E-OFFICE FOR UiTM: REQUIREMENTS STUDY

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ABSTRACT

e-Office consists of applications that support the administrative and management functions in the office. These include scheduling system, booking system and leave application. In Universiti Teknologi MARA (UiTM), the staff force consists of nearly 15,000 academic and non-academic employees in 22 faculties and administrative offices. Problem faces by staffs include poor retrieval of information, poorly organized office jobs, out-of-date or inaccurate information, misplaced and poorly designed forms and so forth. Therefore, the need to implement e-office is crucial as to improve the situation. There have been no formal studies in requirement analysis for e-office applications in this institution. Accurate understanding of the user requirement is essential, as it will determine the acceptance and its subsequent usage of e-office applications. A survey was performed amongst staffs to identify the user requirement for e-office in UiTM. The results proved that the majority of the respondents gave positive responses towards e-office implementation, and a framework for e-office for UiTM is presented.

Keywords

e-office, office automation, electronic system.

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1. INTRODUCTION

Electronic office (e-office) is an administrative, virtually centralized component of an organization where data, information, and communications are based and disseminated via some form of telecommunications (Marcel Robles, 2002). Olson M.H & Lucas Jr. H.C. (1982), the term "Office Automation" is generally considered to refer to the use of integrated computer and communications systems to support administrative procedures in an office environment. In the automated office, not only will office work be performed more efficiently, but also the concept of office work itself will be altered. The greatest potential of office automation is not expected to be from the improvement of clerical and administrative tasks, but from the ability of managers to gain increased control over their operations. There is a necessity to aid the processing, coordination, and distribution of information amongst all the employees, either administrative staffs or academic staffs accordingly. Some common e-office modules are attendance management, leave management, payroll management, visitor management, local expense claims, calendar and so on.

Requirements can be thought of as the representation of a need that may be initiated by any individual or group at any organizational level. To specify requirements for a proposed system an individual must assess needs and, depending on the availability of development resources, prioritize them in importance (John R. valusek Dennis G. Fryback, 1985). User requirement is an important issue in order to evaluate their needs and based on the result, the development can be started. To be able to estimate the potential e-office applications, a sufficient knowledge of the user requirements is a prerequisite.

The emergence of the Internet and advancements information technologies has had universities face challenges in managing its people and environment. Universiti Teknologi MARA (UiTM) is one the largest university in Malaysia and has nearly 15,000 staffs in 22 faculties. It has experienced a phenomenal growth since its inception in 1956 and has expanded nationwide with 21 branch campuses. Consequently, information gathering, processing and distribution, which are concentrated in offices, would not be a simple errand. Currently the staffs face problems in administrating office tasks. These problems include poor retrieval of information, poorly organized office jobs, out-of-date or inaccurate information, misplaced and poorly designed forms as well as there is no confidentiality and privacy for applicants.

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There have been no formal studies in requirement analysis of e-office application and its usage in UiTM. The study attempts to survey and identify the suitable e-office modules for academic and non-academic staff in UiTM. Accurate understanding of the user requirement is essential, as it will determine the acceptance and its subsequent usage of e-office modules.

2. AIMS AND OBJECTIVES

This research aims to give an accurate and clear understanding of user and organizational needs for e-office application for UiTM. The findings is targeted to outline an integrated office environment for academic and non-academic staff in UiTM to work together to increase productivity. It will provide a basis in the design and implementation of the e-office application.

The objectives of this study are :

i)   To survey the current office systems used by academic and non-academic staff in UiTM for office and administrative functions.

ii)   To determine the user requirements of e-office modules.

iii)   To identify and propose the appropriate E-Office framework that meets UiTM requirements.

3. METHODOLOGY

A survey consisting of a questionnaire questions pertaining to demographic information, Internet usage in the office, office jobs information and the need of e-office were distributed to selected faculties and administrative offices in UiTM main campus.

The target respondents were academic and administrative staffs from faculties and office workers from the administrative offices. For the purpose of this study, the faculty's were classified according to the field of studies namely science, medical science, engineering, social sciences, humanities and business management. The classification is in accordance to the UiTM academic system. Shown in Table 1 is the classification.

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Field	Faculty
1) Science	- Faculty of Applied Sciences - Faculty of Information Technology and Quantitative Sciences - Faculty of Architecture, Planning and Surveying - Faculty of Sports Science and Recreation
2) Medical Science	- Faculty of Medicine - Faculty of Health Sciences - Faculty of Pharmacy
3) Engineering	- Faculty of Chemical Engineering - Faculty of Civil Engineering - Faculty of Electrical Engineering - Faculty of Mechanical Engineering
4) Social Sciences	- Faculty of Law - Faculty of Administrative Science and Policy Studies - Faculty of Communication and Media Studies
5) Humanities	- Faculty of Art and Design - Faculty of Education - Faculty of Performing Arts
6) Business Management	- Faculty of Accountancy - Faculty of Business Management - Faculty of Hotel and Tourism Management - Faculty of Information Studies - Faculty of Office Management and Technology

Table 1 : Field of studies.

4. RESULT AND FINDINGS

The result of the study is discussed in the followings.

a. Job category

Job category	Workplace		Total
	Faculty	**Non-faculty**	
Academic staff	174	0	174
Administrative staff	48	78	126
Total	222	78	300

Table 2 : Cross-tabulation between job category and workplace.

Table 2 illustrates the number of staffs according to their workplace. Respondent's number for administrative staffs were 78 from various administrative offices in UiTM, while 48 were from academic faculties. All the academic staffs that participated in this study were from academic faculties in UiTM.

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b. The most frequently performed office jobs

In order to investigate the most frequently performed types of office jobs, the respondents were asked to give ratings between 1 as most frequently used to 5 as least frequently to types of offices jobs listed. The list is classification of jobs according to the manual form mainly used in the office. The most frequently used office job was chosen based on the lowest total score computed. The results are summarized in Table 3.

No.	Office jobs	Total score
1.	Permission to take equipments out of the campus	183
2.	Booking of computer devices	229
3.	Utility booking / flight ticket booking	254
4.	Applications for academic visits	256
5.	Booking of teaching aids	284
6.	Applications for university's vehicles	310
7.	Calendar and scheduling	310
8.	Mileage claims	316
9.	Breakdown complaints	327
10.	Paper presentation / conference attendance	331
11.	Booking of rooms	399
12.	Claims for part time lecture / Exam paper preparation and marking	408
13	Leave applications	443

Table 3 : The most frequently performed types of office jobs.

c. Electronic or manual system

Preliminary studies indicated that the faculties in UiTM have their own office procedures, and some of them performed their daily office jobs electronically while others still resort to manual systems. Therefore, it necessary to investigate which office jobs were being conducted electronically and which were performed manually.

Table 4 summarizes the percentage of respondents who stated the types of office jobs that are performed electronically.

No	Types of offices jobs	Field of studies (% of respondents)							Mean (%)
		1	2	3	4	5	6	7	
1	None of the office jobs are done electronically	81.3	79.2	84.8	84.6	88.0	89.7	76.9	83.5
2	Claims for part time lecture / Exam paper preparation and marking	1.3	0	0	7.7	0	5.1	3.8	2.6
3	Utility booking / Flight ticket booking	1.3	0	3.0	3.8	0	5.1	6.4	2.8
4	Mileage claims	0	0	0	11.5	0	7.7	5.1	3.5

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5	Calendar and scheduling	1.3	4.2	0	3.8	0	7.7	6.4	3.3
6	Leave applications	8	12.5	9.1	3.8	8	12.8	15.4	9.9
7	Breakdown complaints	2.7	0	3	11.5	0	7.7	7.7	4.7
8	Paper presentation / Conference attendance	0	4.2	0	3.8	4.0	7.7	1.3	3.0
9	Applications for university's vehicles	1.3	0	0	3.8	0	5.1	2.6	1.8
10	Applications for academic visits	0	0	0	3.8	0	7.7	1.3	1.8
11	Permission to take equipment out of the campus	0	0	0	3.8	0	7.7	3.8	2.2
12	Booking of rooms	5.3	0	0	3.8	0	5.1	5.1	2.8
13	Booking of teaching aids	1.3	0	0	3.8	0	5.1	1.3	1.6
14	Booking of computer devices	1.3	0	0	3.8	0	0	1.3	0.9

Table 4 : Percentage of respondents who stated that the office jobs are done electronically.

Note:

1 = Science	5 = Humanities
2 = Medical Science	6 = Business Management
3 = Engineering	7 = Non-Faculty
4 = Social Sciences	

The results show that on average, nearly 84.0% of the respondents stated that none of the office jobs are done electronically in their faculties. It also indicates that on average, less than 10.0% of the respondents stated that each of the offices jobs is done electronically. However, for the office jobs that are performed electronically, the results indicate that the leave application is the office job that is mainly done electronically. Further investigation have identified have that other office jobs that are performed electronically is through independent system, or respondent were not sure about the system. This confirms that almost all the office jobs in UiTM are currently performed manually.

d. Problems faced when using the manual system

The analysis showed that eighty per-cent (80.0%) of the respondents said they faced problems when performing office jobs manually compared to 18.0% who stated they did not face problems.

The following table 5 shows the problems faced when performing jobs manually by respondents.

No	Problem	Number of response
1.	Time consuming	200
2.	Misplaced forms	174
3.	Forms are unavailable	150
4.	Poorly organized	126

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5.	Poorly designed forms	117
6.	Confidentiality / No privacy	91

Table 5 : Problems faced when performing office jobs manually.

Respondents were asked to state their problems while performing office jobs manually. Based on the highest number of responses as summarized in Table 4, the common problems, which listed were time consuming, misplaced forms and forms being unavailable. Other problems that are recognized were poorly organized and poorly designed forms. Respondents also cited no confidentiality or no privacy as the other problems.

e. The types of offices jobs to change into electronic or online system

Table 6 summarizes the percentage of the respondents who stated the offices jobs that should be changed into electronic or online system according to field of studies.

No	Types of offices jobs	Fields (% of respondents)							Mean (%)
		1	2	3	4	5	6	7	
1	Claims for Part Time Lecture / Exam Paper Preparation and Marking	81.3	95.8	84.8	96.2	64.0	71.8	60.3	79.2
2	Utility Booking / Flight Ticket Booking	62.7	79.2	63.6	69.2	48.0	64.1	53.8	62.9
3	Mileage Claims	74.7	83.3	78.8	76.9	68.0	66.7	59.0	72.5
4	Calendar and Scheduling	65.3	91.7	72.7	69.2	76.0	74.4	65.4	73.5
5	Leave Applications	85.3	83.3	93.9	84.6	88.0	94.9	73.1	86.2
6	Breakdown Complaints	73.3	79.2	81.8	80.8	76.0	89.7	75.6	79.5
7	Paper Presentation / Conference Attendance	74.7	83.3	90.9	84.6	60.0	76.9	66.7	76.7
8	Applications for University Vehicles	64.0	87.5	72.7	80.8	44.0	59.0	74.4	68.9
9	Applications for Academic Visits	62.7	83.3	72.7	80.8	44.0	61.5	57.7	66.1
10	Permission to Take Equipment from the campus	52.0	70.8	75.8	69.2	48.0	59.0	60.3	62.2
11	Booking of Room	77.3	83.3	81.8	80.8	72.0	74.4	61.5	75.9
12	Booking of Teaching Aids	60.0	79.2	84.8	69.2	52.0	53.8	59.0	65.4
13	Booking of Computer Devices	58.7	87.5	75.8	76.9	52.0	64.1	60.3	67.9

Table 6 : Percentage of office jobs to change into electronic / on-line system.

Note: fields :

1 = Science   5 = Humanities
2 = Medical Science 6 = Business Management
3 = Engineering   7 = Non-Faculty
4 = Social Sciences

The result in Table 6 indicates that on average, majority of the respondents (over 60.0%) stated that all of the office jobs are needed to be changed into electronic or online system.

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The office jobs that mostly chosen by the respondents to be converted into electronic were leave applications (86.2%), breakdown complaints (79.5%), claims for part time lecture / exam paper preparation and marking (79.2%) and paper presentation / conference attendance (76.7%)

f. Benefits of the e-office

The last section of the questionnaire aims to investigate the respondents' perception towards the benefits of the e-office. Initially, there were 12 beneficial items which were measured using a 5-Likert scale response format (1 = Strongly disagree to 5 = Strongly agree). Factor analysis was performed aiming to reduce these large items to several items called as *factor*.

Factor analysis is a statistical method used to represent a set of large variables (items or questions) to several factors. Each factor contains the items that highly correlated among each other. The value of Kaiser-Meyer Olkin (KMO) for sampling adequacy was high (0.944) and the Bartlett test was significant (p-value < 0.05) suggested that factor analysis was adequate to be carried out. Using *principal component analysis* (PCA) for extraction method and *varimax* rotation, three factors were extracted. Table 7 summarizes the results of factor analysis with their respective items, factor loadings, percentage of total variance explained and the reliability measures (alpha's coefficient).

Factor	Items	Factor loadings
1	Office jobs are well organized	0.813
	Better information retrieval	0.803
	Saves time	0.760
	Improve productivity and performance	0.742
	Easily accessible	0.720
	Better and faster feedback	0.541
	Integration of office jobs	0.507
2	Improved distribution of information	0.810
	More up-to-date and reliable information	0.767
3	Better communication and interaction among employees	0.916
	Increased specialization / skills to support administrative tasks	0.509

Table 7 : Summary of the results of factor analysis.

As shown in Table 7, all the items were highly loaded on their associated factors (factor loadings > 0.50). The Alpha's coefficient ranged in size from 0.680 to 0.940 suggested that the factors were highly reliable. The three factors extracted explained 77.51% of the total variance and were defined as follows;

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1)   Factor 1 (7 items) = Efficiency

2)   Factor 2 (2 items) = Reliability

3)   Factor 3 (2 items) = Interactivity

Then, the mean score for perception towards the benefits of the e-office were computed and the results are as follows;

No	Benefit	Mean score for perception	Perception
1	Efficiency	4.1074	Agree
2	Reliability	4.1117	Agree
3	Interactivity	3.7107	Agree

Table 8 : Average score for perception towards the benefit.

g. The opinion regarding the use of e-Office applications in daily office jobs

Most of respondents gave a positive responses and constructive comments regarding the implementation of e-office applications. They stated that e-office could enhance the users' skills and knowledge, improve productivity and performance of daily jobs, easily accessible, reliable and easy to use. They also recommended that proper training should be provided to users before implementing the e-office. Moreover, they suggested that the implementation should be aligned with a good accessibility of the Internet and facilities. Finally, they are hopeful for the e-office to be implemented as soon as possible.

5. CONCLUSIONS

There were various types of office jobs that are performed daily by academic and administrative staffs in UiTM. This study reveals that currently almost all the office jobs in the institution are performed manually. Majority of staffs irrespective of their job category and field of studies stated that they faced problems while using manual system in performing office jobs. The main problems identified were time consuming, misplaced forms, forms being unavailable as well as no confidentiality.

The study found that majority of the respondents required all office jobs to be changed into electronic system. The most offices jobs that were highly recommended by the respondents to

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convert into electronic systems are *leave applications*, *breakdown complaints*, *claims for part time lecture / exam paper preparation and marking* and *paper presentation / conference attendance*. The study revealed that majority of staffs preferred electronic system rather than manual system to perform office jobs regardless of their gender, age, job category and working experience in the institution. Factor analyses have shown that the benefits of e-office were efficiency, reliability and interactivity.

In conclusion, both academic and administrative staffs in UiTM believe that e-office could give benefits to them in performing daily jobs and they are hopeful that the system will be implemented as soon as possible. In future, the study will focus on the system design and development. The following diagram shows the framework of e-office derived from the analysis.
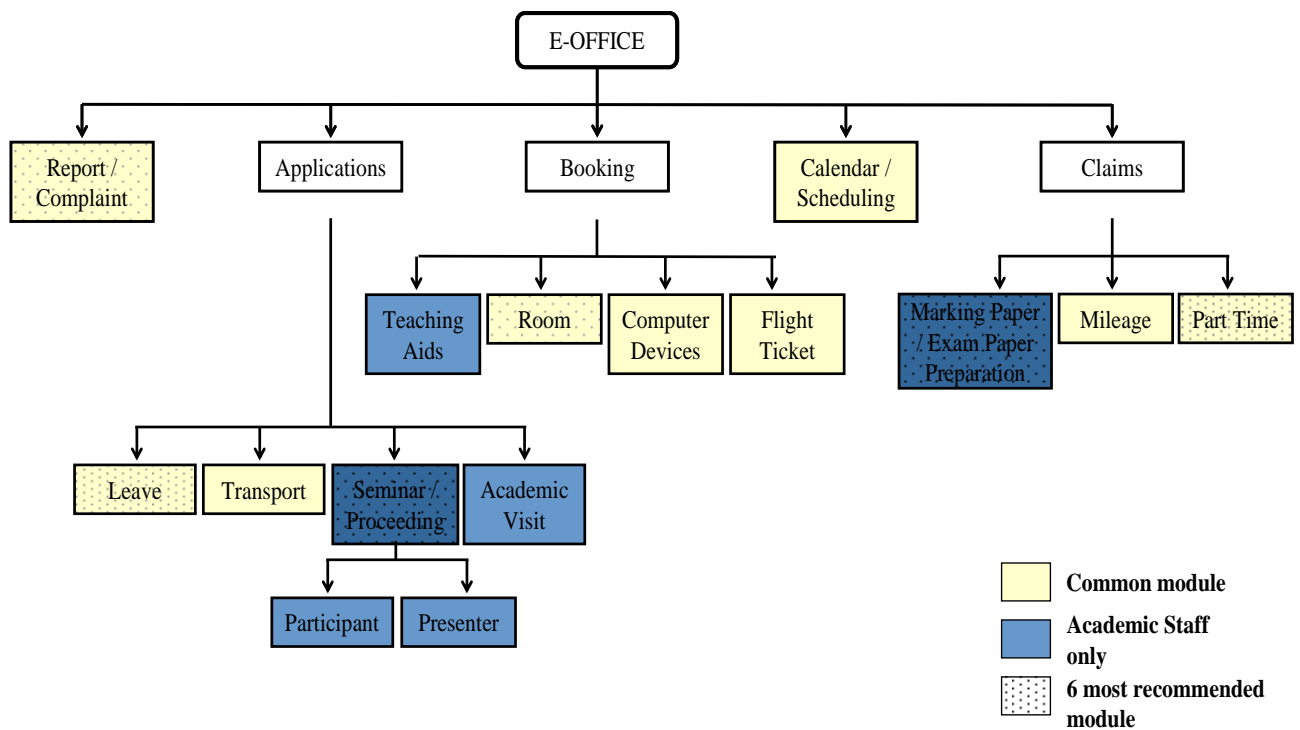

Figure 1 : Framework for e-Office in UiTM.

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