The New Cultural Revolution: The Impact of EDI on Asia

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This paper discusses the impact of culture on information technology diffusion. In particular, it examines the adoption of EDI in the Asian Pacific region and the remarkable differences which can be found between examples such as Hong Kong and Singapore, despite their alignments within the “Four Dragons” and their shared culture. The proposed informatisation of China through the “Three Golden Projects” presents an enormous challenge to a developing economy and a culture which has remained behind closed doors for the greater part of the IT revolution. The particular role of the Confucian philosophy in economic development is explored and a number of issues raised which may assist the implementation of EDI in China but also have implications for cultural change.

Asian countries have been slow to introduce electronic commerce since some of the obvious benefits, such as the replacement of expensive labor costs, have not applied until recently in newly industrialized countries (NICs). Additional factors have been the very different profile of industry from Western countries with a proliferation of small and medium sized business enterprises, many of which lack information technology (IT) support. Other factors relate to the lack of governmental direction and intervention, and the absence of legal regulations concerning the enforceability of electronic documentation. An additional complication is the lack of any agreement on common standards throughout the Asian region.

Singapore was the first Asian country to pursue the drive to implement a full Electronic Data Interchange (EDI) system dealing with all trade documentation and extended to cover all aspects of commerce and public life. Other Asian countries are following this lead but, in many cases, private EDI networks have evolved which have proven highly successful for individual industries and companies. Hong Kong (HK) has a number of private EDI services which have been in operation since the late 1960s, but has dragged its feet regarding the implementation of a community wide EDI service. Given the importance of trade, finance and international transport to the HK economy, the lack of EDI services may seriously affect its competitiveness. China has only just realized the strategic necessity of rapid informatisation in its financial and trading communities. The question is whether it can learn from the experiences in Asia to-date and whether the dawn of a new “cultural revolution” is on hand.

This paper provides an overview of EDI developments in Asia and particularly compares the HK and Singapore experiences. A number of proprietary EDI services are described and their strategic role in HK trading, transport and finance are evaluated. The planned EDI developments for China are also introduced, and the cultural issues which may impact on the effective diffusion of information technology in the region identified.

Strategic Role of EDI in Asia

Regional Role

The Asian Pacific region is a major trading center and controls two of the largest container ports in the world (Asia 1994 Year Book). Countries in this region which fail to utilize EDI technology for trading will not only find themselves becoming increasingly more inefficient, but also will lose business from trading partners who give priority in customs clearance to goods shipped with electronic documentation. International companies also insist that their Asia suppliers either must conform with their electronic services or lose their business (Neo, 1991).

As the global market evolves and transactions become more and more time sensitive, EDI users will gain a clear
advantage. Singapore has reduced clearance time through port customs to 15 minutes, a job that can take 3-4 days in HK (King and Konsynski, 1990). The very different rates of progress in EDI implementation can be traced directly to a difference in the business cultures of the two nations and the extent of government intervention which has been provided. This is also the case in a number of other Asian countries where, unlike HK, EDI is government driven.

**Singapore**

Singapore, a small island city-state with no natural resources, imports most of its food, water, energy and raw materials. So, trade has been Singapore’s main source of survival and prosperity, and, in fact, its dependence on trade is unparalleled anywhere in the world (Neo, 1994). The Singapore Government requires that trade documents shall be prepared and submitted through 20 separate Government agencies, and by 1989 the number of trade documents averaged 10,000 per day. Solutions were sought to reduce the documentation handling involved, and the TradeNet concept (shown in Figure 1) using EDI was approved for implementation in 1989. The success of Singapore as one of the world’s leading EDI users has been well documented.

Singapore provides the largest per capita usage of EDI in the world with more than 6000 users. EDI has now been extended to the medical, legal, distribution, banking and construction sectors. PortNet and StarNet for the maritime and air communities respectively enable users to exchange manifest, book port facilities, track cargo container movements and gain direct access to cargo/flight arrivals and departures electronically. MediNet provides hospitals with the ability to process their claims from the national health insurance agency. LawNet is a one-stop integrated network allowing lawyers access to statutes, case histories and subsidiary legislation of Singapore. Lawyers can also electronically access information and file documents with the court and Registry of Companies and Businesses. CurrencyNet is for banks to exchange EDI messages on withdrawal and deposits with the Singapore Board of Commissioners of Currency.

This incredibly fast rate of adoption is directly attributable to the Government’s firm control of IT developments and its pursuit of plans to make Singapore an “intelligent” nation by the year 2000 (Soh et al, 1993). Singapore ensured acceptance by launching a major educational program to expose the business community to EDI and publicized success stories from other countries.

**South Korea**

In South Korea, a survey conducted by its Customs Administration revealed that in order to finish one trade transaction, as many as 27 government agencies and organizations were involved; up to 40 papers required; and 60 - 70% of the data re-keyed into the processing cycle (Millburn and Tam, 1994). As a major exporter and trader, the customs clearance process imposed limitations on the growth of South Korea’s trading activities. To solve this problem, South Korea has been actively planning for EDI since 1987 when it hosted an inaugural EDI conference in Seoul. In 1990, the Korea Trade Network (KTNet), Figure 2, was set up by the Korean Foreign Trade Association under the auspices of the Ministry of Trade and Industry. One of its missions was to develop EDI messages based on UN/EDIFACT standards but localized to suit the Korean business environment. These messages are the KEDifact messages. KTNET aims to have 20,000 users by the end of 1995.

**Taiwan**

Taiwan followed a very similar timetable to Korea in establishing their EDI services. The Cargo Clearance Automation Planning and Promotion Task Force was set up in November 1990 under the Ministry of Finance. TradeVan is a US$80 million EDI service for international trading and customs services. The backbone network was established in 1992 for the Air Cargo Clearance System and its extensions for the Sea Cargo Clearance System was scheduled to be completed in 1994. It is claimed that 60% of air cargo was cleared through TradeVan in 1993 and the time shortened from 1.5 days to less than 2 hours.

A number of other value added network (VAN) services
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