AN INTEGRATED FRAMEWORK FOR IDENTIFYING THE CRITICAL FACTORS AFFECTING THE DECISION TO ADOPTION OF WEB 2.0 TECHNOLOGIES IN MALAYSIAN RETAIL BUSINESSES

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Abstract

This research derives from recognition that “Web 2.0” technology is being introduced and increased numbers of users. However, very little academic research has been done in reference to the phenomenon and its implications for Malaysian retail-chain businesses. This study attempts to answer three research questions; namely (1) What are the Web 2.0 technologies currently adopted by Malaysian retail-chain businesses? (2) What are the factors that influence Malaysian retail-chain businesses toward Web 2.0 technologies adoption? The research objectives are: (1) To identify the Web 2.0 technologies currently adopted by Malaysian retail-chain businesses, (2) To identify the factors that are likely to influence the Malaysian retail-chain businesses adoption of Web 2.0 technologies. A theoretical framework for the organizational Web 2.0 adoption was built by reviewing the literature on information systems adoption and attitude towards behaviour. Based on the literature review, variables contexts such as perceived benefits, technology, organization, and environment were identified to predict the Malaysian retail-chain adoption of Web 2.0. Using a survey method, data were collected from 185 respondents in Malaysia. The data was analysed to test on eleven hypotheses. A research framework was proposed and tested using factor analysis and multiple regression analysis. Results showed that eight factors from the four contexts were found to play important role in the adoption of Web 2.0 except technology security, inter-organizational collaboration and organizational readiness. Lastly, this study provides empirical evidence that it is important to examine the organizations perception of importance and satisfaction toward different Web 2.0 technologies.

Keywords: Retail-chain business, Web 2.0 adoption, Institutional Theory, Malaysia

Introduction

The Internet technology becomes a major source of customer information and empowerment (Urban, 2003; Constantinides, 2008). Lately, many businesses have started to adopt a new generation of web technologies and applications such as blogs, Web 2.0 media, and social networking, commonly referred as Web 2.0. White and Pauxtis (2010) opined Web 2.0 help to enhance works more efficiently whereby businesses are now competing at a different level. Past studies have investigated the adoption of Web 2.0 by the Malaysian education and business sectors (Zakaria, Watson & Edwards, 2010; Hassan, Shiratuddin, Hashim, Salam & Sajat, 2012). However to the researcher’s knowledge, there is little research that examines the adoption of Web 2.0 among retail-chain businesses.

Malaysian retailers achieved RM83.2 billion sales turnover in year 2011. Retail sales growths are also anticipated to be more 8.1% growth (News Straits Times Business Times, 2012). In the Malaysia Economic Transformation Programme (ETP), retail sector has been identified as one of the National Key Economic Areas (NKEAs) to transform Malaysia into a high-income economy by 2020. Adoption of the Web 2.0 is considered to be a means to enable retail businesses to improved their internal efficiency, closer customer and supplier relationships.

The development of electronic commerce and expansion of Internet, the customers have more choices and this resulted fierce competition among brick and mortar’s retailers (Turban, King, Lee & Viehland, 2012). In order to reach more customers, retail-chain businesses have opened more outlets at various locations. By increasing the number of outlets retail-chain businesses experienced pressures to meet certain budgetary goals as well as to
pursue businesses’ mission. Moreover, with the multiple locations of the business, the organization had found handling the employees extremely challenging. The collaboration between employees working together to achieve the organization’s the targeted goal is critical for retail-chain businesses. Retail-chain businesses with the multiple stores located throughout the country faced challenges on supply-chain activities in terms of streamline business process, reduce transactional and administrative cost in order to fulfill the customer’s needs at the right time and right place (Shehzad, 2009). Hence, adopting Web 2.0 is crucial to retail-chain businesses where networking via Web 2.0 provides leverage and could revolutionize various business activities (Meghan, 2013). For instance, the Web 2.0 is being used for marketing, advertising, dissemination and gathering of information, helping managers and chief executives to enhance productivity and efficiency, corporate image, and knowledge management (White & Pauxtis, 2010). There are many studies on the trends and impact of social media on business, most of these empirical studies are conducted outside Malaysia. Until recently, such studies in Malaysia were still very limited. Therefore, this research tries to fill the gaps on Web 2.0 adoption research by attempting to identify the factors which predict the rate of adoption of the Web 2.0 in Malaysian retail-chain businesses.

Objectives of the study

This research study has two objectives:

1. To identify the Web 2.0 technologies currently adopted by Malaysian retail-chain businesses.
2. To identify the factors that are likely to influence the Malaysian retail-chain businesses adoption of Web 2.0 technologies.

Theoretical perspective

In the past few decades, IS acceptance issues have been extensively studied. This study employs organizational behavior theories such as Innovation Diffusion Theory Model (IDT), Technology-Organizational-Environmental (TOE) framework, and Institutional Theory. These theories are recognized in the IS research domain because they enable researchers to gain a useful insight into the reaction of organization toward computer technology and factors affecting their reactions.

IDT model is a theory that seeks to explain how, why, and at what rate new ideas and technology spread through cultures in organization. IDT sees innovations as being communicated through certain channels over time and within a particular social system (Rogers, 1995). IT innovation adoption studies analyze the adoption by large aggregates such as companies, business units, agencies or departments (Fichman, 1992). IDT is used by academics and practitioners which primarily focus on the impact of innovation characteristics on potential adopters (e.g., organizations and individuals). In IDT components namely individual characteristics, internal and external characteristics of the organization are perceived to influence organizational adoption of technological innovations. Technology-Organization-Environment (TOE) framework developed by Tornatzky and Fleisher (1990) has been used as a comprehensive framework to examine IS adoption. The TOE framework enables IDT to explain organizational innovation diffusion (Hsu et al., 2006). To study adoption of general technological innovations, Tornatzky and Fleischer (1990) have developed the TOE framework, which defines a “context for change”. The process by which an organization adopts and implements technological innovation is influenced by the technological context, the organizational context, and the environmental context.

Institutional theory is one of the theories used to study organization’s innovation adoption level. Institutional theory emphasizes that institutional environments are crucial in shaping organizational structure and actions (Scott & Christensen, 1995; Scott, 2003). Based on the prior studies, researchers such as Gibbs and Kraemer (2004), Khalifa and Davison (2006) and Son and Benbasat (2007) have identified that organizations adopt IS innovations are due to environmental forces. They found that IS is not used by organization to improve operation efficiency and effectiveness, but also to gain legitimacy in their environments, in order to be accepted. These studies have provided new dimensions to identify others factors that influence an organization’s adoption of Web 2.0 technology. Institutional theory is concerned with external environmental pressures that lead
organizations that reside in an organization environment that increasingly resemble each other, resulting in institutional isomorphism. According to DiMaggio and Powell (1983), the net effect of institutional pressures is to increase the homogeneity of organizational structures in an institutional environment. Organizations will adopt similar process, structures and strategies as a result of three types of external pressures: mimetic, coercive, and normative (DiMaggio & Powell, 1983).

In this study, IDT was used as a theoretical backbone to illustrate the theoretical relationships among the determinants. With the institutional theory added to the environmental context of the TOE framework external pressures, which include pressure from competitors and pressure exerted by trading partners and customers. By combining more than one theoretical model enabled to achieve a better understanding of the IT adoption phenomenon (Oliveira & Martins, 2009).

Hypotheses

Eleven hypotheses are developed based on the review of the literature on various studies done in other countries in the world. The model identifies eleven factors independent variables influencing Web 2.0 adoption.

Increase Market Share

Increasing market share is one of the most important objectives of business. Market share is the percentage of a market (defined in terms of either units or revenue) accounted for by a specific entity. Businesses spend enormous amounts of money to attract customers to their business and lock in sales (Novak, Hoffman & Yung, 2000). Web 2.0 technologies such as blogs and RSS are able to provide new ways of contacting and engaging potential customers. For instance, Blogs brings together people with common interest, which is an effective way of promoting products to potential customer base. The approach is based on proactively engaging the online sources of customer influence (blogs, podcasts, online forums, etc.) as customer influence tools (Constantinides, 2008). The objective is to attract the attention of leading blogs or users’ forums so that they review, discuss, comment or even recommend using the firm’s products. Understanding what customer value, especially when they are in the Web 2.0 environment is especially important to marketers in order to identify market experiences, new market needs, and hear early warnings about products problems indicating the need to improve, modify or drop products. Compared with traditional market research such as surveys and focus group, Web 2.0 can provide precious and high quality information at a fraction of the time and cost. In other words, Web 2.0 creates holds enormous potential for businesses to get closer to customers and by doing so, facilitate increased revenue, cost reduction and efficiencies. Hence, positive relationships between perceived benefits in term of increase market share by adopting Web 2.0 is proposed:

\[ H_1: \text{Increased in market share is positively related to the adoption of Web 2.0} \]

Inter-organizational Collaboration

Mattessich and Monsey (1992) defined inter-organizational collaboration as a mutually beneficial and well-defined relationship entered into by two or more organizations to achieve common goals. Supply chain collaboration reduces search costs, lower inventory level, and tightens links to customers (Handfield & Nicholas, 2002). Vereecke and Muylle (2006) empirically proved that higher level of collaboration among business organizations showed improved performance. Web 2.0 has the potential to enable peer-to-peer interactions and foster collaboration (Ganesh & Srinivash, 2007). The collaboration will work for business organizations and their suppliers with a large project team spread around the world. In addition, synchronous and asynchronous communication from Web 2.0 can also reduce some of the problems associated with having collaborators in multiple time zones. Web 2.0 enable collaboration with suppliers in organization’s operations mainly product development and sales (Dearstyne, 2007; Cook, 2008). This collaborative product customization could be end-user driven or community-driven based on the number of users interacting with the businesses. In other words, Web 2.0 can help retail-chain businesses actively contribute to business’s operation by using collaborative features of Web 2.0. Therefore, positive relationships between inter-organizational collaboration and Web 2.0 adoption are proposed.
H2: Inter-organizational collaboration is positively related to the adoption of Web 2.0

Knowledge Sharing

Knowledge refers to a mixture of values within social context (Lin & Lee, 2004), the construction of new experiences based on past experience elaboration in memory (Waitt & Head, 2002). With regard to knowledge sharing, Web 2.0 makes it easier to uncover and connect with relevant expertise, either in people or embedded in documents and processes. An essential aspect of Web 2.0 is its focus on the transfer of information in multiple formats (text, pictorial, video, and audio) establishing a web of connections to sub-applications and providing an instantaneous feedback loop to users (Murphy, 2010). Web 2.0 can be used for four processes of knowledge management namely creation of knowledge, transfer of knowledge, integration of knowledge, and leveraging knowledge (Tanriverdi, 2005). Hence, the hypothesis is therefore formulated as follows:

H3: Increase in knowledge sharing is positively related to the adoption of Web 2.0

Security

Security is known as one of the determinants that affect Web 2.0 adoption by business organizations (Lee, 2008; McLean, 2007). Web 2.0’s security threats can include malicious code in RSS and information leakage through inappropriate blogging or use of collaboration tools. Web 2.0 enables the “pull” model of malware distribution that targets Web 2.0 browser-based clients and ready to be executed without the end user’s knowledge. In other words, organizational concerns about the Web 2.0 as an insecure platform will affect its use for business. Therefore, security is an important factor that will influence the adoption of Web 2.0.

H4: Greater security concern of organizations to Web 2.0 is negatively related to the adoption of Web 2.0

Technology Costs

One of the important factors that affect new technology adoption is costs. In this study, technology costs can be defined as the category of costs associated with the purchase of hardware, software, training, and maintenance of technology assets. In the context of Web 2.0, the costs are likely to play an important role in the adoption decision. Web 2.0 requires distributed applications running in large data centres to support millions of users. The costs of a data centre including the hardware infrastructure such as memcached servers, web servers, database servers, racks and switches, power and cooling infrastructure, and operating expenditure. If the perceived costs of Web 2.0 are more than the perceived benefits occurred by Web 2.0, organizations are unlikely to adopt the technology. Hence,

H5: High cost of technology is negatively related to the adoption of Web 2.0

Complexity

Complexity can be defined as the degree to which an innovation is perceived as relatively difficult to understand and use (Rogers, 1983). Complexity acts as a drawback for IT adoption since implementing a complex new technology requires learning both at the individual and organizational levels. Based on Andriole (2010) study on business impact of Web 2.0, there is a relationship between technology adoption and complexity of Web 2.0. The study found that most business organizations adopt blogs, wikis compared with social networks and RSS filters due to the tools complexity issue. Corrocher (2011) had showed that video sharing services has a positive effect of the complexity on the intensity of usage while social networking has a negative effect. Therefore, retail-chain businesses, complexity of Web 2.0 are an important issue to consider adopting Web 2.0 technology. Hence,

H6: Complexity of Web 2.0 has a significant negative relationship with Web 2.0 technology adoption.

Top management support
The IS literature has the notion that top management support in IS implementation leads to more successful computer use in business organizations. Jeyaraj et al. (2006) highlighted that top management support is one of the three best predictors for IT innovation adoption by organizations. Prior Web 2.0 adoption studies found that an organization’s decision to adopt the technology is influenced by top management support (Daniel et al., 2010). Top management support and commitment towards Web 2.0 adoption is one of the key cornerstone of higher level of IS success and satisfaction. The following hypothesis is therefore proposed:

**H7: Top management support has a significant positive relationship with Web 2.0 technology adoption.**

**Organization readiness**

Organizational readiness refers to the availability of financial and technological resource of the organization (Iacovou et al., 1995). In relation with Web 2.0, FAST (2007) found lack of resources in term of number of IT supports staff hamper the implementation of Web 2.0. As implementation of IT system and its components require long term investment (Nguyen, 2009), only organizations having adequate financial resources would regard adoption of IT as a feasible project to undertake (Thong & Yap, 1995). With regard to this view, organizations that have invested sufficient financial resources, the probability of successful IT adoption is higher. Hence,

**H8: Higher organizational readiness has a significant positive relationship with Web 2.0 technology adoption.**

**Mimetic Pressure**

In institutional theory, mimetic pressures occur when organizations voluntarily replicate the behavior and activities of other organizations (DiMaggio & Powell, 1983). Prior studies on IT adoption using institutional theory found mimetic pressure from competitors have a positive influence on an organization (Teo et al., 2003; Flanagan, 2000). For instance, Flanagan (2000) found that mimetic social pressure operating at inter-organizational level strongly influenced the decision of organizations to adopt IT such as Internet, despite the lack of any proven or anticipated benefit from the innovation itself. Mackenzie (2011) also found that mimetic pressures from competitors have a positive influence on an organization’s intent to adopt Web 2.0. The study found that organizations quest to mirror the social networking tools adoption practices of competitors perceived to be leading in their use and application. In addition, the organization being pressured to adopt social networking tools for business purpose are more likely to adopt the tools.

The following hypothesis regarding the effects of mimetic pressures:

**H9: Mimetic pressure originated from the competitors is positively related to the Web 2.0 technology adoption.**

**Coercive Pressure**

Coercive pressure occurred when organizations adopt behavior and activities as a response to external pressures applied by other organizations which they rely (DiMaggio & Powell, 1983). Liao (1996) identified that coercive pressure is one of the most relevant explanations for IT investment decision-making processes. Web 2.0 has spread widely among consumers over the past few years. Social-networking Web sites, such as Facebook, have more than 500 million monthly active users in 2010 and increase to 1.11 billion monthly active users. As the popularity of Web 2.0 users grown, companies have realized the intense consumer engagement and creativity surrounding these technologies. Therefore, many business organizations are keen to harness the benefits of Web 2.0. A study from Cisco on 850 organizations’ that have adopted Web 2.0, customers’ demand for innovative products and services encouraged 30% of the surveyed companies to invest in video and Web 2.0 technologies (Gardner, 2008). Powerful customers demand or compel organization to adopt Web 2.0 technology. Therefore, the following hypothesis is formulated:

**H10: Coercive pressure from the customers is positively related to Web 2.0 technology adoption.**
Normative Pressure

Normative pressure occurs when organizations aligned their behavior and practices with external professional norms. Normative pressure also known as the “fashion perspective” as it occurs where organizations are influenced by key industry bodies, professional groups, or associations outside of the group (Abrahamson, 1991). Mackenzie (2011) suggests the normative pressure may influence organizational adoption of Web 2.0. Furthermore, consulting groups including McKinsey, McAfee, Gartner, and Forrester have suggested that adopting Web 2.0 can be beneficial to business and forecast more organizations will adopt Web 2.0. These professional bodies included normative pressure on organizations to adopt Web 2.0. The positive discourse from professional bodies about an innovation, organizations are more likely to adopt the innovation because they learn the norm and values regarding the innovation adoption (Spell & Blum, 2005). Therefore, the following hypothesis is formulated:

H11: Normative pressure is positively related to the adoption of Web 2.0.

Methods

Participants and procedure

A questionnaire survey was conducted in 2012. The sampling frame was drawn from Malaysian Retail-Chain Association (MRCA) and Malaysia Retailer Association (MRA) listed members in Malaysia. The MRCA and MRA act as the excellent avenue for retail businesses to engage networking and exchanging ideas, share resources and to promote the healthy growth of the retail industry in Malaysia and abroad. MRCA is one of the largest and more influential retail associations in Malaysia. The association is acknowledge as one of the government’s key driving force in shaping Malaysia’s retail industry. MRCA and MRA have more than 300 established members from diverse retail sectors and over 12,000 stores throughout Malaysia. Majority of the member of MRCA and MRA businesses’ headquarters are located at the Klang Valley area in Malaysia. Many of the MRCA and MRA members are market leaders that have gained a strong foothold in their respective industries. In recent years, the specialist retail-chain stores have experienced rapid growth. The specialist retail-chain stores are a type of retail outlets that share a brand and central management. They usually have standardized business models and practices (Hayward, White, Fleek & MacIntyre, 1922). With a vast network of retail-chain outlets, these stores provide more than 15,000 job opportunities to Malaysians across the country. This number is expected to continue to expand (Tay, 2012). Retail-chain stores are starting to make a significant impact on the retail sector in Malaysia. The population under study consists of 423 managers representing the retail-chain industries in Malaysia. Out of 423 questionnaires distributed, 185 were collected and returned to the researcher. This consequently provided an effective overall response rate of 43.74 per cent.

The database comprise various sectors including food and beverage, Education, departmental store, hypermarket, consumer electronics, pharmaceuticals, convenience retail store, clothing, beauty and health, home furnishing, jewellery, lighting store, and services organizations. Questionnaire was targeted either IT manager, IT executive, or general manager from each retail-chain company was the respondents for this study. Depending on the institution, alternative titles are used to represent this position. They were selected to participate in this study because they were responsible for the IT and computer systems in their respective businesses. General managers were also participate in this study because they were involved in with driving the analysis and re-engineering of existing business processes, identifying and developing the capability to use new tools, reshaping the enterprise’s physical infrastructure and network access, and with identifying and exploiting the enterprise’s knowledge resources.

Dependent and independent variables

The dependent variable is the adoption of Web 2.0 among retail-chain businesses in Klang Valley area in Malaysia. In this study, the adoption of Web 2.0 is defined as using Web 2.0 tools such as instant messaging, Web 2.0 media, wikis, RSS, blogs, social networking, forum and video/ voice media to support inter and intra business activities. The main purpose is to identify the factors that lead to the adoption of the Web 2.0.
However, it is not possible to study or research on all the factors that cause the adoption of Web 2.0. As a result, selected factors that are more suitable to the adoption of the Web 2.0 are chosen in the retail-chain business context. These selected factors are market share, inter-organizational collaboration, knowledge sharing, security, costs, complexity, top management support, organizational readiness, mimetic pressure, coercive pressure and normative pressure as the independent variables for this study.

Data analysis

The data obtained was coded and analyzed using a statistical package software and spreadsheet software. Data analysis methods such as descriptive statistics, factor analysis, reliability, and multiple regression analysis were used for this study. Description statistic was used to determine frequency distribution for demographic profile of participants and business organizations. The second type of analysis conducted included factor analysis with VARIMAX rotation was used to identify the underlying dimensions of perceived benefits’ variables, technology’s variables, organization’s variables and environment’s variables. This was followed by Cronbach’s alpha was computed to test the reliability of variables retained in each factor. Coefficients values of greater than or equal to 0.5 were considered acceptable and a good indication of construct reliability. In this study, multiple linear regression analysis was also conducted to determine the influence of the independent variables on the dependent variable that is the adoption of Web 2.0 technology.

Measurement of variables

Dependent variable

The purpose of this study is to investigate the factors that would likely to influence the level of Web 2.0 adoption. The adoption of Web 2.0 is defined as using Web 2.0 tools to support inter and intra business activities. Dependent variable for this study was measured and modified the scale developed based on the study by Carter and Belanger (2005); Elliot, Alex and Benn (2007) and Ifinedo (2008). Respondents were asked to indicate, on five-point Likert scales (1=Strongly Disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly Agree), their level of agree or disagree with the following statements: (1) Adopting Web 2.0 in the organization is a good choice; and (2) Using Web 2.0 in the organization would be pleasant. By using the above measurement of Web 2.0 adoption, this study will include only active users of Web 2.0 as adopters and exclude the retail-chain business that have not adopted the Web 2.0.

Independent variables

Some of the indicators were developed by the researcher, while some were adopted or modified from previous scholars. The questionnaire comprised four sections. The first section presented respondents with a list of 14 statements on market share, inter-organizational collaboration, and knowledge sharing. Respondents were required to rate the agreement and disagreement on Likert scale (1=Strongly Disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly Agree). The second segment of the questionnaire was made up a list of 10 statements on security, complexity and technology cost. The respondents were asked to rate the statements on 5-points scale. On question therefore contains five possible responses that address how they were agreeing with the statement (1=Strongly Disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly Agree).

The organizational factors was developed based on the basis of previous studies (Teo et al., 1997; Grover, 1993; Ifinedo, 2008), measuring on a five-Likert scale was used in the empirical testing (1=Strongly Disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly Agree). Respondents were asked to assess each statement in terms of their agreement.

A list of 14 statements made up on the environmental factors in the final selection of the questionnaire. The statements were adopted from the previous studies (Teo et al., 2003; Son and Benbasat, 2007; Khalifa and
Davison, 2006) and minor changes were made to make the items relevant to Web 2.0. Rating was likewise carried out on a five-Likert scale (1=Strongly Disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly Agree).

Validity

The pre-test was carried out on five academicians with postgraduate degree of IT and five practitioners in the industry to test the validity of the questions in term of sentencing, phrasing and conception. A few questions were rephrased for clarity based on their recommendations. As a result, a panel of experts were verified the instrument to ensure the content validity of the questionnaires. Then, a pilot study was conducted with 10 retail-chain businesses to check for the validity and reliability of the instrument as well as assess its comprehension and to estimate its average completion time before it could be sent out on a large scale to the targeted respondents.

Reliability and validity of data

Cronbach’s alpha was used to measure internal consistency between the items in the measures. Based on the rule of thumb from Hair et al. (2010), stated alpha’s coefficient value of 0.7 and higher is adequate and signifies high reliability. The results showed that the alpha coefficients for each dimension concluded as reliable. The results suggested that the instrument were reliable and no further changes to the items were required (Table I).

Table I

<table>
<thead>
<tr>
<th>Constructs’</th>
<th>Number of Items</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Market share</td>
<td>6</td>
<td>0.982</td>
</tr>
<tr>
<td>Knowledge sharing</td>
<td>4</td>
<td>0.899</td>
</tr>
<tr>
<td>Inter-organizational collaboration</td>
<td>4</td>
<td>0.967</td>
</tr>
<tr>
<td>Security</td>
<td>3</td>
<td>0.867</td>
</tr>
<tr>
<td>Complexity</td>
<td>3</td>
<td>0.933</td>
</tr>
<tr>
<td>Technology costs</td>
<td>4</td>
<td>0.799</td>
</tr>
<tr>
<td>Top management support</td>
<td>4</td>
<td>0.954</td>
</tr>
<tr>
<td>Organizational readiness</td>
<td>4</td>
<td>0.977</td>
</tr>
<tr>
<td>Mimetic pressure</td>
<td>4</td>
<td>0.928</td>
</tr>
<tr>
<td>Coercive pressure</td>
<td>3</td>
<td>0.968</td>
</tr>
<tr>
<td>Normative pressure</td>
<td>7</td>
<td>0.979</td>
</tr>
<tr>
<td>Web 2.0 Adoption</td>
<td>2</td>
<td>0.966</td>
</tr>
</tbody>
</table>

Sample characteristics

Table II shows the Malaysian retail-chain companies were represented in the survey. Four sectors have accounted for 53.5% of the respondents. The largest proportion recorded is 25.4% by Food and Beverage sector, 11.9% by Services sector, 8.6% by Clothing, 7.6% by Education, 6.3% by Beauty and Health, 5.2% by Consumer Electronics, while 34.8% of companies were distributed between the other seven sectors of retail-chain industry.

On the sample companies, there are 40% of the companies surveyed were companies with 50-200 employees, followed by about 22.7% of companies with 201-400 employees, and only 5.4% of companies have less than 50 employees. As frequency analysis of the companies by the number of outlet, we could remark that the majority of the companies have 11-30 outlets (33.5%), followed by less than 10 outlets (25.9%) and 31-50 outlets (17.8%). Only 2.7% of participating companies have of 81-100 outlets.

Table II

Profile of Respondents’ and their Company
### Demographic Characteristics

<table>
<thead>
<tr>
<th>Sector</th>
<th>Frequency</th>
<th>Percent (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Food and Beverage</td>
<td>47</td>
<td>25.4</td>
</tr>
<tr>
<td>Education</td>
<td>14</td>
<td>7.6</td>
</tr>
<tr>
<td>Departmental Store</td>
<td>7</td>
<td>3.8</td>
</tr>
<tr>
<td>Hypermarket</td>
<td>5</td>
<td>2.7</td>
</tr>
<tr>
<td>Consumer Electronics</td>
<td>10</td>
<td>5.2</td>
</tr>
<tr>
<td>Pharmaceuticals</td>
<td>5</td>
<td>2.7</td>
</tr>
<tr>
<td>Convenience Retail Store</td>
<td>8</td>
<td>4.3</td>
</tr>
<tr>
<td>Clothing</td>
<td>16</td>
<td>8.6</td>
</tr>
<tr>
<td>Beauty and health</td>
<td>12</td>
<td>6.5</td>
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<tr>
<td>Home furnishing</td>
<td>4</td>
<td>2.3</td>
</tr>
<tr>
<td>Jewellery</td>
<td>6</td>
<td>3.2</td>
</tr>
<tr>
<td>Lighting Store</td>
<td>2</td>
<td>1.2</td>
</tr>
<tr>
<td>Services</td>
<td>22</td>
<td>11.9</td>
</tr>
<tr>
<td>Others</td>
<td>27</td>
<td>14.6</td>
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<table>
<thead>
<tr>
<th>Number of Employees</th>
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<tbody>
<tr>
<td>&lt;50</td>
<td>10</td>
<td>5.4</td>
</tr>
<tr>
<td>50-200</td>
<td>73</td>
<td>39.5</td>
</tr>
<tr>
<td>201-400</td>
<td>42</td>
<td>22.7</td>
</tr>
<tr>
<td>401-600</td>
<td>30</td>
<td>16.2</td>
</tr>
<tr>
<td>&gt;600</td>
<td>30</td>
<td>16.2</td>
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<tbody>
<tr>
<td>&lt;10</td>
<td>48</td>
<td>25.9</td>
</tr>
<tr>
<td>11-30</td>
<td>62</td>
<td>33.5</td>
</tr>
<tr>
<td>31-50</td>
<td>33</td>
<td>17.8</td>
</tr>
<tr>
<td>51-80</td>
<td>22</td>
<td>11.9</td>
</tr>
<tr>
<td>81-100</td>
<td>5</td>
<td>2.7</td>
</tr>
<tr>
<td>&gt;100</td>
<td>15</td>
<td>8.2</td>
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<table>
<thead>
<tr>
<th>Gender</th>
<th></th>
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</thead>
<tbody>
<tr>
<td>Male</td>
<td>147</td>
<td>79.5</td>
</tr>
<tr>
<td>Female</td>
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<td>20.5</td>
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<table>
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<th>Age</th>
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<td>20-29</td>
<td>17</td>
<td>9.2</td>
</tr>
<tr>
<td>30-39</td>
<td>77</td>
<td>41.6</td>
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<tr>
<td>40-49</td>
<td>80</td>
<td>43.3</td>
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<tr>
<td>Above 50</td>
<td>11</td>
<td>5.9</td>
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<th>Education Attained</th>
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<td>7.6</td>
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<tr>
<td>Diploma</td>
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<td>14.6</td>
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<tr>
<td>Degree</td>
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<td>62.1</td>
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<tr>
<td>Postgraduate degree</td>
<td>29</td>
<td>15.7</td>
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</table>

Approximately three-quarter (79.5%) of the respondents were male, and 20.5% were female. This result inters male dominance in IT sector. In term of respondents’ education level, more than 60% have obtained a bachelor’s degree. This is followed by the postgraduate degree at 15.7%. Only 7.6% respondents reported they obtained a school certificate. According to Abdulai, (2001) companies in Malaysia prefer to employ well-educated managers as they can acquire critical thinking skills.

### Result and discussion

In order to explore whether the independent variables of 11 factors had statistically significant impacts on the dependent variable, Web 2.0 adoption, multiple linear regression analysis was conducted. 11 factors derived from the factor analysis were used as the input variables in the analysis. The results of the regression analysis are presented in Table III.

Table III

*Regression Model of Predicting Web 2.0 Technology Adoption Behaviour*
Factors | Std.β | t | p | VIF
--- | --- | --- | --- | ---
**Perceived Benefits**
Increase of Market Share | 0.167 | 3.763 | 0.000 | 1.847
Inter-organizational Collaboration | 0.020 | 0.601 | 0.549 | 1.560
Knowledge Sharing | 0.238 | 5.166 | 0.000 | 2.020
**Technology**
Security | 0.039 | 0.903 | 0.354 | 1.704
Costs | 0.117 | 3.470 | 0.001 | 1.109
Complexity | 0.182 | 3.910 | 0.000 | 1.779
**Organization**
Top Management Support | 0.159 | 4.920 | 0.000 | 1.222
Organization Readiness | -0.092 | -1.803 | 0.073 | 2.196
**Environment**
Mimetic Pressure | 0.150 | 3.027 | 0.003 | 2.184
Coercive Pressure | 0.308 | 4.877 | 0.000 | 3.252
Normative Pressure | 0.100 | 2.054 | 0.041 | 1.470
Constant | -6.301 | | | |

$R^2$=0.822; Adjusted $R^2$=0.810; $F$=72.51; $p<0.05$

### Testing of hypotheses

The result of testing H1 indicates that, there is significant relationship between increase of market share and the adoption of Web 2.0 in retail-chain business industry. This suggests that Web 2.0 adoption has significant influences market shares ($H1$) and knowledge sharing ($H3$) at the 0.000 level of significance. These findings supported past literature on Web 2.0 adoption (e.g. Constantides, 2008; Novak et al., 2000; Murphy, 2010). With the Web 2.0, retail-chain business had the opportunity to reach to millions of customers, sent out messages, get fast feedback, and experiment with offers at relatively low costs reach market beyond what could be achieve in traditional marketing channels. On the other hand, inter-organizational collaboration was no statistical significant with Web 2.0 adoption. One possible explanation for this finding is that retail-chain businesses adopt Web 2.0 because of pressure by their trading partners but not on inter-organizational collaboration factors. For instance, business organizations adopted Web 2.0 simply because their customers, suppliers and competitors have already done so.

As shown in Table III, technology’s costs ($H5$) and complexity ($H6$) have significant influences on Web 2.0 adoption at 0.001 level of significance. These findings are consistent with findings by prior study on IT innovation and Web 2.0 adoption (e.g. Thong, 1999; Tornatzky and Klein, 1982; Li, 2008; Andriole, 2010). Technology’s complexity was found to have the strongest influence on Web 2.0 adoption. This shows that Web 2.0 users are very concerned about user friendliness on the technology. The retail-chain users expect the application to be understood easily and handled without much training required. Web 2.0 technologies such as social networking site, forum and blogs are easier to use. Next, the retail-chains are concerned with technology’s costs itself. As any new technology requires installation of new hardware and software, training and maintenance, hence, organization must have sufficient financial resources when adopting new technology. These findings support prior studies on IT and Web 2.0 adoption. This infers that technology costs have influence on retail-chain businesses adoption of IT and Web 2.0 (Ghobakhloo et al., 2011; Love et al., 2005).

On the other hand, security has no significant relationship with Web 2.0 adoption. This finding is inconsistent with prior studies, which suggested that security concerns are a barrier to organizational adoption of the Web 2.0 (e.g., Kisselburgh et al., 2010; Warren, 2009). One possible explanation for this conflicting finding is that the benefits of convenience, cost, and revenue generated from Web 2.0 exceeded security risk. Therefore, future studies should examine the effect of security concern in times of economic turmoil. Another possible explanation for the conflicting finding is that retail-chain businesses adopt Web 2.0 simply because their competitors and customers are adopting Web 2.0, without focusing too much attention on Web 2.0 security risks.
The support of H7 (Mimetic pressure), H8 (Coercive pressure) and H9 (Normative pressure) are in line with the results found by past scholars (Teo et al., 2003; Gardner, 2008; Khalifa & Davison, 2007; Young, 2009; Mackenzie, 2011; Young, 2009). Coercive pressure (0.31) was found to have the stronger influence on Web 2.0 adoption. Retail-chain businesses adopt Web 2.0 simply because of pressure being exerted by their customers to adopt Web 2.0. Web 2.0 has become popular among consumers. It is ideally suited for customer collaboration and offer opportunities for reach, access and intimacy that simply not available with other channels. To successfully exploit the potential of Web 2.0 toward consumers, businesses need to create strategies that deliver tangible value in return for customers’ time and attention.

Mimetic pressures from competitors were found to have found to have positive impacts on the organizational adoption of Web 2.0. Businesses adopt Web 2.0 as what competitors did in order to achieve organizational legitimacy. They perceived that competitors that have adopted Web 2.0 have benefited or succeeded. It is important for business organization to align Web 2.0 with business strategy in order to gain and maintain their competitive edge.

In addition to mimetic pressures, normative pressures were found to have positive and significant impacts on the organizational adoption of Web 2.0. Retail-chain businesses perceived Web 2.0 adoption as norm, appropriate and valuable as their partners. The norms and values learned from business and professional associations play significant roles in influencing retail-chain to adopt Web 2.0. To encourage the more Malaysian retail-chain business to engage in Web 2.0, businesses and Malaysian Government should look into the issues influencing the Web 2.0 adoption, and creating awareness on the available of Web 2.0 technology.

**Conclusion and recommendation**

The finding of the research may have implication for Malaysian retail-chain businesses and technology vendors. Malaysian retail-chain businesses may need to pay attention to environment factors when adopting Web 2.0 to avoid being left out of their industry. However, Malaysian retail-chain businesses’ top management need to ensure their support towards Web 2.0 by providing training to ensure the employees able to use the technology. The findings also suggested that Malaysian retail-chain businesses were frequently discouraged due to the financial constraints and costs when adopting Web 2.0. Adequate budget or strategic planning by retail-chain businesses should be designed to undertaken to initiate financial supports along with motivation in adopting Web 2.0.

For technology vendors, as the retail-chain business hesitated to adopt Web 2.0 when recognizing the costs incurred on acquiring hardware, software, maintenance and training. Similarly, they were highly motivated by the increase market share, improved employees performance and customers’ relationship, and knowledge sharing culture in the organization. The findings of this part of the study had significant implications for technology vendors as they attempt to identify potential Web 2.0 technologies adopters. To discover factors affecting retail-chain businesses’ decision to adopt Web 2.0 are crucial for expanding the adoption of Web 2.0 technologies. The findings of the study will help technology vendors to develop better marketing strategies and to gain competitive advantage.

Although this study has investigated factors such as market share, inter-organizational collaboration, knowledge sharing, security, technology costs, technology complexity, top management support, organization readiness, mimetic pressure, coercive pressure, and normative pressure, there may be may be other factors, which may influence decision to adopt Web 2.0 by the retail-chain businesses. Specifically, the announcement of the economic inflation was high in the Malaysia may have impact on the businesses’ decision to adopt Web 2.0. However, these issues were not considered in this study.

In addition, quantitative analysis could not provide a more in-depth examination of attitudinal changes and behavioural patterns of retail-chain businesses’ Web 2.0 adoption, usage, and implementation behaviour. On the other hand, qualitative inquiry provides initial understanding and sound pedestal for further decision making, based on the quality, meaning, context, and image of reality in what people actually do. Qualitative research could be an effective methodology in the situation. A series of interviews and focus group discussions with the
MRCA and MRA, for example, would be a method to obtain critical information for building well-structured IT environments for the retail-chain businesses.

References


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