

# CREATING AN E-ENABLING ENVIRONMENT FOR FUTURE GROWTH IN PENANG

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## 1. What is E-enabling ?

E-enabling refers to the process of enabling the interaction with the outside world via electronic networks such as the Internet and particularly the World Wide Web (www) .

The "E" means "electronic networks" and describes the application of electronic network technology, including Internet and electronic data interchange (EDI) to improve and change business processes.

E-enabling in many ways is closely identified with E-Commerce, E-Business and the Knowledge Economy (k-Economy)

## 2. What is E-Commerce ?

### 2.1 E-commerce

E-Commerce refers to the process of buying and selling products or services over an electronic network such as the Internet.

### 2.2 Types of E-Commerce

E-commerce covers three types of business transactions

- B2C - Business to Consumer
- B2B - Business to Business
- C2C - Consumer to Consumer

### 2.3 B2C - Business to Consumer

The classic example of a business that engages in B2C E-Commerce is Amazon (<http://www.amazon.com>) which sells books, CDs, electronics and videos directly to consumers over the Internet. According to an article in the Edge (a Malaysian business and investment weekly magazine) dated 26th November 2001, the turnover of Amazon for Quarter 3, 2001 was more than USD 639 Million.

B2C E-commerce can also include services such as that provided by Match.com that sells subscriptions to their Web site to enable consumers to browse their listings for potential romantic partners. In Malaysia, cari.com.my and catcha.com.my provides similar services but do not require any subscriptions.

### 2.4 B2B - Business to Business

B2B Ecommerce refers to transactions between one business and another and businesses that engage in this type of E-Commerce is generally less visible to consumers and the

general public. Cisco Systems, which creates much of the communications infrastructure of the Internet, is an excellent example of a business that engages in B2B E-Commerce.

## 2.5 C2C - Consumer to Consumer

Over the last few years, C2C Ecommerce involving consumer-to-consumer transactions has become very popular. The most obvious example of a business that engages in C2C E-Commerce is eBay (<http://www.ebay.com>). eBay collects a fee from every item that is auctioned between its customers. The Edge Daily recently reported that eBay earned USD 11 Million on auction sales of USD 225 Million. On the Malaysian front, lelong.com.my is providing the same auctioning services.

## 2.6 Credit Card Payments

Another essential component of ECommerce particularly B2C and C2C is the credit card payment mechanism to facilitate online payment.

## 2.7 Others

Another valid form of ECommerce would be a Web site that lists the products that are available in a real brick-and-mortar business even if they do not offer a method for consumers to buy and pay online. The objective of such a Web site would be to entice customers to visit your store or contact you for your services.

## 3. What is the difference between E-Commerce and E-Business?

### 3.1 Introduction

E-business and ECommerce are terms that are frequently used interchangeably , and yet the terms are different.

### 3.2 E-Commerce

E-commerce covers **outward-facing processes** that touch customers, suppliers and external partners, including :

- sales, marketing, order taking, delivery, customer service
- purchasing of raw materials and supplies for production and
- procurement of indirect operating-expense items, such as office supplies.

It's ambitious but relatively easy to implement because it involves only three types of integration:

- vertical integration of front-end Web site applications to existing transaction systems
- cross-business or lateral integration of a company with Web sites of customers, suppliers or intermediaries such as Web-based marketplaces
- integration of technology with modestly redesigned processes for order handling, purchasing or customer service.

### 3.3 E-Business

E-business includes E-commerce but also covers **internal processes** such as production, inventory management, product development, risk management, finance, knowledge management and human resources.

E-business strategy is more complex, more focused on internal processes, and aimed at cost savings and improvements in efficiency, productivity and cost savings.

An e-business strategy is also more difficult to execute, with four directions of integration:

- vertically, between Web front- and back-end systems;
- laterally, between a company and its customers, business partners, suppliers or intermediaries;
- horizontally, among e-commerce, enterprise resource planning (ERP), customer relationship management (CRM), knowledge management and supply-chain management systems;
- and downward through the enterprise, for integration of new technologies with radically redesigned business processes.

But e-business has a higher payoff in the form of more efficient processes, lower costs and potentially greater profits.

### 3.4 E-Commerce Strategy

All companies should have an ecommerce strategy. (Governments should have an epublic service strategy.) Electronic networks in general and the Internet in particular are too important for firms to ignore if they want to interact with customers, suppliers or distribution partners.

### 3.5 E-Business Strategy

But some companies need to move beyond ecommerce and form ebusiness strategies - especially large companies that already have links to EDI networks or have completed major ERP implementations. These companies have already reaped some of the biggest benefits from ecommerce strategies. They're also likely to experience organizational pain as conflicts develop among their ERP, EDI, supply-chain management and e-commerce strategies. And last, they have enough experience and knowledge in electronic-network technologies - and in process redesign and integration - that they have a chance of being successful in an e-business strategy.

Still, the coordination and organizational obstacles to developing an e-business strategy are formidable. It involves major and potentially disruptive organizational change. The risks of failure and the consequences from limited success are higher in an ebusiness strategy than in an e-commerce strategy. Being a leader in e-business can contribute to long-term success, but the stresses and strains of business transformation can cause near-term damage.

A wise company may decide to consolidate its gains and complete the work involved in its existing and largely separate e-commerce, ERP, CRM or supply-chain initiatives before making the big leap to becoming an e-business. Jumping too soon can be as disastrous as moving too late.

### 3.6 Summary

*E-Business=E-Commerce + Internal Processes*

*Source : Adapted and summarised from an article by Andrew Bartels published on the Computerworld.com, community services, 30th October 2000*

## 4. k-Economy versus p-Economy

### 4.1 Introduction

Penang is an example of a successful p-Economy (Production Economy) while the USA is the world's leading k-Economy (Knowledge Economy).

There are marked differences in the characteristics of the two types of economies.

### 4.2 GDP Profile of k-Economy

The comparative GDP profile of the USA is as follows

	1978 (%) Early k-Economy	1998 (%) Leading k-Economy
Agriculture	3.0	1.4
Manufacturing	23.4	16.4
Trade/Wholesale/Retail	16.6	15.9
Services & Finance	25.6	40.1
Government	15.3	12.6
Others	19.1	13.6

*Source : Adapted from <http://www.bea.doc.gov/bea/an/0600gpi/tableee.htm>*

As you can see, the US k-Economy is characterised by the pronounced shift from manufacturing towards services and finance i.e from 25.6 % to 40.1 %

The k-Economy is largely characterized by business, personal services and, increasingly, knowledge-based ICT services. The US services sector has become global in nature and this has further strengthened its economic position and influence throughout the world.

Service-centred economies typically engage in information activities and this builds the platform for enabling existing manufacturing industries to engage in more R&D on emerging technologies as well more sophisticated and specialized activities such as software, marketing, e-commerce and e-retailing.

### 4.3 GDP Profile of p-Economy

Whereas the comparative GDP profile of Penang is as follows

	1990 (%)	1999 (%) Leading p-Economy
Agriculture	2.9	1.4
Manufacturing	43.1	42.5
Trade/Wholesale/Retail	14.2	14.6
Services & Finance	11.6	12.0
Government	6.6	6.8
Others	21.7	22.8

Source : Adapted from SERI July 2000 Penang Statistics Report, pp.5

For Penang, we have consolidated as a leading pEconomy with no visible shift towards the k-Economy and with manufacturing as the dominant sector.

It is interesting to note that Penang's trade, wholesale and retail sectors percentage contribution is almost the same as that of the US. However, Penang lacks the e-business presence such as strong participation in e-marketplaces as well as e-commerce. The large majority of businesses are traditional in nature and may not even have basic ICT infrastructure.

Although Penang has "high technology" assembly and production industries, their characteristics differ from those of k-economies because they are production-based and cost-centred and not innovation- or knowledge-driven. Despite efforts in the past decade by Penang-based multinational corporations (MNCs) to carry out more R&D, design and testing, the aggregate effect have generally been regarded as small.

Penang's high economic growth has been mainly achieved through low value-added manufacturing activities. The ability of MNCs' industrial linkages and technology transfer programmes to grow local industries has been limited.

### 5. Why the need to E-enable ?

Businesses in Penang need to E-enable via ECommerce or EBusiness due to the following drivers :

- Malaysia's shift to the k-Economy as evident on the emphasis on the MSC
- E-Commerce and E-Business are an integral part of k-Economy
- Need to stay competitive with the Impending arrival of AFTA
- Need to connect to global supply chain via adoption of E-Business standards such as Rosettanet

RosettaNet (<http://www.rosettanet.org>) is an organization set up by leading information technology companies to define and implement a common set of standards for E-Business.

RosettaNet is defining a common parts dictionary so that different companies can define the same product the same way. It is also defining up to 100 e-business transaction processes and standardizing them. Because RosettaNet is supported by all or most of the major companies in the IT industry, its standards are expected to be widely adopted.

RosettaNet has developed a structured four-part approach for creating what it calls Partner Interface Processes (PIPs).

- **Business Process Modeling** examines common business procedures and defines the components of the processes.
- **Business Process Analysis** analyzes the processes and defines a target list of desirable changes to the processes.
- **PIP Development** establishes guidelines and documentation for the changes.
- **Dictionaries** consist of two data dictionary: a technical properties dictionary and a business properties dictionary. Along with the RosettaNet Implementation Framework (which defines an exchange protocol for PIP implementation), the dictionaries form the basis for PIP development.

RosettaNet's more than 40 members include Microsoft, Netscape, 3Com, Toshiba America, Compaq, CompUSA, Hewlett-Packard, IBM, and Intel. The organization's slogan is "lingua franca for E-Business."

## 6. Who should E-enable ?

Most organisations should E-enable their businesses. For example,

- Businesses in retail and wholesale should consider B2C E-Commerce
- Manufacturers, Property developers, Distributors, Agriculture should consider B2B E-Commerce via participation of eMarketPlaces
- Public sector
- All other businesses should have at least a Web site listing their products and services

## 7. What are the Barriers/Solutions to E-Enabling ?

### 7.1 Major Barriers

As I see it, the major barriers to E-Enabling in Penang are as follows :

- Telecommunication issues
- Poor ICT adoption
- R & D Centres of Excellence
- Need for affordable back end ERP/ERP2 systems
- Difficulty in getting Credit Cards Merchant Account

### 7.2 Telecommunication Issues

#### 7.2.1 Pressing issues

Based on the Telecom User Survey 2000 of the issues affecting ICT in Malaysia and the Asia Pacific, the most pressing issues that will likely affect telecommunication users in Penang are as follows :-

- Bandwidth
- Quality of Service
- Reliability
- Cost

### 7.2.2 Bandwidth

With the rapid growth of Internet traffic, the lack of bandwidth is a serious issue.

What is alarming is that almost **87 per cent of Asia Pacific users are now on broadband**. Unfortunately almost all Malaysian public users and more than 60 per cent of local industries, commercial and services sector concerns in Penang are connected to the internet through dial-up accounts with internet solution providers at 56kbps or less.

An independent survey by IDC was reported to have indicated that Malaysian companies across the board desire a bandwidth of at least 256kbps.

Broadband currently available in Penang are as follows :-

Broadband Type	Bandwidth	Comments
ISDN	128 Kbps	
ADSL/SDSL	512 to 1.5Mbps	Testing in certain areas in FTZ
Dedicated Leased lines	Up to 2.0 Mbps	

China and India lead in the 2Mbps category while Korea leads in the 512Kbps category. This suggests a major challenge for Malaysia as it will be left far behind if access to high bandwidth channels are not provided to industry or not provided in a timely manner.

One possible solution is for Penang businesses to use software that can :-

- access data on an online and offline basis
- perform at the speed of thought using a 33.6 dialup connection

### 7.2.3 Quality of Service

Almost 35 per cent of respondents indicated that the quality of service has not improved in any of the listed services including data and Virtual Private Networks (VPNs). Only 3 per cent of respondents respectively said that improvements were seen in VPNs.

It would appear that most dissatisfied customers are in markets where the liberalisation of services has been slow and/or uncertain. In the most liberalized markets i.e Australia, Hong Kong and Singapore, users have the greatest choice and are provided better quality of service.

Since the quality of service is a national issue beyond the control of Penang, the usage of software that can connect to Internet servers for a short while and then going offline for the rest of the day may be a viable solution.

### 7.2.4 Reliability

Countries that raised reliability issues were Indonesia, China, Philippines and Malaysia. Both Chinese and Malaysian users are still unsatisfied with the price and this is made worse by the lack of reliability of these services. Thus Malaysia needs to improve the reliability of its telecommunication infrastructure, at the same attain a regionally competitive price structure and bandwidth demand to ensure that a sound and suitable ICT infrastructure is available for the *k*-driven economic growth.

### 7.2.5 Cost

Almost one third of Malaysian users are of the opinion that none of its telecommunication services are cost-effective. In addition, Internet provision services and VPN services in Malaysia are among those rated among the least cost effective across the Asia Pacific region and this concurs with the results of the primary research for both the private and the government sectors.

For example, the usage of say 100 hours per month of ISDN connection would cost RM 330 which is more than the average monthly household transportation and telecommunication expenditure of RM 310

As a comparison, markets in US, Hong Kong and Singapore are the most cost effective in terms of telecommunication usage.

The prohibitive cost of the cheapest dedicated lease line of 2 Mbps (More than RM100 thousand per annum) is the primary reason why companies have not taken up broadband usage as well as negatively influencing their decision in making ICT investments.

Apart from lobbying the telcos to reduce the prices, a possible solution may be the usage of thin-client technology that do not require a dedicated lease line.

### 7.3 Poor ICT Adoption Rate in Penang

In terms of ICT diffusion, the penetration of personal computers (PC) and Internet usage is still low in Penang compared to the US. PC usage and registered Internet accounts in Penang is significantly lower than the US (see below). In part, the latter is caused by cost, reliability and quality of the infrastructure.

Population per 1000	Penang (2000)	USA (2000)	World Class Std
Number of PCs	Less than 100	Almost 600	400
Registered Internet Users	70	486	250

Source : Adapted from <http://www.c-i-a.com/200010iuc.htm>, Treasury, Economic Report 2000/2001, American Electronics Association, The Star April 17,2000

The consequence is that Penang lacks the e-business presence such as active participation in e-marketplaces as well as e-commerce. The large majority of businesses particularly the SMIs may not even have basic ICT infrastructure.

### 7.4 R & D Centre of Excellence

Another factor in the growth of the US K-economy is a dominant R&D and training culture, the shifting of resources by entrepreneurs into developing new business models and supporting financial flows that enable such shifts to occur.

In seeking to move away from the focus on traditional manufacturing, Penang has long stressed many of these factors but the extent to which comparable depth and quality have been achieved is arguable. Universiti Sains Malaysia (USM) has been expanded and there are more tertiary-level private colleges but none can claim to be a centre of excellence in a particular field of science and technology whether at the basic research or the commercialization end.

The US's economic progress has been characterized by the setting up of public and private R&D laboratories, commercialization centres and other institutional facilities and infrastructure that are knowledge- and service-intensive. Perhaps more importantly, dynamism was reinforced by highly charged entrepreneurs and competitive work environment and culture. This contrasts with the Malaysian and Penang manufacturing experience, which is more passive.

Malaysia's R&D investment (1998) as a percentage of GDP is still well below 0.5 per cent compared to more than 2.5 per cent in the US case. Malaysia's k-economy investments, particularly in the area of human and capital investment, lag considerably in terms of

quantity. The quality of knowledge workers produced must also be given emphasis and standards must be improved in line with international levels. We need to build and nurture our own R&D centers of excellence and all efforts should be made by the Penang state government to lobby for a Regional MSC Centre in Penang to attract as well retain Technopreneurs to invest their R & D in Penang. This will significantly increase the competitiveness of our knowledge workers.

### **7.5 Need for affordable back end ERP/ERP2 systems**

As mentioned in 2.3 above under EBusiness, integrating with back end ERP/ERP2 systems is absolutely necessary for a successful E-Commerce and E-Business. After all, ERP/ERP2 is the driving force behind E-Business.

By having access to timely and accurate data on an integrated and enterprise-wide basis, management would be able to make well-informed decisions over crucial areas such as finance, human resources, distribution, materials, manufacturing and production.

Other obvious benefits being minimising duplication of work, identifying bottlenecks and inefficiencies, competitive pricing, lower inventory holding costs, lower human resources costs and timely response to customer needs.

Traditionally, ERP/ERP2 solutions, being foreign developed were expensive and not affordable to Penang's SMIs. Fortunately, some Malaysian companies including Penang-based KarenSoft have developed quality yet affordable ERP/ERP2 solutions for such SMIs.

### **7.6 Difficulty in getting Credit Cards Merchant Account**

Due to the small volume of business and increasing credit frauds, small e-Tailers will have difficulty in getting merchant accounts from credit card companies which will hinder the conduct of B2C E-Commerce.

Fee-based dotComs such as Jobstreet.com which is Penang-based got round this problem by allowing customers to order and define their own job advertisements and yet billing is done the old-fashioned way.

Another alternative used by KarenSoft.com in marketing their ExecSuite software product is using a US-based escrow service.

## **8. Conclusion**

Despite the much publicised demise of dotComs, the Internet is here to stay. Get e-Enabled fast or perish in the face of global or even regional competition such as AFTA. Getting e-Enabled doesn't mean being a dotCom !

By acknowledging that the Internet is here to stay, top management should not hesitate to take steps to E-enable their businesses in order to remain competitive as customer loyalty is merely a click away.