FACTORS AFFECTING THE ADOPTION OF INFORMATION TECHNOLOGY APPLICATIONS IN THE FOODSERVICE SECTOR IN MALAYSIA

AHMAD FAREED ISMAIL.

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By

AHMAD FAREED ISMAIL

Thesis Submitted to the Graduate School of Management, Universiti Putra Malaysia, in Fulfilment of the Requirement for the Degree Master of Science

April 2008
Dedicating the Fruits of This Research Especially to

My beloved Emak & Ayah,
And my family
Abstract of thesis presented to the Senate of Universiti Putra Malaysia in fulfillment of the requirement for the Degree of Master of Science

FACTORS AFFECTING THE ADOPTION OF INFORMATION TECHNOLOGY APPLICATIONS IN THE FOODSERVICE SECTOR IN MALAYSIA

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April 2008

Chairman : Associate Professor Dr. Syed Abdul Kadir Alsagoff
Faculty : Graduate School of Management

In recent years, many organizations have invested tremendously in information technology (IT) aiming to improve their firms' performance. Previous literature suggest that various factors play crucial roles in the adoption of information systems. However, there is little empirical research about the factors affecting the adoption of IT applications in the foodservice sector. This study aims to determine the factors affecting the adoption of IT applications (specifically on the back-of-house and front-of-house IT applications) in the foodservice sector. The research model posits relationships of three major factor groups; a) the organizational factor group, b) environmental factor group, and c) technological factor group. Under these three factor groups there are ten factors to be tested against the adoption decision of the two foodservice IT applications. The factors are 1) top management support, 2) organizational size, 3) relative advantage, 4) strategic relevance, 5) financial slack, 6) IT support infrastructure, 7) competitive pressure, 8) IT skilled employees, 9) ease of use, and 10) compatibility. The theoretical model of this study is based on the Diffusion of Innovation (DOI) Theory.
In this study, survey questionnaires were distributed to the Chief Executive Officers (CEO)/ or owners, or Chief Information Officers (CIO), or Management Information Systems Managers/IT Managers, or Operation Managers or Account/ Finance Manager of the available 323 foodservice companies. The foodservice operators involved in the sampling were from restaurants belonging to foodservice chains and independent restaurants in Kuala Lumpur and Selangor. The results showed that the response rate was 49.5%. A multiple regression analysis for the adoption of back-of-house IT applications and multinomial logistic regressions for front-of-house IT applications were used to test the hypotheses. The results revealed that factors such as top management support, strategic relevance, financial slack, IT skilled employees, ease of use, and compatibility affected the adoption of back-of-house IT applications. However, only the relative advantage and competitive pressure were found to be significant for the adoption of front-of-house IT applications. This suggests that different segments of business operations tended to influence different factors affecting the adoption of IT applications in the foodservice industry. Therefore, the results of this study provide some theoretical and practical implications of factors affecting the adoption of IT in the foodservice sector.
Abstrak tesis yang dikemukakan kepada Senat Universiti Putra Malaysia sebagai memenuhi keperluan untuk ijazah Master Sains

FAKTOR-FAKTOR MEMPENGARUHI PENERIMAAN APLIKASI TEKNOLOGI MAKLUMAT DALAM SEKTOR PERKHIDMATAN MAKANAN DI MALAYSIA

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Dalam tahun-tahun kebelakangan ini, banyak organisasi telah melabur sangat banyak dalam teknologi maklumat (TM) bertujuan untuk meningkatkan prestasi syarikat. Literatur terdahulu mencadangkan bahawa banyak faktor yang memainkan peranan penting dalam penerimaan sistem maklumat. Walaubagaimanapun, terdapat hanya sedikit kajian empirikal berkaitan faktor-faktor yang mempengaruhi penerimaan aplikasi TM dalam sektor perkhidmatan makanan. Kajian ini bermatlamat mengenalpasti faktor-faktor yang mempengaruhi penerimaan aplikasi TM (khususnya dalam aplikasi TM di bahagian penyediaan dan bahagian penyajian) dalam sector perkhidmatan makanan. Model kajian ini mencadangkan hubungan tiga kumpulan faktor utama iaitu a) faktor organisasi, b) faktor persekitaran, dan c) faktor teknologi. Dibawah tiga kumpulan ini terdapat 10 faktor yang akan diuji terhadap keputusan penerimaan bagi dua aplikasi TM perkhidmatan makanan yang telah dinyatakan. Faktor-faktor tersebut adalah 1) sokongan pengurusan atasan, 2) saiz organisasi, 3) kelebihan relatif, 4) kepentingan strategik, 5) kekurangan
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I certify that the Examination Committee has met on 29th January 2008 to conduct the final examination of Ahmad Faried Ismail on his Master of Science thesis entitled “Factors Affecting the Adoption of Information Technology Applications in the Foodservice Sector in Malaysia” in accordance with Universiti Pertanian Malaysia (Higher Degree) Act 1980 and Universiti Pertanian Malaysia (Higher Degree) Regulations 1981. The Committee recommends that the candidate be awarded the relevant degree. Members of the Examination Committee are as follows:

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DECLARATION

I hereby declare that the thesis is based on my original work except for quotations and citations, which have been duly acknowledged. I also declare that it has not been previously or currently submitted for any other degree at UPM or other institutions.

AHMAD FAREED ISMAIL

Date: 5 June 2008
# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>DEDICATION</td>
<td>ii</td>
</tr>
<tr>
<td>ABSTRACT</td>
<td>iii</td>
</tr>
<tr>
<td>ABSTRAK</td>
<td>v</td>
</tr>
<tr>
<td>ACKNOWLEDGEMENTS</td>
<td>vii</td>
</tr>
<tr>
<td>APPROVAL</td>
<td>xi</td>
</tr>
<tr>
<td>DECLARATION</td>
<td>xii</td>
</tr>
<tr>
<td>LIST OF TABLES</td>
<td>xvi</td>
</tr>
<tr>
<td>LIST OF FIGURES</td>
<td>xviii</td>
</tr>
<tr>
<td>LIST OF ABBREVIATIONS</td>
<td>xix</td>
</tr>
</tbody>
</table>

**CHAPTER**

1 **INTRODUCTION**

1.0 Introduction 1
1.1 Background 1
1.2 Problem Statement 5
1.3 Research Objectives 8
1.4 Significance of the Study 9
1.4.1 Contribution to the Practice 9
1.4.2 Contribution to the Body of Knowledge 10
1.4.3 Contribution to the Supplier/Provider/Vendor 11
1.4.4 Contribution to the Government/Policy Makers 12
1.5 Conclusion 13

2 **LITERATURE REVIEW**

2.0 Introduction 14
2.1 Foodservice Industry and IT Development 14
  2.1.1 Foodservice Industry 15
  2.1.2 Foodservice Information Technology 16
2.2 Innovation and IT adoption 18
2.3 Theories and Models on Innovation adoption 21
2.4 Diffusion of Innovation Theory (DOI) 26
2.5 Approaches of study in organizational innovation research 30
2.6 Categorization of organization innovation adoption 32
2.7 Classification of factors affecting innovation adoption 35
2.8 Factors affecting innovation adoption in previous studies 37
  2.8.1 Organizational Factors 38
  2.8.2 Environmental Factors 40
  2.8.3 Technological Factors 41
2.9 Conclusion 42
3 RESEARCH FRAMEWORK
3.0 Introduction 43
3.1 Research Model 43
3.2 Independent Variables and
Hypotheses Development 48
   3.2.1 Organizational Factors 48
   3.2.2 Environmental Factors 55
   3.2.3 Technological Factors 59
3.3 Dependent Variable 61
3.4 Conclusion 63

4 RESEARCH METHODOLOGY
4.0 Introduction 64
4.1 Preliminary Study 64
4.2 Pre-Testing 68
4.3 Population Sample 68
4.4 Data Collection 70
4.5 Questionnaire Design 72
4.6 Variables Measurement 73
   4.6.1 Dependent Variable 74
   4.6.2 Independent Variables 75
      4.6.2.1 Organizational Factors 76
      4.6.2.2 Environmental Factors 77
      4.6.2.3 Technological Factors 78
4.7 Data Analysis 79
   4.7.1 Reliability and Validity 79
   4.7.2 Data Screening 80
   4.7.3 Descriptive Analysis 82
   4.7.4 Hypotheses Testing 82
4.8 Conclusion 83

5 RESEARCH FINDINGS
5.0 Introduction 84
5.1 Measurement Model: Scale Reliability
   and Validity Analysis 84
5.2 Preliminary Data Examination 87
   5.2.1 Data Screening 88
      5.2.1.1 Data Accuracy 88
      5.2.1.2 Outliers 89
      5.2.1.3 Normality Test 90
   5.2.2 Respondents Profile 91
   5.2.3 Descriptive Analysis 95
5.3 Hypotheses Analysis 100
   5.3.1 Multiple Regressions Analysis
      (Back-of House Foodservice IT Applications) 100
5.3.1.1 Model Summary of Step-Wise Multiple Regressions Analysis
5.3.1.2 Most Important Factors Affecting the Adoption of Back-of-House IT Applications in Malaysian Foodservice Sector
5.3.2 Multinomial Logistic Regressions Analysis (Front-of-House Foodservice IT Applications)
5.3.2.1 Model Summary of Multinomial Logistic Regressions Analysis
5.3.2.2 Determination of Factors Affecting the Adoption of Front-of-House IT Applications in Malaysian Foodservice Sector
5.4 Results Summary
5.5 Conclusion

6 DISCUSSION
6.0 Introduction
6.1 Discussion Based on the Research Model
6.1.1 Discussion on Factors Affecting the Adoption of Back-of-House Foodservice IT Applications
6.1.2 Discussion on Factors Affecting the Adoption of Front-of-House Foodservice IT Applications
6.2 Research Implications
6.3 Limitations of the Study
6.4 Future Research Suggestions

REFERENCES
APPENDICES
BIODATA OF THE AUTHOR
LIST OF PUBLICATIONS
LIST OF TABLES

Table                                                                 Page
1. Tourist Spending in Malaysia: % Analysis 1999-2003                   16
2. Description of Diffusion Stages Term                               20
3. Models and Theories of Individual Acceptance                       22
4. The Definition and Core Constructs of DOI                         29
5. Comparison between Streams of Study in Organizational Innovation Research 31
6. Summary on the changes made on the Tornatzky and Fleisher (1990) model 47
7. The results of preliminary study on IT applications usage          66
8. Result of construct reliability assessment                         85
9. Fit indices for the measurement model                              86
10. Result of standardized factor loadings, variance extracted, and reliability estimates 87
11. Respondent Profile                                                94
12. Mean and standard deviations of variables                          95
13. Independent sample t-test for back-of-house IT applications by the restaurant ownership 97
14. Independent sample t-test for front-of-house IT applications by the restaurant ownership 98
15. Independent sample t-test for back-of-house IT applications by type of restaurants 99

xvi
<table>
<thead>
<tr>
<th></th>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>16.</td>
<td>Independent sample t-test for front-of-house IT applications by type of restaurants</td>
<td>99</td>
</tr>
<tr>
<td>17.</td>
<td>Model Summary for Multiple Regressions</td>
<td>102</td>
</tr>
<tr>
<td>18.</td>
<td>ANOVA—Difference in factors affecting back-of-house IT applications</td>
<td>102</td>
</tr>
<tr>
<td>19.</td>
<td>Coefficients for back-of-house IT Applications</td>
<td>103</td>
</tr>
<tr>
<td>20.</td>
<td>Case processing summary</td>
<td>104</td>
</tr>
<tr>
<td>21.</td>
<td>Classification of predicted vs. observed outcomes</td>
<td>105</td>
</tr>
<tr>
<td>22.</td>
<td>Model fitting summary for multinomial logistic regression</td>
<td>106</td>
</tr>
<tr>
<td>23.</td>
<td>Likelihood ratio tests of reduced model</td>
<td>106</td>
</tr>
<tr>
<td>24.</td>
<td>Summary of hypotheses testing</td>
<td>107</td>
</tr>
</tbody>
</table>
# LIST OF FIGURES

<table>
<thead>
<tr>
<th>Figure</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>The research model on foodservice IT applications adoption</td>
<td>44</td>
</tr>
<tr>
<td>2.</td>
<td>The data collection work flow</td>
<td>72</td>
</tr>
<tr>
<td>3.</td>
<td>Percentage of each back-of-house IT applications adopted</td>
<td>93</td>
</tr>
<tr>
<td>4.</td>
<td>The Final Research Model on the Factors Affecting the Adoption of Foodservice Back-of-House IT Applications</td>
<td>120</td>
</tr>
<tr>
<td>5.</td>
<td>The Final Research Model on the Factors Affecting the Adoption of Foodservice Front-of-House IT Applications</td>
<td>124</td>
</tr>
</tbody>
</table>
LIST OF ABBREVIATIONS

IT Information Technology
ECR Electronic Cash Register
POS Point-of-Sales
TMS Table Management Systems
GDS Global Distribution Systems
CRS Central Reservation Systems
EDP Electronic Data Processing
MIS Management Information Systems
IS Information Systems
MOSTI Ministry of Science, Technology and Innovation
MDT & CA Ministry of Domestic Trade and Consumer Affairs
MECD Ministry of Entrepreneur and Co-Operative Development
MSC Multimedia Super Corridor
DOI Diffusion of Innovation
EDI Electronic Data Interchange
TRA Theory of Reasoned Action
TAM Technology Acceptance Model
TPB Theory of Planned Behavior
UTAUT Unified Theory of Acceptance and Use of Technology
SCM Supply Chain Management
<table>
<thead>
<tr>
<th>Acronym</th>
<th>Full Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>EIS</td>
<td>Executive Information Systems</td>
</tr>
<tr>
<td>CAD</td>
<td>Computer Aided Design</td>
</tr>
<tr>
<td>CDM</td>
<td>Centralized Data Management</td>
</tr>
<tr>
<td>CEO</td>
<td>Chief Executive Officers</td>
</tr>
<tr>
<td>CFA</td>
<td>Confirmatory Factor Analysis</td>
</tr>
<tr>
<td>d.f.</td>
<td>Degrees-of-freedom</td>
</tr>
<tr>
<td>NFI</td>
<td>Normalized Fit Index</td>
</tr>
<tr>
<td>CFI</td>
<td>Comparative Fit Index</td>
</tr>
<tr>
<td>RMSEA</td>
<td>Root Mean Square Error of Approximation</td>
</tr>
<tr>
<td>ANOVA</td>
<td>Analysis of Variance</td>
</tr>
</tbody>
</table>
CHAPTER 1
INTRODUCTION

1.0 Introduction

This chapter 1 covers four major sections including research background, problem statements, objectives, and the significance of this research. Section 1.1, explained the scenario of the foodservice industry, particularly on the importance of information technology (IT) and it also gives an outline of the whole research including the reasons for conducting it. Subsequently, in section 1.2 the reasons of conducting this research that mentioned earlier are elaborated. The issues currently lacking in the food service industry are discussed and are used as the basis in the establishment of the research objectives as stated in section 1.3. Finally, in section 1.4 the general and specific contributions of this research are discussed in different perspectives from the viewpoint of practitioners, policy makers and suppliers.

1.1 Background

The foodservice sector is a profitable industry in the world and it is one of the hospitality sub-industries that have constantly experiences change and growth by time (Spears & Gregoire, 2003). According to Euromonitor (2004), the positive trend of this industry in recent years is related to globalization and the robust economic growth in many countries. Additionally, the increased number of tourists flow, and the variety of
cuisine offered in different places also contributed to the growth of this industry. Thus, as the industry grows and becomes more complex, foodservice operators have started to strategize their companies in order to gain competitive advantages within the industry.

In today's information edge, one of the strategic decisions considered by most of the foodservice operators is to invest in information technology (IT) applications. There are various definitions and interpretations by researchers to describe IT based on their interest of study. However, in general, IT is simply defined as the processing of information by collection of computing systems in an organization (Rainer, Turban and Potter, 2007). IT also refers to both the hardware and software that are used to store, retrieve, process, and manipulate data into meaningful information which could be further processed to increase its value (Cashman, 2007).

In this study, IT within the perspective of the foodservice sector, was defined as all technology for managing all types of data related to the foodservice business. The data might be, either data related to consumer or sales purpose data or data from the front-of-house to back-of-house that constituted the whole foodservice systems. These types of data must be managed and transformed properly into meaningful information to increase company efficiency and productivity (Grimes, 2001). Based on Jones (1995), the foodservice systems key features are the back-of-house and front-of-house operations. He explained that typical back-of-house processes include materials storage, and food production; whereas front-of-house processes include guest reception, restaurant service, bar operations and lounges. In other words, the back-of-house
systems viewed as processes that are out of sight of the customer, while the front-of-house processes performed with the customer’s involvement.

Organizations that have decide to invest in IT applications basically aims to improve their firms’ performance and to gain competitive advantages (Byrd & Davidson, 2003; Li & Ye, 1999; Winata & Mia, 2005). In addition, advanced IT introduced in many industries changed the way they conducted their businesses (Buick, 2003; Crowston & Myers, 2004; Hill, 2000; Lai & Li, 2005; Lee-Partridge, Teo, & Lim, 2000; Ma, Buhalis, & Song, 2003; McKeown & Philip, 2003; Mutch, 1993; Namasivayam, O'Connor & Frew, 2002; O'Connor & Murphy, 2004; Schiefer, 2004; Siguaw & Enz, 1999; and Winata & Mia, 2005). Moreover, IT seemed to enable organizations to restructure themselves in order to achieve economies of scale and to handle increased complexity in their organizations (Alkadi, Alkadi, & Totaro, 2004). Importantly, Ang and Pavri (1994) have stated that IT also enabled businesses to drive down the costs of products, processes, and subsequently improve their performance.

In the foodservice sector, examples of IT applications are electronic cash registers (ECR), integrated Point-of-Sale (POS) system, web technologies, the credit card processing systems, Table Management Systems (TMS), kitchen display systems, reporting features/extensive front-of-house reporting, accounting applications, menu management systems, database systems, inventory control system, and labor management systems (Ansel & Dyer, 1999; Pappas, 1997; and Van Egmond, 1985). Most of these applications are widely available and could significantly enhance the
performance of an organization. However, Ansel and Dyer (1999) posited that the trend in commercial foodservice sector seemed to be slow in adopting the current IT applications in their businesses. This is because most of the foodservice operators view IT applications as an additional cost of doing business, rather than as an investment in future profitability. Foodservice operators also tried to avoid increased costs because they usually wanted to gain more on profit margins. This phenomenon was slightly different among the foodservice operators in the U.S.A as reported by a recent study conducted by the Hospitality Technology Magazine in the Seventh Annual Foodservice Technology Study, which mentioned that there has been an increase of 65% in the number of IT adoption and implementation in the last three years of 2002 to 2005 (The Seventh Annual Foodservice Technology Study, January, 2005).

Within the hospitality industry, studies related to IT in the hotel sector received more attention from researchers, for example, on the global distribution systems (GDS) and electronic distribution, central reservation system (CRS), Internet usage, and development of new technologies in the hotel sector (Aksu & Tarcan, 2002; Buick, 2003; Dougan & Bronson, 2003; Ma et al., 2003; Wei, Ruys, van Hoof, & Combrink, 2001; Mutch, 1993; O’Connor & Frew, 2002, 2004; Siguaw & Enz, 1999). In contrast, the numbers of research on IT usage in the foodservice sector are still meager compared to the hotel sector. For instance, Kasavanna (1997) studied specifically on the POS systems usage in the foodservice sector and Ansel and Dyer (1999), discussed the framework for restaurant IT and proposed a new integrated foodservice system. In conjunction with this limited research interests, O’Connor and Murphy (2004) had