

# Internet adoption, e-commerce, and competition

Chahrazed Abidi University of Batna

## Abstract

the Internet is extremely new Technology and it has received much attention from both individuals and enterprises. This new technology has created a global platform for business to conduct commerce. Therefore, the enterprise have been traditionally advice to adopt Internet to support the achievement of existing business objectives. This work is a contribution to the empirical literature on the determinant of Internet adoption and e-commerce diffusion. The purpose of this study was to examine the impact of e-commerce especially on the revenue of the enterprise and explain the impact of internet adoption on the competition and enterprise's competitive advantage.

**Keywords:** Internet, e-commerce, competitive advantage, competition.

## ملخص:

أضحت الانترنت اهم التقنيات المستحدثة والتي استقطبت اهتماما كبيرا من مختلف الأعوان الاقتصاديين سواء الأفراد أو المؤسسات. فقد خلقت هذه التقنية الحديثة منصة عالمية لإدارة الأعمال التجارية، لذلك أصبح حتما على المؤسسات التي لا تزال تعتمد على التقنيات القديمة أن تتبنى الانترنت لدعمها في تحقيق اهدافها. يعتبر هذا العمل مساهمة أدبية حول تبني الانترنت وانتشار التجارة الالكترونية، والهدف منه هو البحث عن أثر التجارة الالكترونية وبشكل خاص على عائد المؤسسة وشرح تأثير الانترنت على التنافسية وخلق ميزة تنافسية.

**الكلمات المفتاحية:** الانترنت، التجارة الالكترونية، الميزة التنافسية، التنافس.

### Introduction

E-commerce is a paradigm shift it is more than just another way to sustain or enhance existing business. Rather, e-commerce has changed the way many enterprises do business –to them- e-commerce is no longer an alternative but an imperative because the internet changes everything, rendering all the old rules about enterprises and competition obsolete. therefore, internet and e-commerce become powerful weapon of enterprise to achieve business objectives and also competitive advantage.

### History of The Internet

The Internet has been around since 1969 when it was a Defense Department network known as the ARPANET. University faculty and industrial researchers were the primary users of the Net then; they exchanged files and electronic-mail messages. The sponsorship of the Net moved to the National Science Foundation (NSF) and it became the Internet. In 1995, NSF phased out of financing the Net to concentrate its efforts on “second generation” networking. At this point, it became possible to use the Internet for profit-making activities, which had been prohibited when NSF was its main sponsor.<sup>i</sup>

### Internet business adoption

Internet commerce or e-commerce means conducting commerce electronically. Enterprises adoption of e-commerce could extend their markets and territories, make their customer service worldwide, and allow for creation global marketing partnerships.<sup>ii</sup>

Since early 1994, researchers have discussed various model of Internet adoption like:<sup>iii</sup>

Rayport and Sviokla Propose a three-level process model in their discussion about new value in a virtual value chain:

1. Visibility: enterprises strive to represent the physical operations more effectively;

2. Mirroring capability: enterprises substitute virtual activities for physical ones;
3. New customer relationship: enterprises delivering new value to consumers.

Nambisan and Wang suggested that web adoption can be divided into three levels:<sup>iv</sup>

- Level 1- Information access;
- Level 2- Work collaboration;
- Level 3- Core business transactions.

Zku and Kraemer developed an e-commerce adoption metric that consisted of for stage:<sup>v</sup>

1. Information Level: available products and services information;
2. Transaction level: enable to assist transaction on line;
3. Interaction and customization level: enable online interactions between the customers and the enterprise, and customize products for user preferences;
4. Suppliers connections level: enterprise enable electronic linkage to integrate suppliers for procurement, fulfillment, logistic and data sharing.

Taking into account an organization's Internet strategy and its Web site's functional characteristics, Teo and Pian propose a model of web adoption according to the different business objectives of web sites as illustrated in following:<sup>vi</sup>

- Level 0 –No web site, only e-mail account: an enterprise in the web adoption level 0 has not actually adopted the web. It use the e-mail account to establish connectivity with customers and business partners.
- Level 1 –Web presence: the first level is web presence, where enterprises have made the adoption decision but the implementation is still in process. The purpose may be to occupy a domain name or simply to have presence. Generally, web sites at this stage

- provide information and brochures and tend to be non-strategic in nature.
- Level 2 –Prospecting: Most enterprises at this level establish web site to provide customers with product information, news, events, interactive content, personalized content, e-mail support, etc. This provides potential customers with access to the enterprise's products with minimal distributing cost.
  - Level 3 –Business integration: web adoption is incorporated into the business model and integration of business processes is taking place. There are cross-functional between customers and suppliers and web strategy is integrated with the enterprise's business strategy.
  - Level 4 –Business transformation: this is the highest level of web adoption. It will transform the overall business model throughout the organization. The focus is on building relationships and seeking new business opportunities.

### **The Internet and electronic commerce:**

For many business, e-commerce means using the Internet as a distribution channel to market and sell goods and services to the consumer. This narrow definition really defines only Internet commerce.<sup>vii</sup> e-commerce is much broader in what it compasses. E-commerce includes so many activities that it can be difficult for managers to decide where and how to use it in their businesses.

The e-commerce has different valid definitions depending on the perspective taken, namely:<sup>viii</sup>

- a. Communications: the delivery of information, products/services or payments via telephone lines, computer networks or any other means;
- b. Business process: the application of technology toward the automation of business transactions and workflows;

- c. Service: the tool that addresses the desire of firms, consumers and management to cut service costs while improving the quality of goods and increasing the speed of delivery;
- d. Online: the provision of the capability of buying and selling products and information on the Internet and other online services.

Because of the complexity of the term “e-commerce”, many business and academic authors tried to define the “e-commerce” and failed to agree on a unique definition of the term.

Rosen explain that “e-commerce covers the range of online business activities for products and services, both business-to-business and business-to-consumer, through the Internet”.<sup>ix</sup>

According to Malcolm Frank, e-commerce is the electronic exchange of information, goods, services, payments and includes the creation and maintenance of Web-based relations.<sup>x</sup>

Hoffman, Novak and Chaterjee provided six categories for classifying commercial web sites, namely: online storefront, Internet presence, content, mall, incentive site and search agent. Spiller and Lohse focused on online shopping stores and classified them into five categories: superstores, promotional stores, sale stores, one-page stores and product listing.<sup>xi</sup>

Taking an order on the Internet may let an enterprise say that it is in e-commerce, but true electronic business is more than setting up a Web site and letting a customer order products or services via the Internet. The real advantage of e-business comes from becoming a fully electronic enterprise, integrating the Internet through all aspects of the firm’s value chain.<sup>xii</sup>

### Types of e-commerce

They are two broad categories of e-commerce: business –to-business, business-to-consumer.

#### Business-to-business:

B2B E.C includes transactions between business, as well as trend toward extended enterprises and integrated business. It also includes the sharing of data and information access through extranet. B2B E.C support interorganizational systems (IOS).<sup>xiii</sup> IOS application encompass many areas such as: bar coding, electronic forms, ordering goods and electronic funds transfer.<sup>xiv</sup>

### **Business-to-consumer:**

B2C E.C looks at web consumer commerce and consumer electronic marketplaces.<sup>xv</sup> everyone can relate to buying consumer products like books and CDs over the Internet. What does this business model offer? It provides tremendous convenience for the customer who can shop from home; it is especially well-suited to commodity products like books and CDs where there is no need to examine the product, and the offerings from each vendor are identical. A motivated consumer can base a purchase on price and service. B2C electronic commerce should reduce consumer search costs and reduce the amount of friction in the marketplace.<sup>xvi</sup>

### **Business transformation process**

Any enterprise's input-output transformation process can be represented by.<sup>xvii</sup>

$$X \rightarrow \equiv \rightarrow Y$$

In the traditional physical economy (or marketplace), X represents raw materials, such as ore, rubber, and plastic, or parts and components, or all of necessary inputs that are required to produce the finished products or services. Y represent the finished products or intermediate goods used as input to another transformation process. In contrast, in the digital economy (or marketspace), X represents data or information used to create valuable products or services (Y<sub>s</sub>) for the customers.

In the traditional physical economy, Any enterprise's transformation process includes one or more of the following four value adding activities: alter, transport, inspect, and store. In contrast,

value creation process in the digital economy involves five step: gather, organize, select, synthesize and distribute.

Traditional management's focus was to improve the transformation by implementing techniques such as total quality management, lean manufacturing, and process re-engineering. In Contrast, in the digital economy management should go beyond concentrating on improving the transformation to focus on how to take advantage of the disruptive of e-commerce and how to gather and utilize information to create more value for the customers.

### E-commerce new source of revenue

The table below presents some issue associated with e-commerce revenue model.

**Table 1: e-commerce revenue model**

Source of revenue	
Product/service sales (traditional commerce)	<p>Total revenue:  <math>.R = \sum p_i y_i</math>                      Where:  <math>P_i =</math> price; <math>y_i =</math> product or service and <math>i=1, \dots, n</math>.                      Total cost:  <math>.C = \sum c_i (y_i) \text{ or } C(\sum y_i)</math>  <math>C_i(.) =</math> cost function                      Total profit"  <math>. \pi = R - C</math></p>
e-commerce provides enterprises with additional opportunities for revenue: web sites advertising, referral, subscription or membership fee, commission or transaction fee, and service or consulting fee, and other	<p>Key question. How to maximize profit and minimize cost?                      Total profit:  <math>. \pi = (R - C) + E \text{ or } [\pi = (R + E) - C]</math>                      Where E = new source of revenue, independent of original products or services sales, which enable by e-commerce and information technology (e.g. using information to create additional value for the customer)</p>

**Source:** Chung-Shing Lee. “An analytical framework for evaluating e-commerce business model and strategies”, Internet Research: Electronic Networking Applications and Policy, N4, MCB University Press, 2001, P.356.

E-commerce provides enterprises with new sources of revenue and additional opportunities to offer new (information) services in addition to, and some times independent of, the traditional products or services sales.

### The Internet and competition

The Internet has transformed the rules of competition and inventing new value proposition and it has created a world of chaotic competition in which customers have more choices and suppliers have more opportunities; this is driving the most fundamental change in businesses to create more agile and highly focused enterprises that execute in or near real time. Enterprises in the future will need to follow the motto used by ancient Olympians: “Citius, altius, fortius” (“Faster, higher, braver”):<sup>xviii</sup>

\_ *Faster* as more and more enterprises strive for real-time collaboration capabilities that remove latency from processes in support of more interconnected business models, which demand accurate and timely information.

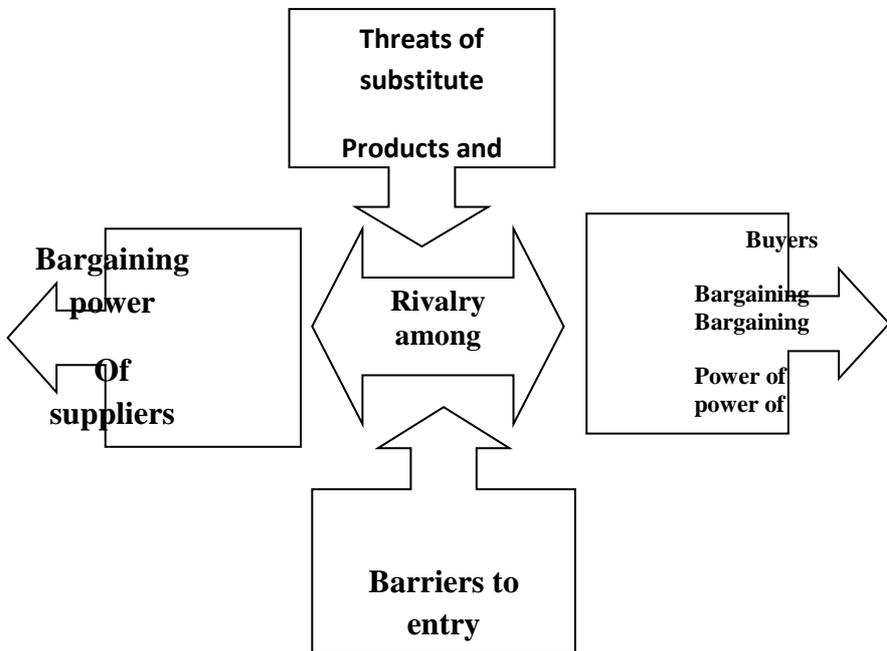
\_ *Higher* return on investment and earning per share via cost cutting, modified business models, and a renewed focus on core competencies.

\_ *Braver* in the form of collaboration, customer and supplier portals, marketplaces, and fundamentally more open business models and application architectures.

### The five forces model of competition and Internet

The five forces model depicts the forces that shape a firm’s competition. The forces are competitive rivalry, the threat of new entrants, the bargaining power of suppliers, the bargaining power of buyers, and the threat of substitutes.

Figure 1: How the Internet influences on the five forces model



### Source:

Michael E. porter. “**Strategy and the Internet**”, Harvard Business Review, : Harvard Business Review school publishing corporation, Marsh 2001.P.67.

It is safe to say that technological innovation like the Internet and electronic commerce affect all of the forces in the Porter model.

The competition puts pressure on management in developing strategy and in the execution of the enterprise’s business model. The manager is interested in strategies that allow the enterprise to sustain a competitive advantage. In a slower-paced economy, one might consider a strategy to be a success only if it conferred a competitive advantage that lasted several years. In a competitive economy a successful strategy is one that allows to sustain a competitive advantage for a year or longer.<sup>xix</sup>

### **The Internet and competitive advantage**

If average profitability is under pressure in many industries influenced by the Internet, it becomes all the more important for individual enterprises to set themselves apart from the pack to be more profitable than the average performance. The only way to do so is by achieving a sustainable competitive advantage; by operating at a lower cost, by commanding a premium price, or by doing both. Cost and price advantage can be achieved in two ways. better. The other way to achieve advantage is strategic positioning- doing things differently from competitors, in a way that delivers a unique type of value to customers.<sup>xx</sup>

The Internet effects operational effectiveness and strategic positioning in very different ways. It make it harder for enterprises to sustain operational advantages, but it open new opportunities for achieving or strengthening a distinctive strategic positioning.<sup>xxi</sup>

**Operational effectiveness:** the Internet is arguably the most powerful tool available today for enhancing operational effectiveness. By easing and speeding the exchange of real time information, it enables

improvements throughout the entire value chain, across almost every enterprise and industry. And because it is an open platform with common standards, enterprises can often tap into benefit with much less investment than was required to capitalize on past generations of information technology. The nature of internet applications makes it more difficult to sustain operational advantages than ever, but they made it difficult for competitors to imitate information systems.

**Strategic positioning:** as it becomes harder to sustain operational advantages, strategic positioning becomes all the more important. If an enterprise cannot be more operationally effective than its rivals, the only way to generate higher levels of economic value is to gain a cost advantage or price premium by competing in a distinctive way.

## Conclusion

It is not longer to claim that e-commerce is just a tool that enhances current ways of doing business. E-commerce impact on enterprise' internal, market and competitive position. At very least, e-commerce changes consumer and supplier behavior, because the Internet is an efficient an cost-effective instrument to interact between customer and suppliers, and it is obvious that Internet may be used in different ways by different enterprises with different features on their web sites, the Internet is transforming the rules of competition, inventing new value proposition and providing new opportunities for enterprises .

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