitions without acknowledging others’ views on the scope of the discipline.

In some cases, individuals and organizations have multiple definitions of the terms themselves that are incompatible. Department of Communications, Information Technology and the Arts (DCITA) in Australia has different definitions of e-business and e-commerce in different parts of its website. In its e-business guide website, e-business is defined as “using the Internet for doing business” (DCITA, 2004a) and e-commerce is regarded as a sub-set of e-business. However, in another webpage titled “Information Economy - What is e-business?” e-business is defined as “every type of transaction or interaction in which the participants prepare or conduct business electronically. This covers a wide range of activities, ranging from the use of electronic mail (email) and EFTPOS, through to Internet based sales and transactions and web based marketing” (DCITA, 2004b). E-commerce is considered as equivalent to e-business. It is quite clear that the two sets of definitions are incompatible as the scope of activities and medium involved are different. Another set of definitions of e-business and e-commerce was adopted in an “eBusiness in education” paper (DCITA, 2002). The definition of e-business in the paper is similar to the one provided in e-business guide webpage but the definition of e-commerce closely resembles the one in “what is e-business” webpage. The three sets of definitions are contradictory. Practitioners cannot rely on government to provide authoritative definitions of e-

business and e-commerce as there is no consensus on the terms even within a single government department.

3.2 CONFUSION BETWEEN THE ACTIVITY CONCEPT AND THE ENTITY CONCEPT

E-business and e-commerce are often defined as business activities (or a specific set of business-related activities) conducted electronically. Accordingly, e-business and e-commerce are activity concepts. It refers to a specific type of activity rather than a type of organization. Nevertheless, Amazon and eBay are commonly cited as examples of e-business (or e-commerce) and activities performed by these organizations like online retailing (selling goods and services online) and online auction are regarded as business models. E-business and e-commerce are used to describe a particular type of organization rather than a particular type of activity. In other words, people define the two terms as an activity concept but use them as an entity concept.

3.3 LACK OF THEORETICAL SUPPORT

It appears that most e-business and e-commerce definitions are based on commentators’ personal perceptions of the practice. No explanation is provided on how the definitions are derived. While some analytical tools are borrowed from other disciplines (e.g. management) to solve practical problems in the discipline, there is no serious attempt to define e-business and e-commerce based on any existing or new theory. It is extremely difficult, if not impossible, to arrive consensus on definitions of the terms if the definitions are made without some kind of theoretical backing.

4.0 CONSIDERATIONS IN DEFINING E-BUSINESS AND E-COMMERCE

As discussed in section three, contemporary definitions of e-business and e-commerce are problematic. They create confusions and hinder advancements in the discipline.

Porter (2001) and Tapscott (2001) presented two different views on impacts of the Internet on business. Porter (2001) suggested that organizations should integrate the application of the Internet to their traditional business process while Tapscott (2001) advocated changes to business process based on applications of the Internet. Porter focused on existing organizations that use technologies to enhance business processes while Tapscott was concerned about new organizations that use technologies to create value in new ways. They provided valuable insight on impacts of the Internet from different perspectives. However, under contemporary definitions of e-business and e-commerce, all organizations using the Internet to perform similar functions are considered the same irrespective of their strategies of Internet usage. Porter and Tapscott would be considered as discussing e-business (or e-commerce) in the same

context and confusion might arise from the apparently contradictory conclusions.

Creating another set of definitions using the perception-based approach does not help to improve the situation. Individual perceptions cannot provide a solid ground in explaining the rationale of the definitions. A more rigorous approach should be adopted in defining e-business and e-commerce. Definitions should be derived through logical reasoning rather than individual perceptions.

Defining e-business and e-commerce is more than explaining the terms. It is a process that allows people to reflect and express their views on the discipline. The outcome of defining process should include not only the definitions but also an explanation of how the definitions are derived. The definitions should enable readers to recognize the scope of the discipline. The relationship between e-business and e-commerce should be clearly stated. If e-business and e-commerce are considered as two different concepts, the difference between the two terms should be clearly identified and the rationale of the difference should be expressed. By applying the definitions, readers should be able to identify whether a particular entity or activity is e-business or e-commerce and provide the reason of the classification.

5.0 NEW DEFINITIONS OF E-BUSINESS AND E-COMMERCE

5.1 THE VALUE-CENTRIC APPROACH

In this paper, a new value-centric approach is proposed to redefine e-business and e-commerce. E-business and e-commerce are considered as two different entity concepts. They represent two types of organizations that adopt different strategies in applying computing and telecommunication technologies in value creation.

The new definitions include companies that use any form of open or proprietary networks which incorporate computers and/or other computing devices. While the use of computing and telecommunication technologies in business operations is facilitated by widespread adoption of the Internet, organizations can apply these technologies in their operations without involving the use of the Internet. Therefore, the use of the Internet is not a criterion in deciding whether an organization is an e-business organization or an e-commerce organization.

Under the value-centric approach, the ultimate objective of all organizations is to create value. Organizations create value by producing valuable outputs in the form of goods, services or information and delivering the outputs to consumers.

Part of the value created in the value creation process is captured by organizations as revenue and others are

captured by consumers. Revenue may be sourced from consumers of outputs or from independent third parties such as government. The ones who consume the outputs may not be the ones who pay for them. For example, a high proportion of public hospital revenue comes from the government.

In considering the nature of an organization, two fundamental questions are asked: (1) what value can an organization create and, (2) how can an organization create and transfer value. Two concepts, value proposition and value chain, are employed to address the questions.

Value proposition is one of the key components of an organization's business model. It is a specification of an organization's choice of target segment(s), choice of focal customer benefits and rationale of competitive edge in delivering value to its target customers (Rayport and Jaworski, 2001). It represents an organization's view on what value can be created and how it can differentiate itself from others.

Value chain refers to the set of activities through which products or services are created and delivered to customers (Porter, 2001). It includes activities that are directly related to transactions like marketing and sales as well as support activities such as accounting and human resources. An organization creates value through performing activities in the value chain.

The application of computing and telecommunication technologies in business activities can improve the efficiency of the value chain, thus enhancing the value created by an organization. Amit and Zott (2001) suggested that using the Internet to conduct business can enhance value creation in four dimensions, namely efficiency, complementarities, lock-in and novelty. The application of technologies also allows an organization to create new value by performing business activities in a manner that may not be feasible without application of the technologies and hence establish a new value proposition.

5.2 E-BUSINESS

Under the value-centric approach, e-business is defined as an *organization that applies computing and telecommunication technologies jointly to any of its activities that is a component of the entity's value chain*. The application of computing and telecommunication technologies in the organization is not limited to business transactions. However, the technologies must be applied in an activity that forms a part of the value chain. For instance, a convenience store that uses a computer to play music downloaded from the Internet is not an e-business as playing music in the store is not related to its value chain activities. On the other hand, a record shop that plays music on the records it sells from a system that is linked to its corporate intranet is an e-business. Playing music is part of the shop's promotional

activities and the promotional activities constitute a part of the shop's value chain.

5.3 E-COMMERCE

For some organizations, the application of computing and telecommunication technologies plays a critical role in their value propositions. Without applying the technologies, their value propositions cannot be sustained. Under the value-centric approach, these organizations are considered as e-commerce. Accordingly, e-commerce is defined as an *organization with a value proposition that relies on joint applications of computing and telecommunication technologies.*

Under this definition, all Internet-based organizations that perform operational activities without physical interactions with their clients are e-commerce organizations as their value propositions are based on their virtual operations. Nevertheless, physical presence itself does not preclude an organization from being an e-commerce organization. An organization can integrate its physical presence with its virtual operations through the Internet and become an e-commerce.

As e-commerce organizations rely on computing and telecommunication technologies in their operations, they are all e-business organizations. The key differentiator of e-business organization and e-commerce organization is value proposition. Every organization has its own value proposition. Applying technologies in similar ways does not necessarily mean that value propositions are the same. Therefore, an organization operating in a way identical to an e-commerce organization can be an e-business organization.

For instance, a computer shop that sells computers through both physical storefront and the Internet can either be an e-business organization or e-commerce organization. If the Internet operations are considered as supplementary to physical operations then the company is an e-business. If the physical storefront is operated to support and facilitate Internet operations, then the company is an e-commerce. In both scenarios the shop can use similar technologies in its Internet operations.

6.0 ILLUSTRATIVE EXAMPLES OF E-BUSINESS AND E-COMMERCE

6.1 DELL INC.

Dell is one of the largest personal computer manufacturers in the United States. It is also one of the most successful online retailers in the world. In 2002, Dell accounted for 48% of the computer sold via the Internet (Dell, 2003). In fiscal year 2004, it had net revenue of US\$41,444 million and generated a net income of US\$2,645 million (Dell, 2004).

The company was established in 1984 by Michael Dell, a 20 year-old college student. The original idea of the business was to sell custom-build personal computer to customers directly. In its original form, Dell created value in three ways. First, there was no middleman in the transaction. Customers contacted the company directly by phone and made orders. The company could respond to its customers more rapidly and with lower costs. Secondly, products were built on-demand. Finished goods inventories were kept at minimal level, thus saving the costs of storage and inventory management. Finally, the company utilized its relationship with suppliers to reduce its product costs. For example, it looked for suppliers that had excess inventories and purchased these excess items at a low price.

The value created was captured by both the company and its customers. Customers captured value through lower prices and better, more responsive services. To the company, value was captured through higher volume of sales generated by low price and lower manufacturing and operating costs.

Dell's original direct sales model is similar to the operational model of typical online retailers. Therefore, it was natural for Dell to move its operations to the Internet when the Internet boom began.

In 1994, Dell established its first website, Dell.com. An online order-tracking system was introduced to allow customer to trace their order status without calling a sales representative. An online ordering system was introduced in 1996 and the daily online sales generated from Dell.com reached US\$1 million in December of that year (Dell, 2003).

Dell also applies computing and telecommunication technologies to its supplier relationship management. An Extranet was established to link its suppliers into its information systems. Suppliers can read the company's assessment of them and their competitors. They can also assess Dell's inventory information and tune their output to meet its needs (Glover et al., 2003).

Adoption of technologies in operations does not mean Dell abandons traditional direct sales channels. Instead the company integrates traditional direct sales with its Internet operations. The company organizes road shows and distributes printed catalogues to its potential customers. The address of the website appears at every page of the catalogue. At the same time, a toll-free phone number for orders appears at the top of the company's website. Customers can place orders and trace their order status via phone or via the Internet.

Dell provides an example of how an organization transforms its value proposition with computing and telecommunication technologies and becomes an e-

commerce organization. The application of technologies allows the company to create its distinct value in a different and more efficient manner. The company uses the Internet as one of the major channels to maintain direct communication with its customers. The reach and efficiency of Internet-based communication allows the company to serve more customers than otherwise traditional direct sales channels could support. The extranet allows the company to work cooperatively with its suppliers and achieve Just-In-Time production. Without the application of computing and telecommunication technologies, Dell cannot create value in this manner.

6.2 CHARLES STURT UNIVERSITY

Charles Sturt University (CSU) is the largest regional university in New South Wales, Australia. It has four major campuses at Albury-Wodonga, Bathurst, Dubbo and Wagga Wagga and operates centres at Broken Hill, Canberra, Goulburn, Morpeth and Manly (AVCC, 2004). CSU offers its course through its own campuses and partner institutions in Australia and other countries. Students can complete their studies through traditional on-campus mode, distance education mode or a mixture of both.

In 2003, CSU offered more than 300 courses to 40,694 students. 29,325 students were enrolled in pure distance education mode and another 3,911 students undertook their studies through mixed mode (CSU, 2003).

As the leading distance education provider in Australia, CSU had considered the use of Internet in distance education in the mid-1990s (Bisman, 1996). CSU recognized two key values to its students as flexibility in delivery of higher education and well-established network of partner institutions. To capitalize on these strengths, CSU decided to maintain its traditional distance education system. Computing and telecommunication technologies are applied to complement rather than replace the traditional system.

All students who enrolled in distance education subjects receive their study materials in printed form. At the same time, same material is available through CSU's online portal, my.csu. Students can access the material through the Internet anywhere, at anytime. To communicate with their lecturers, students can use telephone, fax, e-mail as well as online forums. They can submit their assignments by mail, by fax or by EASTS, an online assignment submission system.

On-campus students also benefit from the application of technologies. My.csu is available to all students and online forums can be accessed by on-campus students, subject to lecturer approval. On-campus students are also allowed to enrol in subjects offered by distance education mode. This is particularly useful for students who want to undertake subjects that are not available at their host campus.

In addition to the delivery of education, CSU also uses computing and telecommunication technologies in its support functions. For example, staff members can access their personnel records and file leave applications through the university website. Video conferencing is used extensively to support administrative functions such as selection and promotion of academic staff.

CSU is a successful example of transforming an existing business into e-business. The university recognized its strengths in creating value and used computing and telecommunication technologies to reinforce these strengths. Technology-enabled systems co-exist with traditional system and enhance each others' value.

7.0 CONCLUSION

In recent years, interest in studying issues in the application of computing and telecommunication technologies in business activities has been accelerated by the growth of Internet-based business activities. However, practitioners and academics have little interest in defining the scope of the field. This paper examines contemporary definitions of e-business and e-commerce and problems associated with these definitions. The need of a new approach in defining the two terms is highlighted and a new value-centric approach is proposed.

To managers, the value-centric approach represents a new view on the relationship between technology and business strategies. The distinction between e-business and e-commerce is based on an organization's strategy in applying computing and telecommunication to its operations rather than the types of operations that the technologies are applied. The choices of technologies and their applications are made in accordance to the organization's value proposition. These decisions constitute an organization's technology strategy. The choice of being an e-business organization or e-commerce organization is a strategic decision, not a technical one.

An organization's technology strategy should be based on its unique value proposition rather than its competitors' actions. A particular strategy may be useful for one organization but not for the others. For instance, CSU has a strong network of partner institutions. Therefore, a completely online education delivery model may not be the best model for CSU as such model does not allow CSU to utilize its partner institutions network. In contrast, the University of Phoenix is highly successful with its Internet based education delivery model. Differences in organizational resources between two institutions result as different value propositions for them. Consequently the two institutions are better off with their respective education delivery model.

The value-centric approach enables future research in technology strategy. Future research can examine what institutional and organizational factors influence an organization's technology strategy and in what ways technology strategy interacts with other aspects of corporate strategy.

Another area of future research is the benefit of being an e-commerce organization in terms of value creation. Being an e-commerce organization often involves significant changes in business processes and the cost of change can be substantial. In comparison, being an e-business organization is an easier choice for most organizations. Therefore, organizations need evidences on the benefits of being an e-commerce organization to justify the change. Ratnatunga et al. (2004) compared the inventory turnover of Dell and HP and found that the inventory turnover of Dell was 8.6 times higher than those of HP. Further studies on incremental values created by e-commerce organization and in what ways these values are created can provide further insights.

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