Understanding the critical factors for successful M-commerce adoption

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Abstract: Prior studies on technology acceptance models (TAM) have been widely used to examine mobile commerce (M-commerce). These studies usually have applied the structural equation modelling; however, the method has intrinsic limitations in terms of effectiveness and validity. The purpose of this study is to find the critical success factors influencing consumer adoption decision on M-commerce by integrating TAM and decision-making trial and evaluation laboratory. In order to verify the proposed approach, the Taiwanese are used as illustrative examples. This study finds four critical success factors that influence M-commerce adoption: perceived ease of use, perceived usefulness, value-added and service functionality. In addition, these factors were identified as the cause and effect factors. The results of this study are presented to M-commerce service providers’ in facilitating the development of wireless services.

Keywords: decision-making trial and evaluation laboratory; DEMATEL; MCDM; M-commerce; mobile adoption; mobile commerce; multiple criteria decision-making; TAM; technology acceptance model.

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1 Introduction

Mobile commerce (M-commerce) is a by-product of the technological convergence of information and communications technology. M-commerce is born out of the explosive development of cell phone, and it has the potential of allowing customers to access the internet anywhere, anytime for M-commerce business. Hence, the issues related to consumer’s decision-making on M-commerce have important implications for M-commerce service providers and for academic researchers (Choi et al., 2008; Chong, 2013a; Lin, Paragas and Bautista, 2016; Hwang et al., 2016).

Most of the previous studies regarding consumer adoption decisions on M-commerce have concentrated on the technology acceptance model (TAM) and applied structural equation modelling (SEM) to examine the relationships among the adoption factors (Wei et al., 2009; Shmueli and Koppius, 2011; Chong, Chan and Ooi, 2012). However, whilst these studies are well demonstrated, some main problems arise.

First, previous studies that examined the causal relationship of TAM mainly adopt SEM. The statistical method, however, has some restrictive assumptions such as the linearity, normality and independence among independent variables (Wei et al., 2010). Nevertheless, when some variables do not meet the prerequisite assumptions of independence, the methods can have limitations to obtain the effectiveness and validity (Lee et al., 2010, 2011).

Second, much earlier research on TAM are commonly examining the perceived ease of use and perceived usefulness (Yadav, Sharma and Tarhini, 2016; Schepers and Wetzels, 2007), which do not offer adequate guidance to explain the significant influence on the M-commerce adoption. Besides, M-commerce allows the business to provide the unique value added, interactive and/or location-based mobile services to users anywhere and at any time. These seem to be substantial factors ('These seem,' not ‘this seems’ because ‘factors’ are many) that influence the consumers’ perceptions to adopt the M-commerce. Despite the growing importance of value-added and service functionality for mobile users in the M-commerce era, these factors usually have not been taken into consideration.

To improve on the above-mentioned drawbacks, this study attempts to find the critical success factors influencing the consumer to adopt the M-commerce by integrating the TAM and decision-making trial and evaluation laboratory (DEMATEL). The TAM framework is used as a basis to develop a general evaluation framework, and the DEMATEL technique is applied to evaluate the critical success factors. In particular, we use the Taiwanese as an example to study the causal relationships of the factors to recognise key influence factors on the adoption of M-commerce for consumers to provide useful counsel to service providers for promoting the development of M-commerce services.
The following is the structure of this paper: In Section 2, previous literature is reviewed to form the framework of this study. In Section 3, the method is described. In Section 4, the empirical study and results are presented. In Section 5, findings and their practical implications are discussed. Finally, the conclusion and future research of the research are contained.

2 Literature review

2.1 Mobile commerce

The M-commerce is a relatively new concept; it has been defined in various perspectives by previous studies. Some researchers argued that M-commerce is an extension of e-commerce (Varshney and Vetter, 2002; Chong 2013a; Wei et al., 2009). Due to the worldwide growth of wireless telecommunications, M-commerce becomes a part of daily life, providing information anywhere and anytime. In the study, M-commerce is the activities of e-commerce with the application of M-devices such as a mobile phone or smartphone by the wireless technologies between users on a 365/24/7 basis (Eastin et al., 2016).

2.2 Factors influencing M-commerce adoption

Existing new technology adoption studies have mainly built their works based on TAM. The TAM, proposed by Davis (1985), has become one of the most extensively used models to explain information technology adoption (King and He, 2006). As TAM has been extended to examine e-commerce usage, it is appropriate to further apply it in the study of M-commerce as both are closely related.

Technology acceptance models postulate that two particular beliefs, perceived ease of use and perceived usefulness, are two key determinants of technology adoption (Schepers and Wetzels, 2007). Davis (1989) described perceived usefulness as “the degree to which a person believes that using a particular system would enhance his or her job performance” and described perceived ease of use as “the degree to which a person believes that using a particular system would be free of effort.” This model has been widely applied to predict a user’s intention to utilise new technologies such as 3G, online banking, mobile internet, e-commerce and M-commerce (Gerpott, 2011; Sanakulov and Karjaluoto, 2015; Piao et al., 2016).

In spite of the prior studies of TAM framework, the critical success factors to adopt M-commerce also stem from the service functionality. The user must feel at ease reaching the mobile platforms. Nikou and Mezei (2013) argue that service accessibility and simplicity for service functionality are the critical factors. Moreover, Mattila (2003) indicated that service accessibility is a significant factor influencing adoption of M-commerce. Therefore, the nature of service functionality is likely to lead consumers to experience multiple benefits from using various characteristics available through their mobile devices.

Moreover, the added value is likewise considered as a significant contributing factor to the adoption of M-commerce (Zhao et al., 2012). To understand the forms, mobile value-added services are assisting us to realise the value in the mobile arena. Therefore,
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availability of M-commerce and value-added services depend upon various important causes. In spite of crucial factors such as prevailing diffusion of cellular telephones and personal digital assistants, the M-commerce grows into value-added when they offer people the possibility to change the daily lives (Carlsson et al., 2005; Köster, Matt and Hess, 2016).

A number of studies on M-commerce adoption have not concentrated on all of the TAM dimensions. For example, Cyr, Head and Ivanov (2006) highlighted the design aesthetics factor, whereas Fan et al. (2005) examined speech interfaces on M-commerce. Thus, in this study, we use the partial TAM variables as a basis and add service functionality and value-added resulting in perceived ease of use, perceived usefulness, value-added and service functionality as the four dimensions of our evaluation framework. Based on the above literature reviews, the dimensions and criteria of the research can be summarised in Table 1 as the foundation for DEMATEL causal analysis.

Table 1  Dimension and criteria of this study

<table>
<thead>
<tr>
<th>Dimensions/criteria</th>
<th>Descriptions</th>
<th>Proposed in reference</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Perceived ease of use (A)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Easy learning (A1)</td>
<td>Learning to use the m-commerce is easy for me</td>
<td>Chong (2013b), Cyr, Head and Ivanov (2006) and Pagani (2004)</td>
</tr>
<tr>
<td>Easy doing (A2)</td>
<td>I find it easy to do what I want to do in m-commerce</td>
<td>Chong (2013b), Cyr, Head and Ivanov (2006) and Pagani (2004)</td>
</tr>
<tr>
<td>Understandable and clear (A3)</td>
<td>M-commerce is understandable and clear for me</td>
<td>Chong (2013b), Cyr, Head and Ivanov (2006) and Pagani (2004)</td>
</tr>
<tr>
<td><strong>Perceived usefulness (B)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Increased efficiency (B1)</td>
<td>M-commerce helped me be more effective</td>
<td>Chong (2013b), Cyr, Head and Ivanov (2006); Pagani (2004)</td>
</tr>
<tr>
<td>More convenient (B2)</td>
<td>M-commerce required the fewest steps to accomplish what I wanted to do with it</td>
<td>Chong (2013b), Cyr, Head and Ivanov (2006) and Pagani (2004)</td>
</tr>
<tr>
<td>Compatibility (B3)</td>
<td>M-commerce have to work well with my existing computing devices such as their PCs if they need to synchronise data or transfer information</td>
<td>Chong (2013b), Cyr, Head and Ivanov (2006) and Pagani (2004)</td>
</tr>
<tr>
<td><strong>Value-added (C)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mobility (C1)</td>
<td>I can access to a mobile device at any time and place to use the m-commerce</td>
<td>Fan et al. (2005), Kou and Chen (2006), Tiwari, Buse and Herstatt (2006) and Nikou and Mezei (2013)</td>
</tr>
</tbody>
</table>
Table 1  Dimension and criteria of this study (continued)

<table>
<thead>
<tr>
<th>Dimensions/criteria</th>
<th>Descriptions</th>
<th>Proposed in reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Personalisation (C2)</td>
<td>I find that the M-commerce where it reaches can meet these specific needs</td>
<td>Fan et al. (2005), Kou and Chen (2006) and Nikou and Mezei (2013)</td>
</tr>
<tr>
<td>Localisation (C3)</td>
<td>M-commerce can be offered to meet my needs and wishes for localised content and services</td>
<td>Kou and Chen (2006), Tiwari, Buse and Herstatt (2006) and Nikou and Mezei (2013)</td>
</tr>
<tr>
<td>Services functionality (D)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Simplicity (D1)</td>
<td>The use of the M-commerce should require only minimum knowledge of the technology</td>
<td>Büyükoğuzan (2009) and Nikou and Mezei (2013)</td>
</tr>
<tr>
<td>Usability (D2)</td>
<td>I can quickly understand how the M-commerce work</td>
<td>Büyükoğuzan (2009) and Nikou and Mezei (2013)</td>
</tr>
<tr>
<td>Accessibility (D3)</td>
<td>I require M-commerce to be accessible everywhere and all the time</td>
<td>Büyükoğuzan (2009) and Nikou and Mezei (2013)</td>
</tr>
<tr>
<td>Flexibility (D4)</td>
<td>The capacity of the m-commerce to adapt to personal profiles or requests</td>
<td>Büyükoğuzan (2009) and Nikou and Mezei (2013)</td>
</tr>
</tbody>
</table>

3 Methods

The DEMATEL was developed at Battelle Memorial Institute of Geneva Research Center (Fontela and Gabus, 1974; Gabus and Fontela, 1973) is based upon graph theory. In fact, the method not only confirms direct relationships among variables, but also reflects the degree of interactions between variables. More latterly, the DEMATEL has been applied to map out complex relationships among factors and to identify key factors (Bai and Sarkis, 2013; Patil and Kant, 2014; Yeh, Pai and Liao, 2014).

This study uses the DEMATEL method to identify the critical success factors influencing the consumer adoption of M-commerce. Generally, the steps of DEMATEL can be divided into five steps as follows (Bai and Sarkis, 2013; Patil and Kant, 2014; Yeh, Pai and Liao, 2014):

**Step 1: Generating the direct-influence matrix.** Respondents give the degree of direct influence among each criterion based on the scale ranging from 0 to 4 represent the levels from ‘no influence’ to ‘very high influence’. The direct-influence matrix, $A$, can be derived by indicating one criterion $i$ impact on another criterion $j$ as $a_{ij}$.

$$A = \begin{bmatrix} a_{i1} & \cdots & a_{ij} & \cdots & a_{in} \\ \vdots & \ddots & \vdots & \ddots & \vdots \\ a_{i1} & \cdots & a_{nj} & \cdots & a_{mn} \end{bmatrix}$$
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Step 2: Normalising the direct-influence matrix. Based on the direct-influence matrix \( A \), the normalised direct-relation matrix \( S \) can be through Eqs. (1) and (2).

\[
S = m \cdot A
\]

\( m = \min \left[ \frac{1}{\max \sum_{i} a_{ij}}, \frac{1}{\max \sum_{j} a_{ij}} \right] \) (2)

Step 3: Attaining the total direct-influence matrix. The total direct-influence matrix \( T \) can be acquired using Eq. (3), in which the \( I \) denotes the identity matrix.

\[
T = S(I - S)^{-1}
\]

Step 4: Calculating the sum of rows and columns of a matrix. In this stage, the \( R \) and \( D \) represent the sums of rows and columns, respectively, which are shown in Eqs. (4) and (5).

\[
R = \left[ R_i \right]_{\text{row}} = \left[ \sum_{j=1}^{n} t_{ij} \right]_{\text{row}}
\]

\( D = \left[ D_j \right]_{\text{col}} = \left[ \sum_{i=1}^{n} t_{ij} \right]_{\text{col}} \)

where \( R \) and \( D \) denote the sum of rows and the sum of columns, respectively. On the contrary, \( D_j \) express the sum of direct and indirect effects that criterion \( j \) has received from other criteria. The \( (D + R) \) means the total important influence of each criterion. Similarly, the \( (D - R) \) separates criteria into the cause and effect group. Commonly, a higher \( (D - R) \) value means the criterion belongs to the cause group. If \( (D - R) \) is negative, then the criterion belongs to the effect group.

Step 5: Constructing the cause-effect relationship diagram. The cause-effect diagram was built by mapping the dataset of \( (D + R, D - R) \).

4 Empirical study

4.1 Sampling and data collection

There is a two-part questionnaire for interviews and data collection in this study. The first part contains the respondents’ background. The second part collects the questionnaires to capture respondents’ opinions on the importance of four dimensions and 13 criteria that influence consumer acceptance of M-commerce based on the scale 0–4. We identified 20 experts, who each have more than 5 years of experience in M-commerce field.

As discussed in the literature review section, four dimensions are identified for influencing consumer adoption decision on M-commerce. These factors are perceived ease of use (A), perceived usefulness (B), value-added (C) and service functionality (D).
Moreover, there are 13 criteria under the above-mentioned four dimensions, as shown in Table 1. Respondents are asked to answer the degree of direct influence that each factor $i$ exerts on each factor $j$, denoted by $a_{ij}$, using the scales 0, 1, 2, 3 and 4 to represent the range of choices from ‘no influence (0)’ to ‘very high influence (4)’. Therefore, there are 20 valid questionnaires collected in the study.

4.2 Results of the DEMATEL analysis

After identifying the four dimensions, DEMATEL analysis is used to calculate the significance of each criterion under each dimension. In the following section, an empirical study is presented to capture the cause-effect diagram among these evaluation criteria and dimensions.

4.2.1 Capturing the cause-effect diagram among the criteria

Following the DEMATEL procedures described in Section 3, the results for criteria measurement that influence consumer adoption of M-commerce are shown in Tables 2–6.

Based on the above empirical survey, we discovered the influence value of the criteria that influence the consumer adoption of M-commerce, and the cause-effect diagram of criteria for M-commerce adoption is depicted in Figure 1.

Table 2  The total-influence matrix of criterion: perceived ease of use

<table>
<thead>
<tr>
<th></th>
<th>$A_1$</th>
<th>$A_2$</th>
<th>$A_3$</th>
<th>Row sum</th>
<th>Column sum</th>
<th>$D + R$</th>
<th>$D - R$</th>
</tr>
</thead>
<tbody>
<tr>
<td>$A_1$</td>
<td>0.9653</td>
<td>0.8626</td>
<td>1.0897</td>
<td>2.9176</td>
<td>4.5116</td>
<td>7.4293</td>
<td>-1.5939</td>
</tr>
<tr>
<td>$A_2$</td>
<td>1.6967</td>
<td>1.01390</td>
<td>1.5656</td>
<td>4.2762</td>
<td>3.2350</td>
<td>7.5113</td>
<td>1.0411</td>
</tr>
<tr>
<td>$A_3$</td>
<td>1.8496</td>
<td>1.3585</td>
<td>1.2947</td>
<td>4.5028</td>
<td>3.9500</td>
<td>8.4529</td>
<td>0.5528</td>
</tr>
</tbody>
</table>

Threshold value: 1.2996, the values were marked in bold face when higher than the threshold value.

Table 3  The total-influence matrix of criterion: perceived usefulness

<table>
<thead>
<tr>
<th></th>
<th>$B_1$</th>
<th>$B_2$</th>
<th>$B_3$</th>
<th>Row sum</th>
<th>Column sum</th>
<th>$D + R$</th>
<th>$D - R$</th>
</tr>
</thead>
<tbody>
<tr>
<td>$B_1$</td>
<td>1.7269</td>
<td>2.3081</td>
<td>2.2828</td>
<td>6.3179</td>
<td>5.1912</td>
<td>11.5091</td>
<td>1.1266</td>
</tr>
<tr>
<td>$B_2$</td>
<td>1.6688</td>
<td>1.6072</td>
<td>1.9310</td>
<td>5.2071</td>
<td>5.8707</td>
<td>11.0778</td>
<td>-0.6635</td>
</tr>
<tr>
<td>$B_3$</td>
<td>1.7954</td>
<td>1.9553</td>
<td>1.6977</td>
<td>5.4486</td>
<td>5.9117</td>
<td>11.3603</td>
<td>-0.4631</td>
</tr>
</tbody>
</table>

Threshold value: 1.8859, the values were marked in bold face when higher than the threshold value.

Table 4  The total-influence matrix of criterion: value-added

<table>
<thead>
<tr>
<th></th>
<th>$C_1$</th>
<th>$C_2$</th>
<th>$C_3$</th>
<th>Row sum</th>
<th>Column sum</th>
<th>$D + R$</th>
<th>$D - R$</th>
</tr>
</thead>
<tbody>
<tr>
<td>$C_1$</td>
<td>4.0583</td>
<td>4.8540</td>
<td>4.2272</td>
<td>13.1395</td>
<td>12.5042</td>
<td>25.6438</td>
<td>0.6353</td>
</tr>
</tbody>
</table>

Threshold value: 4.2752, the values were marked in bold face when higher than the threshold value.
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Table 5 The total-influence matrix of criterion: service functionality

<table>
<thead>
<tr>
<th></th>
<th>D1</th>
<th>D2</th>
<th>D3</th>
<th>D4</th>
<th>Row sum</th>
<th>Column sum</th>
<th>D + R</th>
<th>D – R</th>
</tr>
</thead>
<tbody>
<tr>
<td>D2</td>
<td>6.754629</td>
<td>6.904465</td>
<td>6.47395</td>
<td>6.886897</td>
<td>27.01994</td>
<td>27.76918</td>
<td>54.78912</td>
<td>–0.74923</td>
</tr>
<tr>
<td>D3</td>
<td>6.380583</td>
<td>6.803248</td>
<td>5.938767</td>
<td>6.597777</td>
<td>25.71828</td>
<td>25.09829</td>
<td>50.81657</td>
<td>0.619992</td>
</tr>
</tbody>
</table>

Threshold value: 6.6061, the values were marked in bold when higher than the threshold value.

Table 6 The total-influence matrix

<table>
<thead>
<tr>
<th></th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>Row sum</th>
<th>Column sum</th>
<th>D + R</th>
<th>D – R</th>
</tr>
</thead>
<tbody>
<tr>
<td>B</td>
<td>3.3617</td>
<td>3.1689</td>
<td>3.2248</td>
<td>3.0449</td>
<td>12.8002</td>
<td>13.1539</td>
<td>25.9541</td>
<td>–0.3537</td>
</tr>
<tr>
<td>D</td>
<td>3.0817</td>
<td>3.1446</td>
<td>2.9733</td>
<td>2.6188</td>
<td>11.8184</td>
<td>11.7860</td>
<td>23.6044</td>
<td>0.0323</td>
</tr>
</tbody>
</table>

Threshold value: 3.1364, the values were marked in bold when higher than the threshold value.

Figure 1 The cause-effect diagram of criteria for M-commerce adoption (see online version for colours)

As Figure 1 shows, some criteria have positive values of (D – R) and affect other criteria, such as the criteria perceived ease of use (A) and easy doing (A2) have higher values and influence on the others. Accordingly, the easy doing (A2) is the most important influencing factor in the criteria of perceived ease of use (A). The results are also supported by Cyr, Head and Ivanov (2006), and they suggest that the perceived ease of use (A) is reflected by the consumers’ easy doing (A2) and by the ability to become skilful at using M-commerce. On the other hand, the easy learning (A1) affects the other factors and it can be the most influential factor.
On the other hand, in the criteria of perceived usefulness (B), it can be seen that increased efficiency (B1) is also the significant influencing factor. More convenient (B2) and compatibility (B3) are the given and received factors. Next, localisation (C3) is the strongest influence on the other factors of value-added (C). The personalisation (C2) has a lower and negative value in the criteria of value-added (C) and seems to be a received factor. In the criteria of service functionality (D), the factor of flexibility (D4) has the most negative value, which means that flexibility (D4) factors are influenced by another factor, and consistent with the study of Büyüközkan (2009). This study found simplicity (D1) factors with a higher value to be the influencing factor.

4.2.2 Capturing the comprehensive cause-effect diagram among the dimensions

The comprehensive cause-effect diagram among major dimensions of M-commerce adoption is shown in Figure 2. The dimensions of perceived ease of use (A) and service functionality (D) have the positive values of \( (D-R) \); thus, they affect other factors, acting as dispatchers. Perceived usefulness (B) and value-added (C) have negative values; thus, they are influenced by other factors and are thus seen as receivers.

Figure 2: The comprehensive cause-effect diagram for M-commerce adoption (see online version for colours)

As Figure 2 shows, the DEMATEL technique is valuable for M-commerce service providers to identify key factors among the dimensions (Tsai et al., 2014). According to analysis results, the dimension of perceived usefulness (B) has the most influence but it is also influenced by other factors for M-commerce adoption. This indicates that perceived usefulness (B) is the most important influencing factor. The results are in accordance with Chong’s (2013a, 2013b) findings that the factor of perceived usefulness (B) is a predictor of M-commerce adoption. On the other hand, the dimension of perceived ease of use (A) with higher influence and it is called the main factor among the dimensions. This was confirmed by Cyr, Head and Ivanov (2006) the ease of use of M-commerce for consumers would enhance the user adoption.
5 Theoretical and practical implications

Based on the above results, our major finding is that the main effect factors with values of \((D - R)\) are negative, that is, perceived usefulness (B) and value-added (C) are greatly affected by the others. These factors acted as the dependent variables. The critical cause factors with values of \((D - R)\) are positive, including perceived ease of use (A) and service functionality (D), greatly affecting others. These factors played the independent variables.

Another major finding is the causal relationship among the dimensions for the consumer decision to adopt M-commerce, suggesting that they act upon each other and are linked by the perceived usefulness (B). This finding demonstrates that perceived usefulness (B) is the most critical factor. Thus, it produces the vital view of perceived usefulness (B) as a predictor of customer intention to adopt M-commerce. Furthermore, it can improve the other dimensions to enhance the perceived usefulness (B). Additionally, the dimension of value-added (C) also acts the significant influence adoption of M-commerce. The findings suggest that the future of the M-commerce adoption that includes perceived ease of use (A) and perceived usefulness (B) offer potential mechanisms by which the M-commerce can influence the value-added (C) factor of customer adoption. The aforementioned findings of this study suggest that perceived usefulness (B) and value-added (C) factors can be improved by the perceived ease of use (A) and service functionality (D). Therefore, the M-commerce service providers should not merely concentrate on perceived usefulness (B) and value-added (C) factors for M-commerce adoption, but they should also underline the other factors. When the other constructs are considered more fully, the outcomes of the perceived usefulness (B) and value-added (C) factors will be enhanced.

Furthermore, our results highlight the dimension of perceived ease of use (A) has the most critical influence on the other factors for M-commerce adoption. For M-commerce service providers, this result suggests that the decision of M-commerce adoption is related to perceived ease of use (A), and it acts as a critical influencing factor in this study. This coincides with the study of Lee et al. (2011) which suggests that perceived ease of use (A) has higher priorities in relation to new technology adoption. This implies the perceived ease of use (A) is the most important to assess the M-commerce adoption for consumers. In sum, the customer is more likely to correlate with perceived ease of use (A) for M-commerce adoption. M-commerce service providers ought to focus on increasing the customer’s perceived ease of use for future adoption of M-commerce. When the customers in M-commerce adoption expect easy doing, understandable and clear, M-commerce service providers can provide high-quality service that may influence the perceived ease of use for the customer.

6 Conclusions and future study

In order to develop the M-commerce services, it is important to understand the consumer adoption decisions on M-commerce. However, the factors influencing the adoption of M-commerce are various and complicated. Moreover, the prior studies of the methods are still limited in terms of effectiveness and validity.
The proposed framework brings several contributions to M-commerce adoption. First, the new factors affecting the M-commerce adoption are derived using factors TAM has developed. A model framework with these factors has not been proposed in the literature yet. Second, the DEMATEL method is applied to affect the adoption of M-commerce. This feature is also unique in regard to previous studies. DEMATEL can deal with the complicated and intertwined problems and determine the causal relationships among the factors. DEMATEL has proven to be the appropriate method to delineate the structure of a totally interdependent M-commerce adoption problem model and has helped obtain the problem’s solution. After identification of problem structure and interrelationships between factors, the critical success factors influencing M-commerce adoption have been recognised. In addition, these factors are identified as the cause and effect factors. The effect factors are perceived usefulness and value-added, and the cause factors include perceived ease of use and service functionality. Such information can be extremely helpful for firms to identify areas where M-commerce ought to improve. Firms might engage in M-commerce development and help the M-commerce improve on their efforts to enhance the user adoption. The results of causal relationships determined in the case study can serve as a reference in this regard.

Our empirical results more effectively enable M-commerce service providers to more effectively concentrate on key factors of M-commerce adoption to build their service to satisfy customers. However, our study has some limitations. For example, the fuzzy multiple criteria decision-making method can be applied to evaluate linguistic data. Next, the evaluation factors are used in the relevant literature on partial TAM variables, which may exclude some possible influence factors in adoption of the M-commerce. Additional research should incorporate other theories to further identify other factors.

References


Successful M-commerce adoption


