

Electronic Commerce : Winners and Losers

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Abstract

Electronic commerce is considered to represent one of the next key stages in the development of the Internet, offering the potential to establish a truly global marketplace. However, barriers to success can be identified at two specific levels. Firstly, certain technological and legislative issues (e.g. acceptable levels of security) must be agreed at an international level before a harmonised framework can be established. Secondly, developing countries are at a disadvantage in terms of having little or no control over the development of electronic commerce or the Internet in general. As such, they require assistance in equipping themselves to participate. This paper examines the issues and concludes that resolutions must be found before the desired global electronic market can be realised.

1. Introduction

The influence of information technology (IT) can now be seen in many operational areas of business in the developed world. IT systems have made significant contributions to productivity and communications. However, to date, commercial aspects of business have still largely been conducted by traditional means.

During the last decade there has been a significant growth in the use of information systems and related Internet technology. The Internet itself has grown from a solely military/academic network to one that can be used by commercial businesses and private individuals. A major catalyst in this respect has been the World Wide Web (WWW), which has served to open up Internet access to a wider population and has heralded a significant increase in the range of online content.

In the years since the first WWW applications were developed, there has been an explosion in the global use of the Internet (as shown in figure 1) [1]. The predominant use of the web to date has been for information dissemination-based activities. However, it is recognised that this is by no means realising the full potential of the technology, and other useful applications are being developed. Key amongst these is currently the concept of Electronic Commerce (e-commerce), which will enable the exploitation of Internet technology for business / trading purposes.

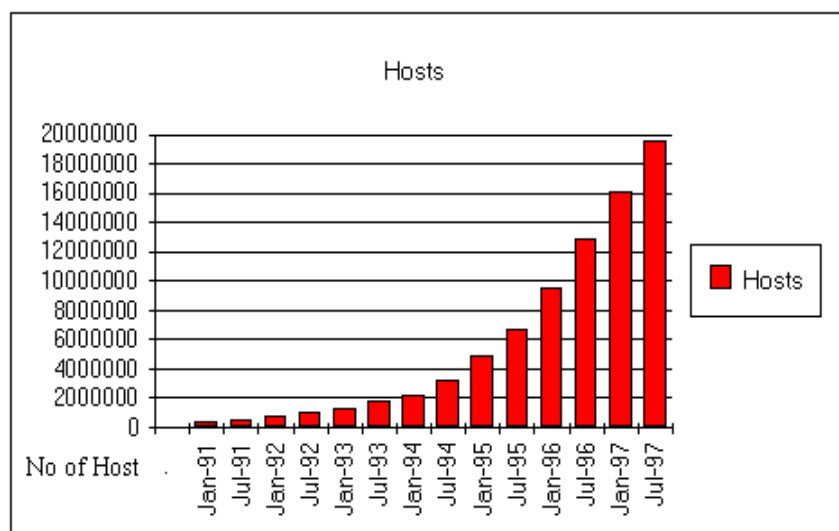


Figure 1: The Global Growth of the Internet [1]

In the same way that the WWW and e-mail have broken down geographical barriers in terms of the communication of information, one of the key benefits of e-commerce is considered to be the opportunity to operate at an international level. However, it is at this level that other potential barriers can be identified, in particular :

- the deployment and control of Internet technology is generally centred around the leading developed nations;
- even within developed countries, certain technological and legislative issues require resolution at an international level before e-commerce can thrive.

The first point relates to the fact that whilst the Internet may span the globe, only a relatively small proportion of the globe is influencing its development. For example, whilst the WWW originated within Europe, the vast majority of web software development is now carried out by companies based in the United States, such as Netscape and Microsoft. At the current time, lesser developed countries are having little impact on the future development of the e-commerce or the Internet in general. This is illustrated by research into the distribution of Internet hosts at a national level, which reveals a breakdown as shown in table 1 [1]. These figures clearly show that many less developed countries are lagging behind their developed counterparts.

Position	Country	Number of Hosts
1	USA	5,932,705 (excluding commercial and military sites)
3	UK	878,215
5	Australia	707,611
7	US Military	542,295
35	Ireland	33,031
36	China	25,594
55	India	4,794
97	Ghana	275
184	Vietnam	3

Table 1: Breakdown of National Hosts

In 1997 the global Internet market generated \$349 million in revenue (encompassing Internet software sold, income generated by on-line services etc). By 2001 this revenue is predicted to increase to \$26 billion [2]. This market will be centred around North America and the Pacific Basin. Recent research has also shown that within Europe by the year 2001, the market will be worth \$4.4 billion and the UK will have 20% of this European market [3]. Developing countries are now being left behind in these new emerging markets.

2. Foundations for Electronic Commerce

The growth of Internet usage by individuals is ultimately the key to the success of e-commerce. In the USA, around 25% of the population are connected to the Internet and in some states, such as California, the level is as high as 50%. By Comparison, only 2% of the European population are connected to the Internet [4]. One likely reason for this is the high cost of using the Internet in Europe compared to those in the USA, in particular the tariffs associated with telecommunications providers. Internet usage amongst developing countries is negligible in comparison.

The Internet is now being used by many large companies, principally as a marketing tool to advertise their services and products. In 1996, \$1 billion was spent within the US on Internet advertising and marketing, whilst within the UK this figure was \$6.5 million [5]. It is now the case that some banks and insurance companies (i.e. Banco Santander, Eagle Star) have started to use the Internet to offer on-line services and now some retail companies are also offering on-line services, at least in prototype or pilot form (e.g. Tesco supermarkets in the UK food retailing sector - <http://www.tesco.co.uk>).

In the field of Internet Service Providers (ISPs), large US companies are the world market leaders; American On-line (AOL) is the world's largest provider with 11 million customers (after purchasing CompuServe), followed by Microsoft Network with 3 million customers. These ISPs help to ensure that many companies within developed countries are now developing e-commerce applications for future markets. In developing countries ISPs are rare due to the low level of IT resources available.

3. Factors influencing future Electronic Commerce

There are several factors affecting the development of e-commerce within the developed world, as described below.

3.1 Security requirements

In order to develop e-commerce the following elements have to be in place:

- secure and reliable computer networks;

- effective means for protecting information systems attached to those networks;
- effective means for authenticating and ensuring confidentiality of electronic information to protect data from unauthorised use;
- ensuring that users understand how to protect their systems and data.

No one single security technology can accomplish all of the above. What is required is a combination of security techniques, i.e. encryption, digital certificates and firewalls [6]. However, the provision of a harmonised approach is complicated by different national perspectives on the level / type of protection that is appropriate and/or legally acceptable. For example, the use of strong cryptographic technologies is encouraged in Germany, significantly restricted in the USA and totally forbidden in France. As such, it is clear that complications may exist in terms of establishing a trusted international e-commerce framework, even between developed countries.

3.2 Political and legislative factors

Political factors influence the way that future e-commerce will be conducted. However, disparity can again be identified in terms of national approaches, even where the concept of e-commerce is recognised as important. The US has adopted a laissez-faire approach to e-commerce, based upon the following principles [7] :

- the private sector should lead Internet development;
- governments should avoid undue restrictions on e-commerce and, when required, government involvement should be minimal;
- governments should recognise the unique qualities of the Internet;
- e-commerce over the Internet should be facilitated on a global basis.

The EU response to e-commerce, and the Internet in general, is limited. The EU's industry commissioner has proposed new laws to run the Internet within Europe and a new pan-European bureaucracy to manage these new laws [4]. European legislative bodies such as the European Economic and Social Committees are also looking into the Internet. They suggest that European legislation should be developed to control the Internet and European bodies set-up in order to monitor it [8]. More practical work in the e-commerce field is currently being undertaken by a number of projects under the European research and technological development initiative. Projects here are generally concerned with the realisation of appropriate technologies that will provide the necessary "building blocks" for creating a European e-commerce infrastructure [9].

4. Internet usage by Developing Countries

The biggest problem that developing countries face in terms of e-commerce participation is the low level of Internet access and usage. This problem is entirely due to the costs - in terms of both using the Internet and general adoption of the required information technologies. Developing countries have limited resources and these are generally directed

towards more basic requirements. There is also a problem related to general levels of IT literacy amongst the populations of the countries involved [10].

Some academics use a historical perspective to argue that the transition from an industrial society (the Second Wave) to an information society (the Third Wave) can be best understood by looking back in time to the transition from the agricultural society (the First Wave) to the industrial society. They also put forward the view that third world countries can jump directly to being information society [11]. This is perhaps illustrated to some extent by the fact that many developing countries *are* using the Internet (although not at the same level as developed countries). Some examples are outlined below.

- **Marketing of Existing Markets**

Many developing countries are using the Internet as a means of marketing existing industries, such as tourism, to their potential customers in the developed world. Typical examples include Sri Lanka and Senegal (<http://www.lanka.net/ctb/> and <http://www.sunugaal.com/ho/travel.html>).

- **Regional Cooperation**

Some countries are grouping together in order to give themselves a collective voice on the Internet. Examples include Arab Countries (<http://www.arab.net/>) and various smaller nation states (<http://www.microstate.net/>). Cooperation by Arab countries means that they have 11,228 Internet hosts overall (44th place compared to Kuwait's 60th place). This type of regional co-operation in the future means that Arab states will have a greater influence collectively than they would have individually.

- **Culture**

Some developing countries are using the Internet as a method of informing the information society about their unique cultures, religions and languages. Examples include Hinduism (<http://www.hindunet.org/home.shtml>) and Thai language (http://www.thaipartners.com/html/thai_language.htm).

Regarding the issue from a more pessimistic perspective, several factors can be identified that are hindering developing countries in the e-commerce domain. Perhaps the biggest problem that many developing countries have is that they cannot afford the huge costs associated with developing an "Information Society" infrastructure. The United Nations has already assisted a few countries in setting up an Internet framework. For example, they have funded a \$380,000 Ukrainian project to develop such a framework (<http://www.un.kiev.ua>).

Some developing countries perceived the Internet as being a threat rather than an opportunity. Vietnam has decided to limit the number of network gateways through which servers can link to the Internet. The aim is to censor all information entering and leaving the country [12]. China has also followed suit, putting forward new laws against "defaming government agencies", spreading pornography and violence, and revealing state secrets. Any Internet users or providers found doing this will be fined \$1,800 and then face further prosecution [13].

5. Conclusion

The widespread availability and use of e-commerce facilities is considered to represent the next significant step in the evolution of the Internet / WWW. If the potential is realised fully, then technology will remove further barriers to commercial activity, leading to a truly global marketplace. However, before this can be achieved, a number of problem issues must be addressed. For those countries where information technologies and appropriate networking infrastructures are already widespread, the resolution of other technical issues (e.g. security) represent the main barriers. However, at the same time a situation is faced in which a few developed countries are effectively deciding the fate of global e-commerce and current discussion does not involve a significant proportion of the globe. Developing countries do not have any say about the future development of the Internet and e-commerce and, therefore, it is not entirely surprising that some perceive the Internet as being a threat rather than an opportunity.

The global marketplace should be shaped at a global level. International agreements are required to deliver a harmonised technological foundation upon which to base e-commerce activities. In addition, technology transfer is required to ensure that developing countries are part of the Information Society and are able to participate in e-commerce rather than just being non-participating bystanders.

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