An Empirical Study of the Influence of Different Organisation Cultures on E-Commerce Adoption Maturity

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An Empirical Study of the Influence of Different Organisation Cultures on E-Commerce Adoption Maturity

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Abstract
Drawing on Cameron and Quinn’s organisational cultures typology that defines four types of organisational culture (i.e., clan, adhocracy, market, and hierarchy), and Daniel et al.’s four-stage model of e-commerce adoption, this paper empirically examines the influence of different organisational cultures on e-commerce adoption maturity in small and medium-sized enterprises (SMEs) in Sri Lanka. The result indicates a positive correlation between adhocracy culture and e-commerce adoption. However, those firms with hierarchy cultural characteristics indicate a negative correlation in relation to e-commerce adoption. The organisational culture differences explain these issues.

Keywords
Organisational culture; E-Commerce adoption maturity; Small and Medium-Sized Enterprises (SMEs).

INTRODUCTION
Sri Lanka is a developing country situated in a South Asia region. Like other developing countries it possess less ICT infrastructure across the country. But developing countries have the potential to achieve rapid and sustainable economic development by building ICT enabled Small and Medium-sized Enterprise (SME) sector (UNDP, 2004). SMEs are extremely important to the economy of any country whether developed or developing. They play a critical role in economic development, and Sri Lanka is no exception. The emergence of the Internet has allowed SMEs to implement e-commerce initiatives and compete effectively in both domestic and international markets. According to Gamage (2003), Sri Lankan SME is defined under three categories which are micro enterprises with fewer than 10 employees, small enterprises in between 10 and 49 employees, and medium sized enterprises having greater than 50 and less than 250 employees. E-commerce adoption refers to “an establishment of a company website to share information, maintain relationships and conduct transactions using electronic networks” (Zwass, 1996). Implicit to this definition is that SMEs can widely benefit from e-commerce because time and space barriers can be removed by an Internet-based platform. In general, SMEs may gain fundamental benefits from e-commerce in terms of reduction of costs for office establishment and operating costs (e.g., personnel and equipment). That is, the low operating costs and low technology requirements of e-commerce enable SMEs to offer reasonable prices and an effective service to not only the domestic but also the global market (Phillips, 1998). In particular, for developing countries, e-commerce adoption can contribute to economic growth, improve trade efficiency and even facilitate the integration of the countries into the global economy (Annan, 2002).

There are a number of studies to date investigating e-commerce adoption factors in SMEs (e.g., Grandon & Pearson, 2004; Chen & McQueen, 2008; Kapurubandara & Lawson, 2008; Scupola, 2009); however, only a few studies focus on the effect of organisational culture on e-commerce adoption (Waidyaratne, & Dassanayake, 2006; Nickles et al., 2008). Several studies have shown that organisation culture is an influential factor in determining e-commerce adoption (Kumarasinghe & Hoshino,2003; Grandon & Pearson, 2004). In an empirical study of SMEs in the United States, Grandon and Pearson (2004) found that the compatibility between an organisation’s culture and e-commerce exerts a strong influence on e-commerce adoption in SMEs. Organisational cultures that do not support innovation and the use of new technologies have been identified as a barrier to B2B e-commerce adoption (Hunaiti et al., 2009). Teo and Ranganathan (2004) indicated that organisation culture presents a potentially critical barrier between firms collaborating in B2B e-commerce
activities. Nonetheless, no research has been found that directly examines how different types of organisational cultures would have an impact on the e-commerce adoption maturity level especially in a developing country such as Sri Lanka. The level of e-commerce adoption is different from organisation to organisation and dominant organisational culture type is also different. So, it is important to know that which organisational culture types enables organisations to adopt e-commerce in higher levels. Therefore the primary objective of this study is to examine the influence of different organisational cultures on e-commerce adoption maturity in SMEs in Sri Lanka. Specifically, we adopt Cameron and Quinn’s (2006) organisational cultures typology that defines four types of organisational culture (namely, clan, adhocracy, market, and hierarchy) and Daniel et al.’s (2002) four-stage model of e-commerce adoption to empirically study the effect of different organisational cultures on e-commerce adoption maturity in SMEs.

This paper is structured as follows. In the next section, we review some of the key literature on organisation culture and e-commerce adoption, before presenting the research framework. Following a discussion of our research methodology, this study empirically examines the impact of different organisation cultures on e-commerce adoption maturity. From this, we discuss a number of theoretical and practical implications. The final section provides a conclusion and research limitations, and indicates future research for this topic.

**LITERATURE REVIEW**

There is no universally accepted definition of organisational culture (Leidner & Kayworth, 2006). Kilman & Saxton (1985) stated that organisational culture is the “shared philosophy, ideology, values, assumption, beliefs, hope, behaviour and norms that bind the organisation together”. George & Jones (2002) defined it as an “informal design of values, norms that control the way people and groups within the organisation interact through each other and with parties outside the organisation”. Several information systems (ISs) researchers linked organisational culture to the success of IS adoption (whereby e-commerce is also considered as a type of Information System implementation) (Balthazard & Cooke, 2004; Harper & Utley, 2001; Kanungo, 1998; Klein & Sorra, 1996; Ruppel & Harrington, 2001). Leidner and Kayworth (2006) provided an excellent overview of the role of culture in IS adoption and implementation. Klein and Sorra (1996) suggested that implementation effectiveness is a function of (a) the strength of an organisation’s climate for the implementation of that innovation, and (b) the fit of that innovation to targeted users’ value. Gold et al. (2001) proved that an organisational knowledge-sharing culture and structure can affect the effectiveness of knowledge management through creating better organisational capacity and infrastructure. Based on the Competing Value Framework, McDermott and Stock (1999) examined how different culture types (market, adhocracy, clan and hierarchy) are linked to different IT benefits, including satisfaction, operational, organisational, and competitive benefits. Two of the conclusions reached are that market culture is positively related to competitive benefits, and adhocracy culture is positively related to IT satisfaction.

Although researchers used diverse instruments to measure organisational culture, their conclusions are still comparable because of the overlap between these instruments (Denison, 1996; Xenikou & Furnham, 1996). A detailed examination of their results showed that researchers do not agree on how IT effectiveness is affected by culture. For example, Harper and Utley’s (2001) and Kanungo’s (1998) conclusions contradict each other. Harper verified that people-oriented culture leads to a greater chance of successful IT implementation, whereas Kanungo’s work showed that such a culture is not related to the satisfactory implementation of IT. Ruppel and Harrington’s (2001) and McDermott & Stock (1999) conclusions regarding the role of an adhocracy type of culture on IT effectiveness are also contradictory. In terms of e-commerce adoption, the successful uptake of e-commerce has been tied to an organisation’s risk acceptance and its tolerance of uncertainty (Featherman & Pavlou, 2003; Gibbs et al. 2003), both of which are characteristics of adhocracy cultural orientation in organisations. However, to date there is still no empirical research confirming this relationship in the e-commerce literature. Eid et al. (2002) reported an acceptance of organisational culture change was a critical success factor for B2B e-commerce. Similarly, the compatibility between e-commerce and the firm’s culture, values, and work practices was a key determinant of e-commerce adoption (Grandon & Pearson, 2004). Nonetheless, it is important to note that there is no inherent superiority of any one of these organisational cultures over the others (Cameron & Quinn, 2006). Thus, different predominant organisational cultures can be equally successful in promoting organisational effectiveness among different organisations and under different environmental circumstances. Nevertheless, the Competing Values Framework, developed by Cameron and Quinn (2006) could be used to determine organisation culture types. Cameron and Quinn (2006) suggested several quantitative strategies for measuring organisational culture. They argued that a quantitative approach is valid if it measures the underlying beliefs and assumptions that represent culture rather than surface attributes reflecting organisational climate. Based on this premise, they developed an instrument, known as the Organisational Culture Assessment Instrument (OCAI), which can be used to reliably measure the prevailing organisational culture. In fact, Cameron and Quinn’s (2006) OCAI has been used in various studies of IT/IS adoption (e.g., Twati & Gammack, 2006; Nickels et al., 2008; Abousaber & Papazafeiropoulou, 2011). Therefore, this research
adopts Cameron and Quinn’s (2006) OCAI instrument in investigating the influence of different organisational cultures on e-commerce adoption. As depicted in Figure 1, organisational culture can be categorised into four prevailing types of culture (Cameron and Quinn, 2006).

According to Cameron and Quinn (2006), clan culture offers a friendly workplace where staff members share a lot of themselves, as in an extended family. The organisation emphasises loyalty, teamwork and consensus, whilst success is defined in terms of sensitivity to customers and concern for people. Adhocracy culture provides an entrepreneurial and creative workplace that encourages individual initiative and freedom. People are risk-takers and committed to experimentation and innovation to attain unique products or services. Characteristics of market-culture firms are results-oriented and goal-driven wherein people are competitive and the leaders are regarded as hard drivers. The firms focus on market share, competitive pricing and market leadership. Finally, hierarchy culture creates a formalised and structured workplace in which formal policy and procedures are highly regarded. People focus on dependable delivery, smooth scheduling, low cost, and predictability. Based on Cameron and Quinn’s (2006) aforementioned major types of organisation culture characteristics, we examine and determine the prevailing organisational culture profile in each participating organisation.

![Organisational cultures typology (Cameron & Quinn, 2006)](image)

**Table 1: Classification of e-commerce activities (adopted from Daniel et al., 2002)**

<table>
<thead>
<tr>
<th>Adoption maturity level</th>
<th>Classification of e-commerce maturity</th>
<th>E-commerce activities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transactors (known as cluster/stage 4 in this research)</td>
<td>Recruitment online</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Receiving payments online</td>
<td></td>
</tr>
<tr>
<td></td>
<td>After sales service/contact online</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Taking orders online</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Identify new inventory suppliers online</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Ordering and payment of inventory purchasing online</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Non-inventory purchasing (such as travel and stationery)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Delivery of digital services online</td>
<td></td>
</tr>
<tr>
<td>Web Presence (cluster/stage 3)</td>
<td>Providing information about goods or services online</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Providing information about the company online</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Advertising online</td>
<td></td>
</tr>
<tr>
<td>Communicators (cluster/stage 2)</td>
<td>Internal communication between employees</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Communication (email) with customers or suppliers</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Communication with shareholders and investors</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Document exchange with customers or suppliers</td>
<td></td>
</tr>
<tr>
<td>Developers (cluster/stage 1)</td>
<td>External information search, e.g., competitors, regulations</td>
<td></td>
</tr>
</tbody>
</table>

Furthermore, in order to measure e-commerce adoption maturity which serves as the operationalisation of this study, we adopt the four-stage maturity model of e-commerce adoption developed by Daniel et al. (2002). Table 1 above provides a summary of the main e-commerce activities across four distinct evolutionary maturity stages.
from Developers (maturity stage one), Communicators, and Web Presence, through to Transactors (maturity stage four).

Drawing upon Cameron and Quinn’s (2006) organisational cultures typology (namely, clan, adhocracy, market, and hierarchy), and Daniel et al.’s (2002) classification of e-commerce activities (namely, transactors, web presence, communicators and developers), we empirically examine the influence of different organisational cultures on e-commerce adoption maturity in small and medium-sized enterprises in Sri Lanka. In other words, this research postulates that organisational culture may influence e-commerce adoption. Therefore, Based on the research model shown in Figure 2, the followings can be hypothesised.

H$_1$: Clan culture characteristics of SMEs positively influence the level of e-commerce adoption maturity.

H$_2$: Adhocracy culture characteristics of SMEs positively influence the level of e-commerce adoption maturity.

H$_3$: Market culture characteristics of SMEs positively influence the level of e-commerce adoption maturity.

H$_4$: Hierarchy culture characteristics of SMEs negatively influence the level of e-commerce adoption maturity.

RESEARCH METHOD

The data for this research were gathered through a questionnaire survey in 2011. The research population consisted of SMEs in Sri Lanka. A sampling frame was acquired from the registered SMEs in Colombo (the largest city and the commercial, industrial and cultural capital of Sri Lanka) through the National Chamber of Commerce of Sri Lanka. The reason for selecting only Colombo is that e-commerce usage by SMEs is negligible in rest of the country and the fact that Colombo has greater ICT infrastructure. Subjects for this study were then chosen using a stratified random sampling technique based on the business type of the SMEs such as manufacturing, services, import, export, trading and other to explore e-commerce adoption by different industries. From the sampling frame, a total of 200 SMEs were chosen as the sample because of insufficient information available. This represents more than 50 percent of the sample population.

The Organisational Culture Assessment Instrument of Cameron and Quinn (2006) was used to measure the prevailing organisational culture profile in each participating organisation. OCAI is one of the most widely-cited instruments purporting to measure organisational culture (Johanna, 2006; Liu and Fellow, 2008; Coffey et al., 2011; Pharaon and Burns, 2010). To determine the level of combination of the four organisational culture types in a company (i.e., Clan, Adhocracy, Market and Hierarchy), the OCAI provides four scores that can be used to plot the culture perception of the participating organisations. In each question, respondents were asked to assign a total of 100 points among the four major culture types. This is because some organisations possess a combination of different cultural characteristics. The entire questionnaire was divided into four sections. Section One captured the data about the respondent information, demographic profile, and organisational characteristics. Section Two covered the information about technological resources and management view on the use of e-commerce. Section Three measured the extent of e-commerce adoption. In line with Daniel et al. (2002) and White et al. (1998), e-commerce adoption is reported according to business activities undertaken on-line, rather than the technology features or platforms utilised. In order to measure the adoption maturity level, respondents were asked to indicate whether they ‘currently use’, ‘did not use’ or ‘planned to use’ an e-commerce activity.
The survey questionnaire was pilot tested in 10 SMEs, and the accuracy of the measurement was verified using Cronbach’s alpha coefficient. The reliability coefficient for organisational culture was 0.864. Hair et al. (1998) suggest that Cronbach’s alpha values above 0.7 are acceptable; therefore, the questionnaire was taken as an acceptable instrument to be administered. Then the questionnaire was sent to 200 SMEs in Sri Lanka according to a stratified sampling technique. A total of 87 organisations responded to this survey. However, responses from six organisations were dropped as they were incomplete. Hence, a sample of 81 organisations was retained for further analysis. This gave a response rate of 42%, which was sufficient to make logical conclusions. Statistical analyses were performed using the IBM Statistical Package for Social Science (SPSS) Version 20.0 analysis software. Regression analysis methods were used to analyse the empirical data. In accordance with Daniel et al.’s (2002) recommendation, the cluster analysis method was used to determine the maturity level of the participating organisations’ e-commerce adoption based on their reported e-commerce activities. Cluster analysis is a technique for grouping cases into coherent groups according to the attributes of interest (i.e., these are e-commerce related activities) (Daniel et al., 2002).

FINDINGS AND DISCUSSIONS

Among the 81 responding SMEs, 53.1% of participating firms had fewer than 50 employees (small), and the rest had between 50 and 249 employees (medium). According to the analysis, medium enterprises show higher level of e-commerce adoption i.e. mean value of 16.34 out of 32 compared to small 13.76. In order to determine the e-commerce adoption maturity level of the responding SMEs, a cross-tabulation of the responses by maturity cluster for each activity, according to Daniel et al.’s (2002) e-commerce maturity classification, is presented in Table 2. A chi-square analysis of the responses for each activity indicates significance for all activities (significance <0.0001), proving that the clustering technique adopted is able to produce clusters that are distinct for all listed e-commerce activities.

With reference to the results in Table 2, amongst all the four clusters, cluster 1 (developers) had the highest level of external information search (100%), but the lowest levels of operational e-commerce services. Their major e-commerce activities were providing information about the company (31%) and the company’s products and services (31%). As for the companies in cluster 2 (communicators), emails were used extensively to communicate with customers and suppliers (92%), whilst the most common development activities were advertising, after sales service or contact, taking orders online and identifying new inventory suppliers (5% each). In addition to the e-commerce activities currently being undertaken by cluster 2, responding firms in cluster 3 (web presence) had implemented online ordering and e-payment of inventory purchasing (14%) and taking of customer orders online (9%). Besides undertaking similar e-commerce activities to cluster 3, cluster 4’s companies (transactors) were the most mature e-commerce adopters. They were using e-commerce to search for new inventory suppliers on-line (100%), for ordering and payment of inventory purchasing on-line (88%), receiving payments on-line (75%), providing after sales service or contact (75%), undertaking recruitment on-line (75%), and taking orders on-line (63%).
4-6 Dec 2013, Melbourne Senarathna & Warren

This connotes that hierarchy culture type inhibits e-commerce adoption. On the contrary, hierarchy culture is significantly and negatively correlated with e-commerce adoption ($r = -0.702, p<0.01$). This relationship implies that if the organisation’s dominant culture type is adhocracy, it enable for e-commerce adoption. The other two culture types, namely, clan and market, are not significantly influential in relation to e-commerce adoption. So, clan and market culture types have no direct relationship to e-commerce adoption.

Table 2: Adoption of e-commerce by Clusters

<table>
<thead>
<tr>
<th>E-commerce activities</th>
<th>Cluster 1 (N=13)</th>
<th>Cluster 2 (N=38)</th>
<th>Cluster 3 (N=22)</th>
<th>Cluster 4 (N=8)</th>
<th>Chi-square value</th>
<th>Asymp sig (2 tailed)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Internal communication between employees</td>
<td>O %</td>
<td>U %</td>
<td>O %</td>
<td>U %</td>
<td>O %</td>
<td>U %</td>
</tr>
<tr>
<td>Communication (email) with customers or suppliers</td>
<td>15.4</td>
<td>0.0</td>
<td>15.4</td>
<td>0.0</td>
<td>15.4</td>
<td>0.0</td>
</tr>
<tr>
<td>External information search, e.g., competitors, regulations</td>
<td>13.0</td>
<td>0.0</td>
<td>13.0</td>
<td>0.0</td>
<td>13.0</td>
<td>0.0</td>
</tr>
<tr>
<td>Providing information about the company online</td>
<td>4.0</td>
<td>0.0</td>
<td>4.0</td>
<td>0.0</td>
<td>4.0</td>
<td>0.0</td>
</tr>
<tr>
<td>Providing information about goods or services online</td>
<td>4.0</td>
<td>0.0</td>
<td>4.0</td>
<td>0.0</td>
<td>4.0</td>
<td>0.0</td>
</tr>
<tr>
<td>Advertising online</td>
<td>0.0</td>
<td>1.0</td>
<td>0.0</td>
<td>1.0</td>
<td>0.0</td>
<td>1.0</td>
</tr>
<tr>
<td>Document exchange with customers or suppliers</td>
<td>2.0</td>
<td>15.4</td>
<td>0.0</td>
<td>0.0</td>
<td>2.0</td>
<td>15.4</td>
</tr>
<tr>
<td>Recruitment online</td>
<td>0.0</td>
<td>1.0</td>
<td>0.0</td>
<td>1.0</td>
<td>0.0</td>
<td>1.0</td>
</tr>
<tr>
<td>Communication with shareholders and investors</td>
<td>0.0</td>
<td>17.0</td>
<td>0.0</td>
<td>44.7</td>
<td>0.0</td>
<td>17.0</td>
</tr>
<tr>
<td>Receiving payments online</td>
<td>0.0</td>
<td>1.0</td>
<td>0.0</td>
<td>2.0</td>
<td>0.0</td>
<td>1.0</td>
</tr>
<tr>
<td>After sales service or contact online</td>
<td>1.0</td>
<td>7.7</td>
<td>0.0</td>
<td>15.0</td>
<td>0.0</td>
<td>7.7</td>
</tr>
<tr>
<td>Taking orders online</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>8.0</td>
<td>0.0</td>
<td>2.0</td>
</tr>
<tr>
<td>Identifying new inventory suppliers online</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>18.0</td>
<td>0.0</td>
<td>2.0</td>
</tr>
<tr>
<td>Ordering and payment of inventory purchasing online</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>5.0</td>
<td>0.0</td>
<td>2.0</td>
</tr>
<tr>
<td>Non-inventory purchasing (such as travel, stationery)</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>5.0</td>
<td>0.0</td>
<td>2.0</td>
</tr>
<tr>
<td>Delivery of digital goods or services online</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>2.0</td>
<td>0.0</td>
<td>0.0</td>
</tr>
</tbody>
</table>

Note: Operational (O); Under Development (U)

Table 3: E-commerce Adoption Maturity by Cluster

<table>
<thead>
<tr>
<th>ADOPTSVALUE</th>
<th>Cluster 1 (N=13)</th>
<th>Cluster 2 (N=38)</th>
<th>Cluster 3 (N=22)</th>
<th>Cluster 4 (N=8)</th>
<th>F statistic (p value)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>4.39</td>
<td>13.45</td>
<td>19.45</td>
<td>27.12</td>
<td>214.734</td>
</tr>
<tr>
<td>Std. Dev.</td>
<td>2.50</td>
<td>2.25</td>
<td>1.87</td>
<td>2.47</td>
<td>.000</td>
</tr>
</tbody>
</table>

Comparing the four clusters in Table 3, cluster 4 (transactors) has the highest mean, that is, 27.17 out of 32, followed by cluster 3 (web presence), while cluster 1 (developers) possess the lowest mean score (4.39). In line with Daniel et al.’s (2002) staged maturity model for e-commerce adoption, the survey findings demonstrate similar evolutionary maturity trends. As seen in Table 3, clearly, there is an organic development of maturity from cluster 1 (lowest maturity stage) through to cluster 4 (highest maturity stage). That is, this study confirms the applicability of Daniel et al.’s (2002) staged maturity model.

The relationship between organisational culture types and e-commerce adoption in general (i.e., a firm can be in any stage of the maturity spectrum) is shown in Table 4 below. Amongst the four prevailing culture types, adhocracy culture is significantly and positively correlated with e-commerce adoption ($r = .687$, $p<0.01$). This relationship implies that if the organisation’s dominant culture type is adhocracy, it enable for e-commerce adoption. On the contrary, hierarchy culture is significantly and negatively correlated with e-commerce adoption ($r = -.702$, $p<0.01$). This connotes that hierarchy culture type inhibits e-commerce adoption. The other two culture types, namely, clan and market, are not significantly influential in relation to e-commerce adoption. So, clan and market culture types have no direct relationship to e-commerce adoption.
Table 4: Correlation Matrix

<table>
<thead>
<tr>
<th>Culture Types</th>
<th>E-commerce Adoption</th>
<th>Clan</th>
<th>Adhocracy</th>
<th>Market</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clan</td>
<td>.122</td>
<td>-0.038</td>
<td>-0.282(*)</td>
<td>-0.856(**)</td>
</tr>
<tr>
<td>Adhocracy</td>
<td>.687(**)</td>
<td>-0.539(**)</td>
<td>-0.247(*)</td>
<td>-0.21(*)</td>
</tr>
<tr>
<td>Market</td>
<td>-0.149</td>
<td>-0.539(**)</td>
<td>0.059</td>
<td>-0.502(**)</td>
</tr>
<tr>
<td>Hierarchy</td>
<td>-0.702(**)</td>
<td>-0.247(*)</td>
<td>-0.856(**)</td>
<td>0.059</td>
</tr>
</tbody>
</table>

**Correlation is significant at the 0.01 level (2-tailed).**
*Correlation is significant at the 0.05 level (2-tailed).

Table 5: Correlation between Culture Types and e-Commerce Adoption Maturity Levels

<table>
<thead>
<tr>
<th>Culture Types</th>
<th>Developers (C1)</th>
<th>Communicators (C2)</th>
<th>Web Presence (C3)</th>
<th>Transactors (C4)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clan</td>
<td>-0.173</td>
<td>0.061</td>
<td>0.062</td>
<td>0.035</td>
</tr>
<tr>
<td>Adhocracy</td>
<td>0.537</td>
<td>0.214</td>
<td>-0.068</td>
<td>-0.667</td>
</tr>
<tr>
<td>Market</td>
<td>0.064</td>
<td>-0.207</td>
<td>-0.065</td>
<td>0.602</td>
</tr>
<tr>
<td>Hierarchy</td>
<td>-0.186</td>
<td>-0.072</td>
<td>0.028</td>
<td>-0.378</td>
</tr>
</tbody>
</table>

Table 5 depicts the relationship between organisational culture types and maturity levels of e-commerce adoption in Sri Lankan SMEs. According to Cameron and Quinn (2006), rarely a firm has one single culture type; rather, it often possesses a mixed combination of culture types. Thus, the result reported here refers to the strongest presence of its aggregated organisation culture. Overall, the results show varied correlation between culture types and adoption maturity levels, in part due to collinearity of independent variables. Nonetheless, adhocracy culture exhibits a positive influence (.537) on e-commerce adoption in the initial maturity stage (i.e., stage 1 - developers) but its impact lessens in subsequent maturity stages. Interestingly, a negative correlation was found in succeeding maturity stage 3 and 4. A possible explanation for this observation is that an adhocracy culture implies that the company is a dynamic, entrepreneurial and risk-taking workplace which encourages experimentation and innovation and enables the early stage adoption of e-commerce. However, moving on to the next levels of maturity, success in an adhocracy culture means gaining new and unique products and services. Thus, when it comes to improving business process efficiency such as taking orders and payments online, as in the higher maturity stages, adhocracy culture dominant firms are not keen to pursue such e-commerce activities.

On the contrary, organisations with the characteristics of a hierarchy culture demonstrate negative relationships (-0.186) with e-commerce adoption in the initial maturity stage. However, the influence of a hierarchy culture on e-commerce adoption increases positively as it moves to the higher stages of maturity. In fact, it depicts a positive correlation from maturity stage 3. This is possibly because staff in a hierarchy culture dominant firm are used to working in a very formalised and structured setting with formal rules and policies, hence, they are more inclined to explore and implement disruptive technology such as e-commerce. However, once e-commerce has been successfully implemented in a company, the employees will embrace and formalise it as part of their business activities, and gearing towards the transactor maturity stage whereby online ordering and payment are made possible.

On the other hand, market culture displays the most significant influence in the highest maturity stage (transactors). Because market-oriented firms at this stage are in a stable condition, they are aiming for long-term competition which requires them to implement e-commerce activities that may lead to competitive pricing and, hence, a greater market share. Advanced e-commerce initiatives like online ordering enables them to reduce operating costs like store rental and staff numbers, which, in turn, allows them to maintain their market leadership through competitive pricing.

As for clan culture-driven firms, no significant correlation was noted across the four stages of maturity. When compared to the other three culture types, clan culture neither encourages nor discourages e-commerce initiatives. This could be due to the typical clan culture that offers a friendly place to work and emphasises teamwork and sensitivity to customers. Thus, they pay more attention to people rather than to implementing innovative, disruptive technology such as e-commerce.

CONCLUSIONS AND IMPLICATIONS

This paper examined the link between organisational culture and e-commerce adoption within SMEs in Sri Lanka. Although the literature suggests that organisational culture is pertinent to the adoption of e-commerce, there is a lack of empirical evidence on the issue, which is investigated in this paper. Our findings provide empirical evidence for this relationship. In general, we found that dominance by different organisational cultures leads to varied maturity levels of e-commerce adoption, both positively and negatively. To the best of our knowledge, this
study is the first to research the influence of organisational culture on e-commerce adoption maturity in Sri Lankan SMEs. In line with Daniel et al.’s (2002) staged maturity model for e-commerce adoption, the survey finding demonstrates the similar evolutionary maturity trend from cluster/stage 1 (developers) through to cluster/stage 4 (transactors). More importantly, the research concludes that those firms with adhocracy cultural characteristics are more likely to adopt e-commerce. In contrast, hierarchy cultural-dominant firms are the least likely to adopt e-commerce in the initial stage, while clan and market culture-oriented firms exhibit no clear interest nor concern for e-commerce adoption. Nonetheless, market culture may exert a higher relationship with e-commerce adoption in the highest maturity stage as a result of peer competition.

Although the importance of organisational culture has been shown across multiple studies of e-commerce adoption, prior studies have paid little attention to the specific types of organisational culture that would best support e-commerce adoption. This study bridges the research gap and contributes to the e-commerce adoption literature, especially in the SME context. The main contribution of this paper is derived from the study of how each of the four major types of organisational culture proposed by Cameron and Quinn (2006) influences e-commerce adoption maturity. Also, the research findings offer insights for SMEs that are planning or are in the process of implementing or reviewing their e-commerce initiatives, as well as for consulting companies that are assisting with e-commerce implementation in SMEs.

The theoretical contribution of this study is that the Daniel’s staged maturity model for e-commerce adoption which has been used in UK SMEs is also applicable to developing country like Sri Lankan SMEs. The implications of this study are significant for SME managers engaged in implementing e-commerce. In order to be successful with e-commerce adoption, they should pay attention to organisational cultures. Depending on the dominant organisational culture, managers should first promote and implement the corresponding appropriate e-commerce activities in their companies. If firms demonstrate adhocracy culture characteristics, they are more likely to be early adopters of e-commerce. However, the perseverance and enthusiasm will diminish over the time span as staff move forward with other more intriguing and innovative initiatives. In contrast with this, hierarchy culture-oriented firms that emphasise efficiency and formal rules and policies are more willing to strive to adopt e-commerce after overcoming the change management issues during the initial transition period. The main limitation of this research is that the data were collected from a single country (Sri Lanka), future research may test this work in other country. Also, this research used a quantitative approach; further qualitative study will provide in-depth understanding of the key issues.

REFERENCES


Cameron, K., & Quinn, R. (2006). Diagnosing and changing organizational culture: Based on the competing values framework: Addison-Wesley, Reading, MA.


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