

Dot-Coming SMEs in Singapore for the New Economy

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INTRODUCTION

Small- and medium-sized enterprises (SMEs) play a very significant role in the economies of all countries. They outnumber big corporations, and are conspicuous by their ubiquity in all sectors of society. The contribution of SMEs to a country's Gross Domestic Product is high by virtue of the large number of people they employ and the diversity of services that they offer (Unctad Secretariat, 2002). SMEs also offer a starting platform for entrepreneurs to realize their aspirations.

Globalization and the Internet have started to transform the global economic landscape. Capital mobility and the connectivity provided by the Internet for business processes are reengineering the contours of international trade significantly and giving rise to an international common market. Traditional structures of businesses are starting to atrophy to varying extents and new business models are emerging. These are affecting the competitiveness of nations. Since these affect the employment of workers (Tan and Subramaniam, 2001), they therefore impact on all business sectors. Those business outfits not able to compete in the emerging economic order face the possibility of being sidelined by the forces of globalization and Internet-based business practices. In particular, SMEs are vulnerable as they generally operate in a local environment. To compete in the new economy, these businesses need to reformat their work processes as well as adopt e-commerce.

BACKGROUND

There is no unambiguous definition in the literature of what e-commerce means, as the concept is still evolving and not many countries have embraced it in totality. Many countries are in different stages of economic development, and those that have warmed towards e-commerce have adopted it to varying extents. Broadly speaking, e-commerce refers to the use of the Internet to do business with suppliers, clients, and others in the business value chain (Zwass, 2003).

The definition of SMEs also varies among countries. In Singapore, which is the focus of this article, the following criteria is used to define an SME (<http://www.singapore-sme.com>):

- there must be local equity stake of at least 30 % in the company
- the net book value of the company's fixed assets, that is, factory building, machinery, and equipment, must not exceed S\$15 million
- the workforce must not exceed 200 for non-manufacturing enterprises

The Internet offers a leveling field for SMEs to compete globally and overcome geographical barriers and other limitations. Whilst SMEs in the USA and Western Europe have adopted e-commerce significantly (Euro News, 2002; Fife and Pereira, 2001; Quayle, 2001), the same cannot be said of other countries. Among countries in Asia, only Singapore, Taiwan, Hong Kong, Australia, Japan and South Korea have good e-commerce infrastructures (Wong, 2001; OECD, 2000). In South-East Asia, Singapore is the only country with an advanced e-commerce infrastructure (Tan and Subramaniam, 2004a; 2004b).

This article examines the use of e-commerce as a business enabler for SMEs in Singapore. The rationale for selecting Singapore as a case study is as follows:

- (a) Singapore was among the earliest adopters of e-commerce in the world, and thus its experiences can offer useful lessons for other countries.
- (b) The use of state intervention strategies in getting SMEs to adopt e-commerce is a key feature of Singapore's approach as compared to other countries, where it is generally private sector-driven.
- (c) Recognizing the differing levels of economic development in countries in the South-east Asian region, of which Singapore is a part, and the fact that they are on different learning curves and achievement bands as regards e-business initiatives, exploring the state of e-commerce in SMEs in a particular country is more meaningful and revealing.

HOW SMES ARE ENABLED IN SINGAPORE BY E-COMMERCE

Over 100,000 businesses in Singapore are SMEs – this represents 90% of all business establishments. They employ over 50 % of the workforce and generate about 30 % of the total value-added to the economy.

A good measure of the willingness of SMEs to try out e-commerce initiatives can be gauged from the extent to which the necessary infrastructure and frameworks for these are in place. The infrastructure relates to the presence of an advanced telecommunications network. A good infrastructure creates economic value for SMEs to ride on, as well as decreases their operating costs. The frameworks refer to the set of policies, e-payment protocols, and other enabling services that help companies use e-commerce in their businesses. These are elaborated upon in this section for Singapore.

Digital Telecommunications Network

An advanced telecommunications network leveraging three broadband platforms—Asymmetric Digital Subscriber Line, Hybrid Fibre Coaxial Cable Modem, and Asynchronous Transfer Mode—has been in operation since 2000. The technical aspects of these services have been addressed in detail by Tan and Subramaniam (2000, 2001). The maturation of the broadband market has led to Singapore being among the top 10 broadband economies in the world (Asia Pacific Telecommunication Indicators, 2002).

The cost of Internet access has been brought down drastically over the years through generous government subsidies for bandwidth. This has allowed telcos to pass on the savings to consumers and businesses, and has been an important factor in Singapore: having an Internet penetration rate of over 90 % (Tan and Subramaniam, 2003).

That Singapore is effectively networked for the new economy is shown by the fact that it has been ranked third, ahead of Finland and the USA, for networked readiness in the new economy (Dutta and Jain, 2003).

Frameworks for Electronic Commerce

Singapore was among the early adopters of e-commerce in the world. A comprehensive range of initiatives and frameworks (<http://www.ec.gov.sg>) has been put in place to allow businesses to capitalize on the potential that e-commerce presents. Fine-tuning of the frameworks on the basis of accumulated experiences in the local market and cognizance of best practices in overseas countries have

been done on an ongoing basis. Some of the more important initiatives that have been put in place are:

(a) Alternative Payment Modes

For e-commerce to be entrenched in the business landscape, multiple payment systems of a secure nature are indispensable. Four payment channels are in common use in Singapore:

- A Secure Electronic Transaction (SET) system has been in place since 1997 to service credit card transactions over the Internet, this being a world-first
- NETSCash, the digital equivalent of the cash card, is available to service low-value purchases (S\$0.01—S\$500.00)
- Debiting via Internet banking has been available since 1997
- Electronic inter-bank payments via NETS Financial Data Interchange

(b) Use of digital certificates

Security of financial transactions on the Internet is important if businesses are to be encouraged to go online. In this context, two government-linked Certification Authorities (CA) have been established, and they have been empowered to issue digital certificates to businesses that require cross-checking of user credentials as well as assurance of high network security. On the certificates are digitally embedded details of the CA, the expiry date, encoded information about the user's public key, and details of the account.

(c) Application Service Providers

Application Service Providers (ASP) in the e-commerce industry provide services such as human resource management, sales and marketing, customer service, and even collaborative working with businesses. Their emergence have allowed SMEs to concentrate on their domain expertise whilst ancillary functions are outsourced to these ASPs.

(d) Business-to-Business Security Service Providers

For e-businesses that are hesitant to set up their own e-commerce infrastructure because of cost constraints and uncertainty of the business model, B2B service providers have emerged in the market. They provide a secure e-

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