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Investigating the Extent of Information Technology (IT) Usage in Malaysian Batik Industry

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ABSTRACT

In this new information technology era, business enterprises in Malaysia should capitalize on the use of information technology (IT) to gain the competitive advantage and bring their businesses to the global forefront. The recent advancement of information technology enables a community network portal to provide faster and more efficient communication, dissemination of information and business transactions for organizations. This paper discusses the extent of IT usage in the Malaysian Batik Industry and then proposes a community net portal (CNP) reference model for the Malaysian batik industry. A survey study involving eleven batik companies in the Klang Valley was carried out. Information were also gathered via interviews with four related organizations: (1) Malaysian Handicraft Development Corporation (MHDC), (2) Syarikat Karyaneka Sdn Bhd, (3) Batek Malaysia Berhad (BMB), and (4) Batik Guild Sdn Bhd. Survey study results indicated that majority of the batik companies still favors the traditional method of doing business as they lack funds and expertise to incorporate information and communication technology (ICT) business solutions. The three main services that batik companies would like to add to their websites are shopping cart, online payment, and immediate credit card validation. The key components of the CNP model proposed are infrastructure, portal administration, content management, content collaboration and publication, and access controls. The proposed CNP model can serve as a reference for the development of an actual working community network portal for the Malaysian batik industry.

Keywords: *community network portal; information and communication technology; batik industry*

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Introduction

Batik represents a significant part of the cultural heritage of Malaysia. It is a generic term of a popular handicraft which refers to the process of dyeing fabric by making use of a resist technique covering areas of cloth with a dye-resistant substance (such as wax) to prevent the absorption of colours (The Batik Guild, 1999). In Malaysia today, most of the batik producers are situated in the states of Kelantan and Terengganu along the east coast of Peninsular Malaysia. The Klang Valley region in the west coast of the peninsular also has a significant number of batik producers and dealers.

The local batik attire and handicraft is quite well known to visitors of Malaysia. In fact, many shops and boutiques within hotels and resorts in Malaysia generally market garments and handicrafts made from both batik tulis or tjanting (hand drawn batik) and batik cap (block print batik). In the Klang Valley region, a number of producers focus predominantly on the tourist market, whereas others will focus on both the tourist and local markets (Batik Design, 1993).

Although considered as a cultural heritage of Malaysia, the amount of development in this industry with respect to the use of information and communication technology (ICT) is not significant. Information technology development generally comes in terms of basic office automation such as personal computer systems and standard office application software like word processing. As for the area of telecommunications and networking, electronic mail and home pages are deemed sufficient. However, such ICT investments, if any, are found to be sadly lacking in this industry.

This paper discusses the extent of IT usage and then proposes a community network portal model for the Malaysian batik industry.

Problem Statement

The batik industry although not exactly flourishing, was enjoying some relatively good trading in the period between mid-1980s to early 90s. However, by the mid-90s, the industry hit a slump and came to a standstill in the aftermath of the 1997-98 financial crisis (Shanmugam, 2004).

What led to the standstill? According to the Director-General of the Malaysian Handicraft Development Corporation, Puan Zakiah Ahmad, at the 2003 national-level batik convention, the batik textile industry depends on low labour costs and a fixed market price. However, the last decade has seen a lack of skilled labour and this has significantly produced a negative effect on the industry. Also, due to the economic downturn faced by Malaysia in the late 1990s, the costs of raw materials for batik-making have increased tremendously.

This increase in price has indirectly caused the cost of production to rise. Batik producers however were unable to increase the price of batik due to the unwillingness of batik dealers and customers to pay higher price. Thus, many cottage industries that produce batik were forced to close down.

Other problems faced by the local batik dealers and producers are ineffective procurement of raw materials to meet production needs and market demands, weak marketing and promotional strategies to sell their products and heavy reliance on middlemen for procurement of raw materials and selling of products. By remaining small-scale and traditional in operation, a majority of batik dealers and producers lose out in terms of sales volume, design and price. In this era of digital economy, deployment of ICT is deemed necessary to overcome the problems and to boost the batik industry in Malaysia.

Aims of Study

The aims of the study are as follows:

1. To identify the roles played by Batik Malaysia Berhad (BMB) and Batik Guild Sdn. Bhd. in the batik industry.
2. To determine the usage of ICT in the batik industry.
3. To determine the information requirements for the design of the Malaysian batik industry community network portal
4. To propose a community network portal reference model for the Malaysian batik industry

Methodology and Results

The study involved a survey on batik companies in the Klang Valley. Interviews were also carried out with four related organizations: (1) Malaysian Handicraft Development Corporation (MHDC), (2) Syarikat Karyaneka Sdn Bhd, (3) Batek Malaysia Berhad (BMB), and (4) Batik Guild Sdn Bhd. to determine the needs and roles of each organization. There are about 19 batik companies in the Klang Valley excluding MHDC, BMB and BG. Phone calls were made to these companies to request for interviews. A few companies declined to participate in this study. At the end of four months, a total of 14 batik companies (including MHDC, BMB and BG) gave their co-operation and participated in the study.

The research instrument used to collect the required information was a constructed questionnaire with eight sections as follows:

Section A: Respondent's Profile
Section B: Background of Business (For Dealers and Producers)
Section C: Background of Business (For Dealers)

Section D: Background of Business (Producers)
Section E: Website Information
Section F: For Company without Website
Section G: Relationship with Relevant Organizations
Section H: IT in Batik Craft Industry

The questionnaires were answered by the management staff namely directors and managers of the companies involved. Section A covers the profile of the respondents (gender and job description) and some background information about the batik company such as the year the company was established, type of business, total number of branches, total number of employees and number of year in business. Sections B, C and D involve information on background of batik business for each different type of business, i.e., dealers and producers, dealers only, and producers only, respectively. Section E involves website information (such as website services, maintenance of website, problems in managing website, etc.) from batik companies with websites while those companies without websites answer Section F. Section G covers information on the relationship of batik companies with relevant organizations such as MHDC, BMB and BG. Section H seeks information on the use of IT in the batik industry.

There are 7 (64%) batik companies that are both dealers and producers while 4 (36%) companies are dealers only. Most of the batik companies were established between the years of 1991 to 2000. The four companies that have been in business between 21 to 30 years are Batek Malaysia Berhad (1974), Pelangi Batek (1975), Noor Arfa Batek Sdn Bhd (1980) and Syarikat Pemasaran Karyaneka Sdn Bhd (1981). 46% of the companies surveyed do not have any branches. Most of the batik companies have a small number of employees (10 or less) at their headquarters (HQ). Table 1 gives a summary of the background of the batik companies surveyed.

Table 1: Summary of Background of Batik Companies

Variables	Categories	Frequency	%
Type of business	Dealer and Producer	7	64%
	Producer	4	36%
Year established	1971-1980	4	36%
	1981-1990	2	18%
	1991-2000	5	46%
Number of years in business	10 years or less	4	36%
	11-20	2	18%
	21-30	4	46%

continued

Table 1 – *continued*

Number of branches	None	5	46%
	1-2	2	18%
	3-4	3	27%
	5-6	1	9%
Number of employees in HQ	1-10	7	64%
	11-20	2	9%
	> 20	2	27%

Survey results indicated that communication via telephone is still the major mode of communication with suppliers, producers and customers. 57% of the batik dealers and producers communicate with their suppliers via e-mail. It was also found that only 55% of the surveyed batik companies communicate with their customers via e-mail. Only 4 (36%) of the batik companies deal with foreign suppliers or producers. 45% of the batik companies order their supplies monthly. Payment by cheque (82%) is still the most favored mode of payment. Only 45% of batik companies provide online payment facilities.

86% of the batik dealers and producers have backend system. 82% of the batik companies provide after sales service while only 55% have call contact center. The companies that have call contact centers are Batek Malaysia Berhad, Noor Arfa Batek Sdn Bhd, Butik D'Charma, Syarikat Pemasaran Karyaneka Sdn Bhd, Pelangi Batek and Koleksi Melayu. Only four batik companies (36%) out of the 11 companies that participated in this study have set up their own websites. The companies are Batek Malaysia Berhad, Noor Arfa Batek Sdn Bhd, Jadi Batek Centre and Syarikat Pemasaran Karyaneka Sdn Bhd. All of the four batik companies maintain their own websites except for Batek Malaysia Berhad which outsource the maintenance of their website. Only 2 companies stated that they do get online orders. All four batik companies wish to improve their websites' capabilities. The services majority of the companies wish to add are shopping cart, online payment and immediate credit card validation services. The main benefits they gain from their websites are faster and more efficient communication with customers while the two main problems they face are funding and lack of expertise in their company to maintain the website.

For the batik companies without websites, the traditional method of doing business is favored as they are use to it and it does not require a lot of expertise. Only four out of the seven batik companies surveyed which do not have websites have plans to build their websites.

From interviews and survey results, the information flow between batik companies and relevant organizations are shown in Figure 1.

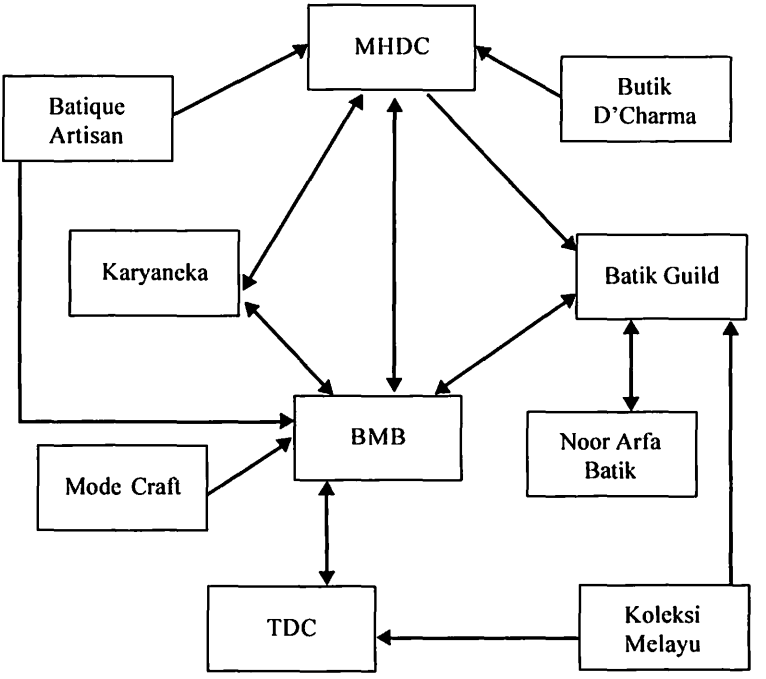

Figure 1: Information Flow between Companies and Organizations

All eleven companies surveyed are of the opinion that there is a need for open channels of communication between all players in the batik industry. Majority agreed that an online batik community portal can help provide an open channel of communication. One company stated their concern that with the existence of an online batik community portal, their designs might risk being stolen by others and the uniqueness of the raw material will decrease as other producers sell goods of the same design. Table 2 lists the reasons why some batik companies favor an online batik community portal.

Table 2: Frequency Distribution of Some Reasons Why an Online Batik Community Network Portal Can Help Provide an Open Channel of Communication

Online batik community portal provides:	Percentage of companies (N = 10)
Centralized platform for interaction	60%
Accessible links/channels to other websites	90%
Faster means of communication	70%
Easier means of communication	70%
Information accessibility	50%

Table 2 indicated that majority agreed that an online batik community network portal will provide accessible links (or channels) to other websites and for faster and easier communication.

In this study, information was also obtained on the importance of Information Technology (IT) in the batik industry. Table 3 indicates that most of the batik companies rate IT as very important for their batik business. Most top management supports the use of IT and is committed to using IT to promote the batik business. Majority agree (as shown in Table 4) that IT has also helped the batik industry increase their client base, improved their sales, profitability, competitive position and recognition of their market brand.

Table 3: Percentage Distribution for the Rating of the Importance of Information Technology for Batik Companies

Information Technology	Not Important	Somewhat Important	Very Important
Intranet	9%	27%	64%
Extranet	18%	18%	64%
Online marketing	9%	27%	64%
Electronic procurement	18%	27%	55%
Electronic tendering	18%	18%	64%
Electronic data interchange (EDI)	18%	18%	64%
Computerized customers database	18%	18%	64%
Call/contact centre	27%	9%	64%
IT business operation	9%	36%	55%

Table 4: Percentage Distribution for Opinion on usage of IT and IT Support in Batik Business

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
CEO/Management Commitment to IT	(1)	(2)	(3)	(4)	(5)
My company is committed to using IT to promote business		9%	36%	45%	
Our top management support the use of IT		9%	27%	64%	
IT Support in Business					
New information technology has:					
i. dramatically improved our sales		18%	27%	46%	9%
ii. dramatically improved our profitability			18%	36%	46%
iii. improved our competitive position		9%	36%	55%	
iv. dramatically improved the recognition of our market brand		9%	36%	55%	
Overall Company Performance					
Over the past three years:					
i. our sales have been outstanding		27%	27%	46%	
ii. our financial performance have been outstanding		36%	27%	37%	
iii. we have been more profitable than our competitors		36%	37%	27%	
iv. our client base has incrementally increased		27%	18%	55%	

Table 5 indicates that there is a highly strong significant correlation (Spearman's rho correlation coefficient = 0.867, p-value < 0.01) between company commitment to using IT to promote business and CEO/top management support in using IT. This study found that improved sales, profitability, competitive position and recognition of market brand are significantly correlated with the batik company commitment to using IT in their business. However, they are not significantly related to CEO or top management support of the use of IT. As expected, outstanding financial performance are highly positively correlated with outstanding sales (Spearman rho's correlation coefficient = 0.902, p-value < 0.01) and being more profitable than their competitors (Spearman's rho correlation coefficient = 0.804, p-value < 0.01).

Table 5: Correlations between Information Technology and Batik Business Performance

		commit	support	sales	profits	compete	recognition	outstanding sales	outstanding financial performance	competitors	client base
Spearman's rh commit	Correlation Coeff.	1.000	.867**	.717*	.619*	.714*	.714*	.273	.472	.418	.000
	Sig. (2-tailed)	.	.001	.013	.042	.014	.014	.417	.142	.200	1.000
	N	11	11	11	11	11	11	11	11	11	11
support	Correlation Coeff.	.867**	1.000	.470	.362	.568	.568	.434	.474	.220	.124
	Sig. (2-tailed)	.001	.	.145	.274	.068	.068	.183	.140	.515	.717
	N	11	11	11	11	11	11	11	11	11	
sales	Correlation Coeff.	.717*	.470	1.000	.891**	.934**	.934**	.532	.770**	.747**	.184
	Sig. (2-tailed)	.013	.145	.	.000	.000	.000	.092	.006	.008	.588
	N	11	11	11	11	11	11	11	11	11	
profits	Correlation Coeff.		.619*	.362	.891**	1.000	.866**	.866**	.362	.600	.662*
.146	Sig. (2-tailed)	.042	.274	.000	.	.001	.001	.274	.051	.026	.668
	N	11	11	11	11	11	11	11	11	11	
compete	Correlation Coeff.	.714*	.568	.934**	.866**	1.000	1.000**	.655*	.850**	.823**	.366
	Sig. (2-tailed)	.014	.068	.000	.001	.	.	.029	.001	.002	.268
	N	11	11	11	11	11	11	11	11	11	
recognition	Correlation Coeff.	.714*	.568	.934**	.866**	1.000**	1.000	.655*	.850**	.823**	.366
	Sig. (2-tailed)	.014	.068	.000	.001	.	.	.029	.001	.002	.268
	N	11	11	11	11	11	11	11	11	11	
outstanding	Correlation Coeff.	.273	.434	.532	.362	.655*	.655*	1.000	.902**	.572	.543
sales	Sig. (2-tailed)	.417	.183	.092	.274	.029	.029	.	.000	.066	.084
	N	11	11	11	11	11	11	11	11	11	
outstanding	Correlation Coeff.	.472	.474	.770**	.600	.850**	.850**	.902**	1.000	.804**	.484
financial	Sig. (2-tailed)	.142	.140	.006	.051	.001	.001	.000	.003	.131	
performance	N	11	11	11	11	11	11	11	11	11	11
competitors	Correlation Coeff.	.418	.220	.747**	.662*	.823**	.823**	.572	.804**	1.000	.578
	Sig. (2-tailed)	.200	.515	.008	.026	.002	.002	.066	.003	.	.063
	N	11	11	11	11	11	11	11	11	11	11
clent base	Correlation Coeff.	.000	.124	.184	.146	.366	.366	.543	.484	.578	1.000
	Sig. (2-tailed)	1.000	.717	.588	.668	.268	.268	.084	.131	.063	.
	N	11	11	11	11	11	11	11	11	11	11

** Correlation is significant at the 0.01 level (2-tailed).

* Correlation is significant at the 0.05 level (2-tailed).

Factor analysis was used to identify the underlying components of the 8 items in Section H of the questionnaire pertaining to the usage of IT in the batik business. Items that are highly correlated with each other will form a factor. The results of factor analysis via principal component method and rotating via varimax are as shown in Table 6.

Table 6: Factor Loadings via Varimax Rotation

	Rotated Component Matrix	Factor 1	Factor 2	Factor 3
1.	My company is committed to using IT to promote business	.478	.107	.857
2.	Our top management support the use of IT	.134	.268	.947
3.	It has dramatically improved our sales	.840	.305	.357
4.	IT has dramatically improved our profitability	.909	.137	.298
5.	IT has improved our competitive position	.697	.497	.487
6.	Our sales have been outstanding	.127	.937	.244
7.	Our financial performance has been outstanding	.436	.858	.212
8.	We are more profitable than our competitors	.706	.595	-.015

The factors were identified via factor loadings above 0.7. Table 7 summarizes the items in each factor and the reliability measures. The three factors are labeled as perceived Commitment to IT, IT Support in Business and Company Performance.

Table 7: Summary of Items and Reliability Measures for Each Factor

Factors	Items	Rotated Factor Loadings	Cronbach Alpha coefficient of reliability
CEO/Management commitment to IT	(1) My company is committed to using IT to promote business	0.857	0.949
	(2) Our top management support the use of IT	0.947	

continued

Table 7 – *continued*

IT Support in business	(1) New IT has dramatically improved our sales	0.840	0.935
	(2) New IT has dramatically improved our profitability.	0.909	
	(3) New IT has dramatically improved our competitive position.	0.697	
	(4) Over the past three years, we have been more profitable than our competitors	0.706	
Company performance	(1) Over the past three years, our sales have been outstanding.	0.937	0.945
	(2) Over the past three years, our financial performance has been outstanding.	0.858	

Cluster analysis was then carried out using the factor scores for each of the three factors. The following tables (Tables 7(a), 7(b), and 7(c)) show the clusters based on Factor 1 (commitment to using IT) scores, Factor 2 (IT support in business) and Factor 3 (overall company performance). Figure 2 shows the clusters based on commitment to using IT and IT support in business. Generally, it can be concluded that batik companies with high commitment towards using IT found that IT greatly supports their performance in business.

Table 7(a): Clusters Identified Based on IT Commitment Factor Scores

Batik Companies	Cluster
Company A Company D Company E Company H Company I Company J Company K	1 (High IT commitment)
Company B Company F Company G	2 (Moderate IT commitment)
Company C	3 (Low IT commitment)

Table 7(b): Clusters Identified Based on IT Support in Business Factor Scores

Name of Batik Companies	Cluster
Company A Company E Company F Company H Company I Company J	1 (High IT Support)
Company B Company D Company G	2 (Moderate IT Support)
Company C Company K	3 (Low IT Support)

Table 7(c): Clusters Identified Based on Overall Company Performance Factor Scores

Name of Batik Companies	Cluster
Company A Company F Company H Company J Company K	1 (High financial performance)
Company I Company B Company E	2 (Moderate financial performance)
Company C Company G Company D	3 (Low financial performance)

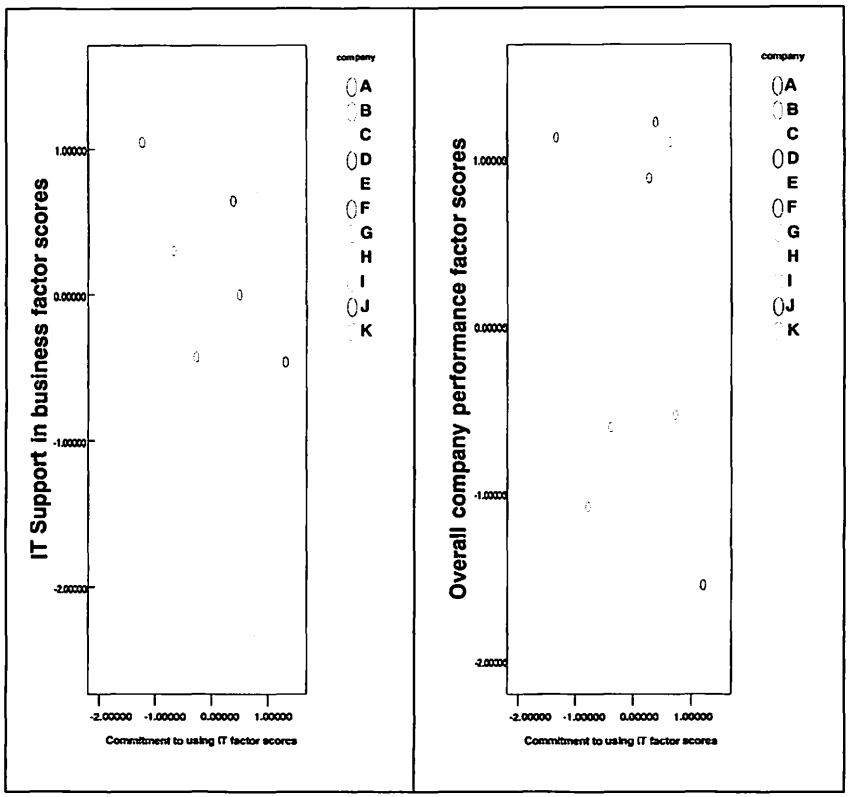

Figure 2: IT Support in Business Versus Company Commitment to using IT

Roles of Significant Organizations Relevant to the Malaysian Batik Industry

The following is a summary of the roles of four significant organizations that are relevant to the Malaysian batik industry. The organizations are Malaysian Handicraft Development Corporation (MHDC), Batek Malaysia Berhad (BMB), Batik Guild Sdn. Bhd., and Karyaneka (Syarikat Pemasaran Karyaneka Sdn. Bhd.).

Malaysian Handicraft Development Corporation (MHDC)

Malaysian Handicraft Development Corporation (MHDC) – or Kraftangan Malaysia began as the Malaysian Handicraft Board in 1973 and was later renamed as MHDC in 1979 (Wan Hashim, 1996). It is an agency of the Ministry of

Entrepreneur Development responsible for developing and promoting the country's craft entrepreneur and industry (The Star Online, January 4, 2004). Its vision is to be the leader in the development, promotion, and expansion of the stable but competitive craft industry. Its organizational website address is www.kraftangan.gov.my.

MHDC has 11 craft development centres spread across Malaysia. In particular, at its Kelantan Craft Development Centre, the new Batik Innovation Centre was opened on 3 October 2003 (The Star Online, January 4, 2004). This center focuses on the batik industry in Kelantan state. Late last year the center hosted a national-level batik convention, "Konvensyen Usahawan Batik SeMalaysia 2003", which was themed "Inovasi Batik Malaysia" or Innovations of Malaysian Batik. Besides being a referee center for all types of crafts, it is a testing ground that houses several "incubators" with the intended purpose of new product development. These incubators are described as spaces for new craft businessmen who lack money to rent work space. They are generally rent-free for the first six months and a low rental is charged after that. Besides the usage of common facilities such as machinery and equipment, support services in terms of product development and promotion as well as entrepreneurial courses are provided. The center also issues certificates of origin and export quality.

Karyaneka

Syarikat Pemasaran Karyaneka Sdn. Bhd., or Karyaneka for short, is a subsidiary of MHDC. It is entrusted to market Malaysian handicraft and souvenir items produced by local craftsmen and small enterprises. Karyaneka was established in 1982 and has a wide collection of handicraft items that reflect Malaysian's ethnic and cultural heritage. Some of the items sold at this one-stop shopping center are batik attire and crafts, decorative rattan products, woodcraft and silvercraft. Karyaneka has its own corporate website called karyaneka.com which features general product information, news and events related to the craft industry and allows for corporate business enquiries. Malaysiancraft.com is Karyaneka's e-commerce website. Karyaneka.com has temporarily stopped updating its website as it is in the process of replacing the current website with a newer version which is purported to have updated events and links as well as e-commerce links to malaysiancraft.com for visitors to purchase Karyaneka products.

Batek Malaysia Berhad (BMB)

Batek Malaysia Berhad, or otherwise most commonly referred to as BMB, was established on 13 April 1974. At the point of its establishment, it was a subsidiary of Mara Holdings Sdn Bhd, a wholly-owned government company.

Unfortunately, sometime in the late 1990s, Mara Holdings Sdn Bhd went into financial difficulties that resulted in BMB being placed under Nadicorp Holdings Sdn Bhd (The Star Online, January 4, 2004). With BMB's mission statement to improve and enhance the Malaysian batik industry, it became a leading agency functioning as both dealer and producer of local batik and handicrafts. In addition, BMB also functions as a supplier of raw materials for batik-making (such as cloth and dyes) to local batik producers, most of whom are located in Kelantan and Terengganu. It also helps these producers distribute their products. BMB established its website, www.bmb.com, in 1992. During the length of the study, the BMB's website was under construction and hence could not be accessed. A newer version of BMB's website is to be powered by Webz Design and Solutions.

Batik Guild Sdn. Bhd.

Batik Guild Sdn. Bhd. is a non-profit organization that was established in 2000 as a platform to see through the aims of Datin Paduka Seri Endon Mahmood, the wife of the current Prime Minister of Malaysia, to revitalize the Malaysian batik craft industry. Through this organization, her brainchild of promoting the beauty, versatility, and elegance of Malaysian batik locally and especially internationally has seen the creation of a movement called "Malaysian Batik – Crafted for the World" (The Star Online, January 4, 2004). The events and activities of this movement are jointly managed by Batik Guild Sdn. Bhd. and Yayasan Budi Penyayang Malaysia. The latter organization is a charity foundation of which Datin Paduka Seri Endon Mahmood is the honourable chairperson. Being a non-profit oriented organization, the website of Batik Guild (www.batikguild.com) merely provides information about the organization's events and activities as outlined in the "Malaysian Batik – Crafted for the World" movement. However, this active website encourages local batik dealers and producers as well as professionals from craft development centers and, art and fashion schools to join and be listed in the website so that their expertise may be realized and utilized.

Community Net Portal Reference Model for Malaysian Batik Industry

The proposed reference model of a community network portal for the Malaysian batik industry (Figure 3) serves as a guideline for developing a community portal suited to the needs and situation of this vertical industry. A key element of the community portal is the industry-specific information offered within the portal. This reference model was developed following a study of portal technology combined with findings from the survey conducted.

Basically, the reference model depicts two sections of the community portal. There is the front-end that comprises the portal user interface and the back-end that contains the portal support platform from which portal support components may be accessed. The major components that support the community network portal of the Malaysian batik industry include:

1. Infrastructure
2. Portal Administration
3. Content Management
4. Content Collaboration and Publication
5. Access Controls

Further details on the major components of the community network portal will be provided in a follow-up paper.

Conclusion

Although there have been efforts by the government to encourage Malaysian industries to deploy IT to gain competitive advantage and to face the challenges of globalization, IT does not seem to be widely deployed in the Malaysian batik industry. Traditional methods such as communication via telephone and payment by cheques are still favored over communication via e-mail and providing online payment services. Majority of batik companies acknowledged that they can gain faster and more efficient communication with customers via their websites. However, most companies still lack funds and expertise to maintain their websites. As a result of this, traditional method of doing business is still preferred. Most batik companies aware that online batik community network portal will help provide accessible links (or channels) to other websites and for faster and easier communication. However, there was also some concern expressed that the community network portal might cause batik company designs to be easily 'stolen' (or copied) by others and that the uniqueness of the design will decrease when producers sell goods of the same design. Most batik companies found that their commitment towards using IT in their businesses help improve sales, profitability, competitive position and recognition of their market products. Based on these findings, a community network portal reference model of the industry was developed. It is hoped that the proposed reference model will lead to the development of an actual working portal that could help bring about some improvements in pushing the local batik industry to the global forefront.

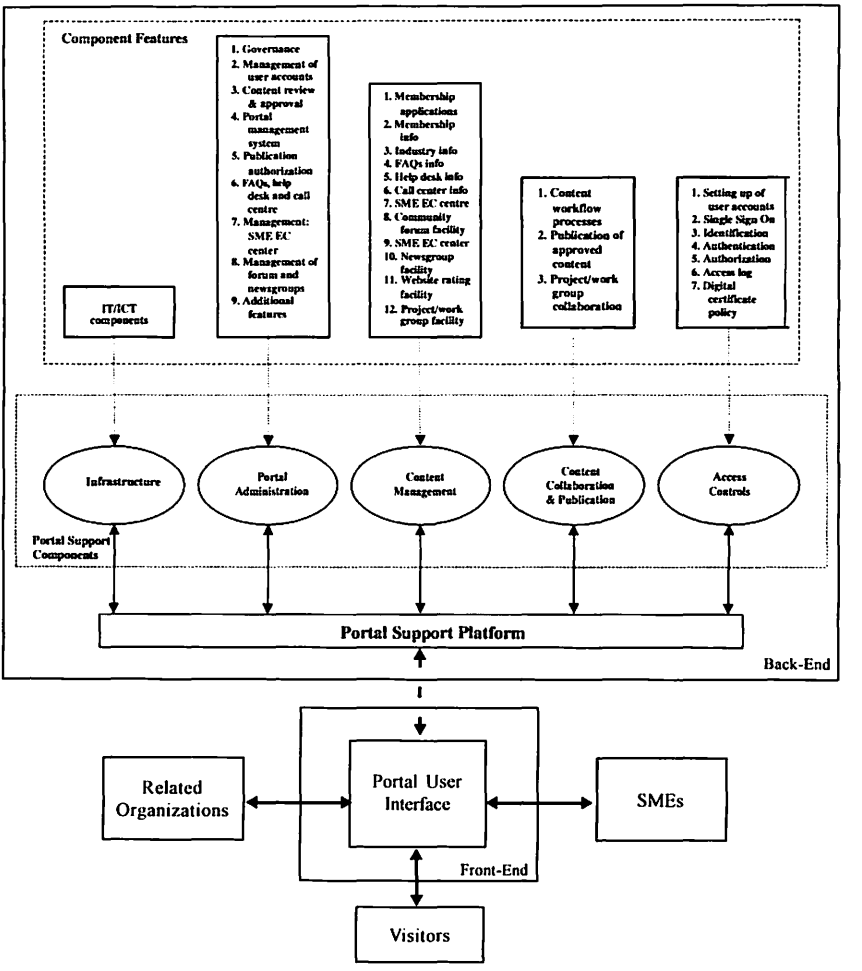

Figure 3: Proposed Community Network Portal Reference Model for the Malaysian Batik Industry

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