



**Factors Affecting the Usage of B2E Portals:
The Case of Royal Jordanian**

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**Thesis submitted in partial fulfillment of the requirements for
the degree of**

Master of E-Business

**Business Administration Department
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May 2011**

AUTHORIZATION

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DISCUSSION OF COMMITTEE DECISION

This dissertation was discussed under title:

“Factors Affecting the Usage of B2E Portals: The Case of Royal Jordanian”

“العوامل المؤثرة على استخدام بوابات B2E في الملكية الأردنية ”

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ACKNOWLEDGEMENT

First and foremost, I would like to begin with thanking Allah the Almighty, for whom I owe what I have achieved so far.

I would like to express my heartfelt gratitude towards people I respect for their assistance, support and encouragement in so many ways during my study.

I begin with my thesis supervisor, Dr. Ashraf Bany Mohammed, who has given me continuous support and knowledge throughout this journey and acted as my mentor for the past year of my study.

I also thank my lovely wonderful parents for their patience, compassion and guidance. I would not have been what I am now without having such an incredible family support and encouragement to be a better person and fulfill my dreams.

Moreover, I could never forget to thank my true friends who have been there for helping me along the way till this work was finally done.

To such people, I dedicate this thesis with acknowledgement and pride.

DEDICATION

In particular, I dedicate this thesis to my father who has great perceptions for my life, also to my mother who has raised me to be the person I'm now. May Allah give them the peace in their life and give them the heaven in the next life, Amen.

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LIST OF ABBREVIATIONS

B2B	Business to Business
B2C	Business to customer
B2E	Business to Employee
DF	Degree of Freedom
E-Business	Electronic Business
E-Commerce	Electronic Commerce
E-CRM	Electronic Customer Relationship Management
E-SCM	Electronic Supply Chain Management
ESS	Employee Self Service
HRIS	Human Resources Information Systems
HRMS	Human Resources Management Systems
IS	Information System
IT	Information Technology
OW	One World Alliance
RJ	Royal Jordanian Airline
Sig	Significant
TAM	Technology Acceptance Model

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Factors Affecting the Usage of B2E Portals: The Case of Royal Jordanian

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ABSTRACT

Business - to - Employee (B2E) portals is one key form of electronic business (e-business) that enables organization staff to access all company information and conduct their tasks effectively. B2E Portals entail a set of handful tools and services that can be accessed remotely.

These B2E portals provide business with diverse solution in rapid changing business environment to support their business processes, save employee time and effort, and improve organization capabilities.

However, some organizations experience low utilization and usage levels for their B2E portals. Many employees are not fully utilizing the portal services and instead of becoming a support tool for the organization operations it becomes a useless tool that waste company resources.

This research seeks to understand the factors influencing the usage of B2E portals in Royal Jordanian. Using previous literature, this study develops a theoretical model that includes a set of four factors; user characteristics, portal characteristics, usefulness, and organization support. The results of this research can help in understanding the shortcomings and enhancing the utilization of B2E portals.

Using a survey conducted on the ground staff of Royal Jordanian, this research examines the effect of these factors on employee's usage of B2E portal. Data obtained from a total of 327 respondent surveys were analyzed using statistical analysis.

The findings of this study revealed that age, salary and computer skills have statistical significant effect on using RJ B2E Portal. Moreover, results showed the significant effect of portal characteristics and usefulness on using RJ B2E Portal. In addition, the researcher found a statistical significant effect for organization support especially the existence of helpdesk and top management on the portals usage.

العوامل المؤثرة على استخدام بوابات B2E في الملكية الأردنية

إعداد

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الملخص باللغة العربية

تعد بوابات Business to Employee (B2E) شكلاً من أشكال الأعمال الإلكترونية، التي تمكن الموظفين من الوصول إلى جميع المعلومات في الشركة، والقيام بالمهام الموكلة إليهم على نحو فعال، حيث تنطوي بوابات (B2E) على مجموعة من الأدوات والخدمات التي يمكن الوصول إليها عن بعد.

تعمل هذه البوابات على دعم الأعمال بحلول سريعة ومتنوعة، في بيئة الأعمال سريعة التغيير لدعم عملياتها التجارية، كما تقوم على توفير وقت وجهد الموظف، إضافة إلى تحسين قدرات المنظمة.

وعلى الرغم من ذلك، فإن بعض المنظمات شهدت مستوىً منخفضاً لاستخدام البوابة الإلكترونية (B2E) التي توفرها لموظفيها؛ حيث أن مستوى الاستفادة كان متدنياً بسبب عدم استغلال الموظفين لخدمات هذه البوابة، التي تقدمها لهم بالشكل الذي يتناسب وقدراتهم، وبدلاً من أن تكون هذه البوابة حلاً من الحلول التي قد تفيد الشركة والموظفين، فإنها تصبح مضيعة لموارد الشركة.

يسعى هذا البحث إلى فهم العوامل التي تؤثر على استخدام البوابة الإلكترونية (B2E) في الملكية الأردنية، وبناءً على الدراسات السابقة المتعلقة بالموضوع نفسه، فإن هذه الدراسة طوّرت نموذجاً نظرياً تتضمن أربعة عوامل رئيسية، من هذه العوامل "خصائص المستخدم" و"خصائص

البوابة"، إضافة إلى "المنفعة" و "دعم المنظمة". إن النتيجة المرجوة من هذا البحث قد تسهم في فهم أسباب قلة استخدام البوابة، و طرق دعمها وتطويرها.

باستخدام الاستبانة التي تم توزيعها على الموظفين الأرضيين في الملكية الأردنية؛ لاختبار تأثير العوامل المذكورة آنفاً على استخدام الموظفين للبوابة الرابطة بين الشركة والموظف. تم تحليل المعلومات المعطاة في الاستبانة من 327 استبانة تم جمعها باستخدام التحليل الإحصائي.

كشفت نتائج هذه الدراسة عن تأثير ذو دلالة إحصائية للمتغيرات التي تتضمن كل من العمر والراتب ومهارات الحاسوب على استخدام بوابة (B2E) في الملكية الأردنية. وعلاوة على ذلك، فقد أظهرت النتائج تأثيراً ذو دلالة إحصائية لمتغيرات "خصائص البوابة" و"الفائدة المتأتبة منها" على استخدام بوابة الموظف الالكترونية (B2E) في الملكية الأردنية، كما أنها كشفت عن أثر ذو دلالة إحصائية لمتغير "دعم المنظمة"، خاصة عند وجود قسم الدعم الفني ودعم الإدارة العليا.

Chapter One: Study General Framework

1.1 Introduction

Recently, Information Technology (IT) systems have changed our world and more importantly the way we do business. IT systems and networks improved business process and developed more agile, intelligent and efficient business functions (Davison et. al, 2003). The recent developments and growth of IT and networks made it possible for business to conduct many of their functions online (Pedrinaci et. al, 2008).

Electronic business has transformed business environment towards a more efficient, globally connected and IT-oriented businesses also buying and selling online in procurement or sales departments is now integrated in most organizations worldwide (Lai and Chen, 2009).

The development of e-Business made it possible to substitute traditional employee services with B2E systems by developing online gateway (portals). B2E systems are web-enabled systems that deliver benefits for both employees and their organization. Comprehensive B2E systems have three components: online business processes, online people and management, and online services to the work place community (Rahim, 2007a). Those components of the B2E systems offer the organization less administration tasks, reduced employees' service costs, and improved human resource planning, effective decisions making, and improved employee functionality (Urbach et. al, 2010, Rahim, 2007b).

Hence, there is no wonder that B2E e-business systems (Employee portal) became a necessary tool in modern organization.

As many other companies, Royal Jordanian (RJ) has adopted B2E systems and created their own employee B2E portal. As RJ is the chief airline company based in Jordan and one of the biggest airlines in the Middle East region with approximately 4500 employees, B2E systems success becomes very crucial. This can be understood if we know that RJ employees are distributed in different areas and locations; the Head office, Queen Alia International Airport (QAIA), sales and cargo offices all around the country, and staff located in 58 stations worldwide (RJHR, 2011).

This relatively huge number and wide distribution of RJ staff creates enormous difficulty in providing the employees with the services and the benefits they need. Traditional ways of HR services are costly and slow (Mohini, 2008). Although RJ has created a B2E system to overcome such challenges, the benefits of employee portal seems not to be foreseen yet.

1.2 Study Problems and Questions

Using pilot unstructured interviews with RJ employees and IT department the researcher discovered the notable low usage rate of current RJ B2E portal. Moreover, from those employees who used the portal, many

are not fully utilizing all the services provided by the B2E portal. Employee's utilization is limited to a few services. In addition, the researcher noticed that user characteristics such as age, education and computer skills may represent important factors that affect the usage and utilization of these services. However, the researcher believes that other factors may also play a role. Consequently, this study came to explore these factors and reveal the current usage patterns in RJ B2E portal.

Study questions:

Study question 1: What is the effect of “user characteristics” on B2E portal usage in RJ?

Study question 2: What other key factors affect the usage of B2E portal in RJ? And how much do these factors affect B2E portal usage in RJ?

This question can be divided into the following sub-questions:

Sub-Question 1: What is the level of importance of B2E “Portal characteristics” on the usage of B2E Portal?

Sub-Question 2: What is the level of importance of “Usefulness” on the usage of B2E Portal?

Sub-Question 3: What is the level of importance of “Organization support” on the usage of B2E Portal?

1.3 Study Hypotheses

Based on previous research questions, following hypotheses will be tested:

Ho1

There is no statistically significant effect for **user characteristics** on the usage of the B2E portal at level ($\alpha \leq 0.05$).

This hypothesis is divided into the following sub-hypotheses:

Ho1a: There are no statistically significant differences on the usage of the B2E portal by the *user gender* at level ($\alpha \leq 0.05$).

Ho1b: There are no statistically significant differences on the usage of the B2E portal by the *user age* at level ($\alpha \leq 0.05$).

Ho1c: There are no statistically significant differences on the usage of the B2E portal by the *user education level* at level ($\alpha \leq 0.05$).

Ho1d: There are no statistically significant differences on the usage of the B2E portal by the *user salary* at level ($\alpha \leq 0.05$).

Ho1e: There are no statistically significant differences on the usage of the B2E portal by the *user computer skills* at level ($\alpha \leq 0.05$).

Ho1f: There are no statistically significant differences on the usage of the B2E portal by the *user internet skills* at level ($\alpha \leq 0.05$).

H02

There is no significant effect for the **portal characteristics** on the usage of the B2E portal at level ($\alpha \leq 0.05$).

H03

There is no significant effect for the **usefulness** dimension on the usage of the B2E portal at level ($\alpha \leq 0.05$).

H04

There is no significant effect for the **organization support** on the usage of the B2E portal at level ($\alpha \leq 0.05$).

1.4 Significance of the Study

1. Study results may reveal useful findings for this type of employee services which can contribute to improve B2E portals usage in RJ and other companies.
2. Scarcity of similar studies on such systems in Jordan and in the aviation industry.

1.5 Objectives of the Study

The objective of this study to achieved a better understanding of the current usage models of B2E portals and exploring the effect of user characteristics and other factors that affect this usage of such systems. In

addition, this work seeks to ensure that the benefits and the utilities of B2E portals in the company are delivered to the employee.

More specifically this study seeks to:

1. Identify current usage levels and models of RJ B2E portal
2. Explore the effect of user characteristics that may lead to increased usage of B2E portal.
3. Explore other factors or characteristics that also may lead to increased usage of B2E portal.

1.6 Study Limitations

- 1- Location limitations: RJ stations are spread all over the destinations they reach including the base station in Amman.
- 2- Human resource limitations: This study is limited to ground staff in Royal Jordanian Airlines.
- 3- Timeline limitations: The academic year 2010-2011.
- 4- Scientific limitations: Although many other factors can be included in the model, the researcher models only key variables that are believed to affect the usage of the portal in RJ and suggested by previous literatures.

1.7 Study Variables

Dependent variables:

Usage of B2E portal in Royal Jordanian Airline Company

Independent variables:

User characteristics: *these include the following items:* Gender, age, education, salary, computer skills and internet skills.

Portal Characteristics: *these include the following items:* Navigation, search, function, access, compatibility, help, language, information quality and reports.

Usefulness dimension: *these include the following items:* Convenient access, easy to find service, flexibility, time saving and news.

Organization Support: *these include the following items:* Training, encouragement, helpdesk and top management.

1.8 Study Model

The following figure shows the tested variables that affect the usage of the employee portal: **User characteristics, Portal Characteristics, Usefulness and Organization Support.**

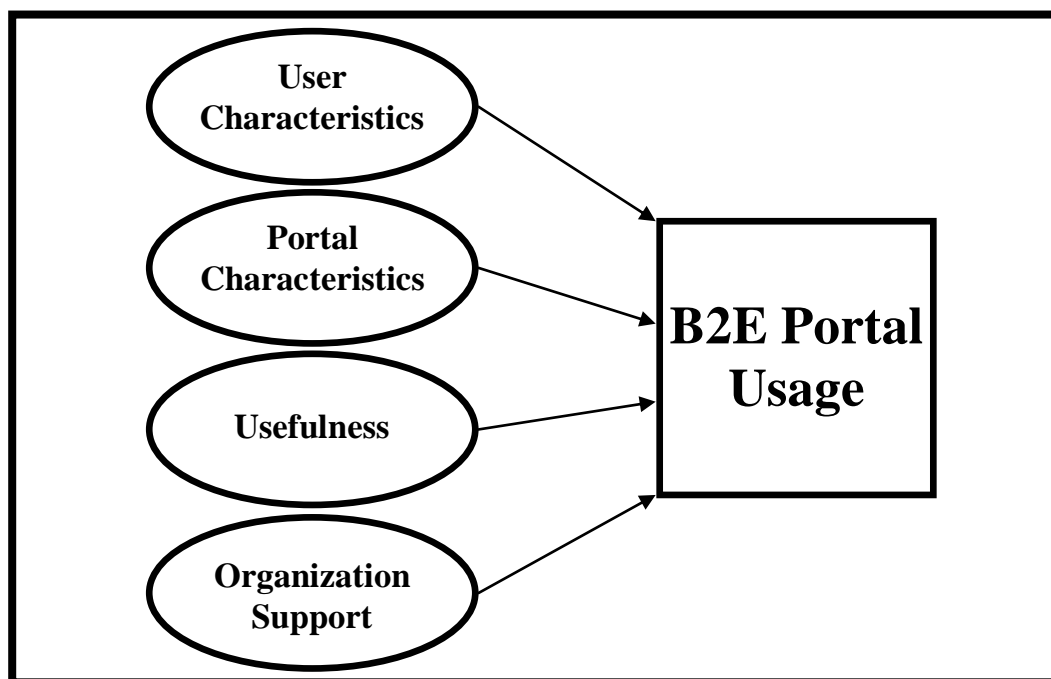


Figure (1-1) Study model by author

1.9 Terminologies of the Study

Access: A means of approaching, entering, obtain access to, especially by computer: used a browser to access a website (The free dictionary, 2011).

Business Model: “An architecture for the product, service and information flows, including a description of the various business actors and their roles; a description of the potential benefits for the various business actors; and descriptions of sources of revenues” (Timmers, 1998).

Business-to-Employee (B2E): is an e-business initiative which, if successfully implemented, assists organizations in delivering useful services, information, or products to their disperse employees (Rahim, 2006). “Portals are large applications that integrate information, people and

processes across the organizational boundaries. From the user's point of view, portals have been defined as corporate portals, customer portals, employee portals or enterprise portals" (Al-Mudimigh and Ullah, 2010)

Compatible: "Indicates that a product can work with or is equivalent to another, better-known product" (webopedia, 2011).

Convenient access: "The accessibility level of the portal anytime and anywhere through intranet, Internet, or even mobile devices" (Tojib et al, 2008).

E-Business Model Ontology: "A rigorous definition of the e-business issues and their interdependencies in a company's business model" (Osterwalder and Pigneur, 2002).

E-business systems: represent an e-business initiative aimed at employees which use an intra-business network allowing organizations to provide useful services, information, or products to their disperse employees (Rahim, 2006).

Electronic business (EB): "is a broader definition of EC that includes not just the buying and selling of goods and services but also serving customers, collaborating with business partners, and conducting electronic transactions within organizations" (Turban et al, 2010).

Electronic commerce (EC): “exchanging goods using digital media of structured information between buyers and sellers” (Ibrahim, 2008).

Employee Portal: is a web-based user interface which provides access to personalized information, resources, applications, and e-commerce options with which employees can reach a range of internal and external sources through network connection protected by a specific password (Urbach, 2009).

Employee Self-Service (ESS): is an internet-based solution that provides employees with a browser interface for relevant HR data and transactions that help organizations manage their employees HR functions with real-time access to their data, updating personal details, applying for leave, viewing their payment details, associated benefits (Mootheril, 2008).

Helpdesk: “Knowledge base representing course topic and concept structure, help-desk provides individualized on-line multi-modal peer-help” (Greer, 1998).

Human Resource Information Systems (HRIS): is a systematic procedure used for collecting, storing, maintaining, retrieving, and validating data needed by an organization about its human resources, personnel activities, and organization unit characteristics (Grant, 2008).

Information quality: “Inferred that accuracy, currency, reliability and validity are associated with “data” or “information” or “outputs” of a system while comprehensiveness is related to information systems”. (Wormell, 1990)

Navigation: “A navigation page is used primarily to help users locate and link to destination pages. A Website’s navigation scheme and features should allow users to find and access information effectively and efficiently”. (Leavitt and Shneiderman, 2006)

Search tool: “A crucial element in consumer electronic commerce is a catalog tool that not only finds the product for the user, but also convinces him that he has made the best choice” (Pu and Kumar, 2004).

Technology Acceptance Model (TAM): is an information system theory that demonstrates how users come to accept and use a certain technology. The model suggests that when users are presented with a new technology, a number of factors influence their decision about how and when they will use it (Wikipedia, 2010).

User satisfaction: is the effective attitude of the employee who interacts directly with the portal (Urbach et al, 2009).

Website flexibility: This website is designed for maximum flexibility so that you can access the components as you need them. You can treat this

website as a course and take it straight through or as a resource, accessing the background resources, modules, developing issues, recommendations and case Studies on an as-needed basis (NJEP, 2011).

Chapter Two:

Theoretical Framework

and Previous Studies

2.1 Introduction

This chapter will briefly discuss the development of B2E Portals in general (EB to B2E, B2E definition, usage, types and growth). Then the chapter will move on to discuss the RJ portal. After that, it will show the factors which affect the usage of the B2E portal identified in previous literature as well as in this study. Later, the study presents previous related work and finally, contribution of study to knowledge.

2.2 B2E Portals Development: from E-Business to B2E

In the recent decade, B2E portals emerged as key forms of e-business and became main business approaches to support their employees and operations. This section discusses the development of B2E portals.

2.2.1 Business Portal Types

E-business is not just the buying and selling of goods and services but also serving customers, collaborating with business partners, and conducting electronic transactions within organizations (Turban et al, 2010). E-business has many types which include; B2B, B2C, and B2E. B2B applications include many key applications that support business such as electronic supply chain management (e-SCM) and e-procurement systems.(Teo and Ranganathan, 2004). As well, B2C applications have wide variety of applications key among them is electronic customer

relationship management (e-CRM) which emphasizes e-commerce with the final customers. Finally, today's companies rely heavily on B2E applications that are used for organizing business activities, such as flow of documents and other employee services using the Employee Portal (Lesjak and Vehovar, 2005).

E-business portals were categorized by (Davison et al, 2003) as: general portals, community portals, enterprise information portals, vertical & horizontal industry portals, e-marketplace portals, personal/mobile portals and information portals.

Vertical portals usually contain information of a specific industry while horizontal industry portals describe horizontal markets and are typically based around industries or a local area (Tatnall, 2005). Community portals adopt the virtual community concept and virtual places for communicating and exchanging information (Andreatos, 2007). Detlor (2000) defined corporate portal "single-point Web interface used within organizations to promote the gathering, sharing, and dissemination of information throughout the enterprise".

2.2.2 Portals and B2E Portal Definition

A B2E portal can be defined as online gateway which assists organizations in delivering useful information and services to their disperse

employees which in turn creates productive and satisfied workforce needed (Rahim 2007).

Recently B2E Portal was defined as a large set of applications that integrates information, people and processes across the organizational boundaries. On the user point of view, portals have been defined as corporate portals, customer portals, employee portals or enterprise portals (Al-Mudimigh & Ullah, 2010).

Based on previous B2E portals could be defined as an online gateway which uses web applications to provide employees with secured access to their own information and services anytime and anywhere.

2.2.3 B2E Portal Development

Developments of internet and web technology have increased the adoption & implementation of B2E portals significantly (Tatnall, 2005).

B2E portals have developed from the simple payroll report to employees being able to monitor and plan their own career development (Davison et al, 2003).

The Employee Portals were implemented in the beginning for users as a single gateway to personalize their information (Shilakes and Tylman, 1998). Later on, it was used for gathering, sharing, and dissemination of

information (Detlor, 2000). after that B2E portals became more as systems that provides the users with all information they need (Chan and Chung, 2002).

In 2005, B2E portals became a secure web application that can be customized or personalized by staff, and allows them to function and interact with business partners, B2E portals became a source of “improved access to information, increased collaboration, greater use of existing applications, and effective integration between applications” (Daniel and Ward, 2005). In fact, B2E portals can be seen as an e-HR web-based application and service that provide employees with information (Evers, 2009).

However, security was an issue for the corporate so they created “A web-based platform to access with security a broad range of information, services, applications, and expertise” as defined by (Chan and Liu, 2007) (Urbach et al, 2009).

A survey conducted in the UK on over 500 top firms & companies showed that majority of these companies have basic level of B2E solutions and focused on increasing efficiency by allowing convenient access of employees to their own information (Dunford, 2002).

Recently, B2E portals have been adopted by many organizations in Jordan (universities, Arab bank, Housing bank, zain telecom and many others); however, still this type of systems is still not that popular or fully utilized in many other business.

2.2.4 RJ B2E Portal

Royal Jordanian has adopted B2E systems and created its own B2E Portal. RJ Portal is a gateway to all ground staff that provides them with several functionalities and services. It provides a secure access where each employee can get access to his own information by his ID number and password. The following figure (2-1) shows the log-in page:

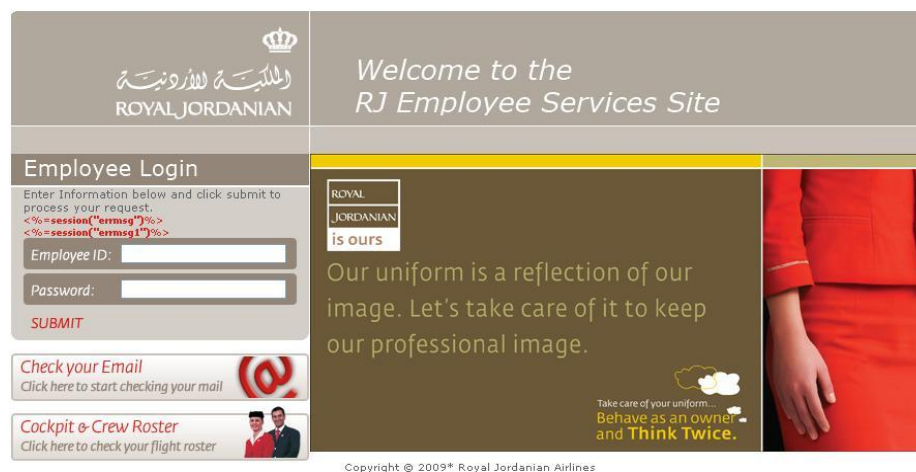


Figure 2-1 RJ B2E Portal access page. Available at <http://rjstaff.rj.com/>

RJ B2E portal have four main pages; Staff services, RJ learning, RJ rules and One World documents. Each page provides the staff with different set of services and functionalities. Staff services page contains services such as daily attendance and leave balances, financial services

page present payroll information and provident fund (RJ websites, 2011). RJ learning includes all information of employee training records, staff rules and regulation, One World documents contains the regulation between the Royal Jordanian and the other airline companies within the One World alliance (RJ website, 2011). Furthermore, the portal has several links to provide the staff with different types of services such as e-mail, special offers and RJ magazine are also available through the portal. The following figure displays a snap shot inside the portal's main page:



Figure 2-2 Main page of portal's services. Available at http://rjstaff.rj.com/new/rjstaff/Personal_Services.asp

2.2.5 RJ B2E Technical Characteristics

Using free web analytical tool goingup (available at goingup.com/analyzer), analysis of RJ staff portal indicated that

- 1- RJ staff portal URL is difficult to remember since it has more than 26 characters.
- 2- In general term RJ staff portal has passed W3C xhtml and CSS tests. This indicates a well-developed portal in term of W3C standards. This facilitates website development and accessibility by disable people.
- 3- In term of search engine optimization (SEO) test, two measures of:
 - a. Backlines: how sites link to us in the search engines.
 - b. Number of Pages that major search engines have on the portal.

Results shown that RJ staff have zero backlinks to Google, yahoo and live and zero pages on them as well. This illustrates how poor this portal is ranked and how difficult it is to search for the portal.

- 4- The RJ staff portal test has shown that the portal lacks regular content publishing and social web marks. In general terms, this indicates the poor usage and importance that portal has.

Overall the RJ B2E portal has shown some sufficient technical characteristics but experiences poor indexing and usage levels.

2.3 Theoretical Framework Component

Based on literature review and previous related work, the researcher could identify a four-construct theoretical model. These are: user

characteristics constructs, portal characteristics, usefulness constructs and organization support constructs.

2.3.1 User Characteristics

It is a set of senses and life style of the user. User characteristics were identified and discussed by many researchers as key set of factors in human computer interaction. For example, (Rahim, 2008) used age and gender in his study and found that age has a significant effect on young employees use of the portal. Moreover, Tojib et al. (2008) found that age and job categories affect the satisfaction in using the employee portal. Furthermore, Urbach (2010) in his study “An empirical investigation of employee portal success” found that gender plays a significant role in portal usage were male have more usage rates. In a recent study by Rahim et al. (2009), they found that education is a key factor that affects the usage of the portal as staffs with higher qualifications are most likely to use the system more. Lai & Chen (2009) studied age, gender and education and proposed that important role of these characteristics on system usage.

2.3.2 Portal Characteristics

Portal characteristics are the features that describe the principles of the portal which include: navigation, search, function, access, compatible, help, language, information quality and reports (Fuangvut, 2005). In

addition, this category can include information quality which is a key factor of user satisfaction (Tojib et al, 2008). Additionally, accessibility and reports quality were also indefinite as important characteristics of all portals (Lai & Chen, 2009). In addition, the researcher believes that help tool and language support can also contribute to portals characteristics and might increase usage levels of the portal.

2.3.3 Usefulness

Many scholars stressed the importance of usefulness as a determinant factor in B2E portals. This includes: convenient access, easy service, flexibility, time saving and news service. Portal service can save lot of time, provide flexibility and news adds value to the employee usefulness of portal (Tatnall, 2005). Perceived usefulness by (Rahim, 2007), ease access by (Sugianto and Tojib, 2006; Rahim et al, 2009), and news (Rahim & Singh, 2006) are identified as key factors for portals usage. As well, the researcher argue that convenient access and easy to find service have major effect on the usage of the portal.

2.3.4 Organization Support

Finally, many literatures have suggested that organization support such as training, encouragement, help desk and top management encouragement are criteria for portals usage (McCausland, 2005). In

addition motivation, awareness, training and helpdesk (Rahim et al, 2007; Rahim, 2007) are valuable factors that can have effect on portal usage.

2.4 Previous Studies

- Hawking et.al (2004) in their study entitled “e-HR and Employee Self Service: A Case Study of a Victorian Public Sector Organisation” studied the implementation of an ESS in an Australian public sector organization. The case study investigated the benefits of ESS and how to achieve implementation of business to employee (B2E) model. They divided the application of the internet to the e-HR into two elements; the first is the use of electronic media while the other is the active interaction of employees. The researchers concluded that adoption of B2E and ESS has reduced complexity and improved focus, increased ROI and improved operational effectiveness.

- Sugianto and Tojib (2006) in their study entitled “Modeling user satisfaction with an employee portal” studied employee satisfaction using a scale of a nine dimensional model. In this study, the researchers collected their data using an online questionnaire that collected three hundred and two responses from employees in Australian universities. The researcher found that any organization can investigate its own B2E portal performance to identify areas of weakness using the same scale that measures the benefits delivered by portal.

- Singh and Rahim (2006) in their study entitled “Understanding benefits and impediments of b2e e-business systems adoption” studied the experiences of two large Australian universities by offering two different types of B2E e-business systems. The researchers collected information by, first, sending interviews to the interviewees; and second, collecting information from other sources like e-mail communications, archival records, and website analyses. The findings of this study showed that adopting the B2E e-business systems was a great success considering the received benefits. These benefits the study resulted in were received despite the impediments companies might face; such as the large amount of money establishing B2E e-business systems cost and how B2E e-business systems change the way a company is managed.

- Rahim (2006) in his study entitled “Understanding adoption and impact of b2e e-business systems: Lessons Learned from the Experience of an Australian University” analyzed the experience of an Australian university by introducing an ESS portal, which is a popular type of B2E e-business portal, and how these systems have an impact on employee satisfaction and organizational performance. The researcher found that ESS portal adoption increased the satisfaction of staff by enabling them to

access their HR/financial services, the findings also reported usefulness to HR and IT managers by adoption B2E systems in the future.

- Rahim et al. (2007) in their study entitled “Factors affecting adoption of B2E e-business systems” examined the experience of two large Australian universities of adopting B2E e-business systems. The study explored the universities’ decisions to invest in those systems and the factors affecting the organizations when adopting such systems by explaining their benefits. The results show that perceived need and management support are the only two factors out of six key factors they considered have an impact of the adoption decision.

- Rahim (2007) in his study entitled “Identifying barriers to using business to employee (B2E) portals” studied the usage of B2E employee portal systems in a large university in Australia, in addition to the barriers that reduced the use of this portal by those employees. In his study, data were collected by summarizing the definition of study variables which were sent to the interviewees one week prior to the actual date of the interviews. The findings of this paper showed that the B2E discipline is new and still immature. Moreover, evaluating the barriers showed that promotion was not available, and it recommended addressing how these aspects of employees may affect the use of the portal.

- Ibrahim (2008) in his study entitled “Factors affecting e-business adoption: study of Nigerian airline industry” studied the factors that affect the adoption or rejecting e-business in Nigerian airlines industry. The researcher discussed a study model developed by four major factors and analyzed to gain better understanding of those factors. The analysis showed that e-business characteristics have major effects on the decision to adopt it. The analysis also showed that airlines which have positive attitudes towards e-business are most likely to adopt e-business.

- Mohini et al. (2008) in their study entitled “Business to employee (B2E) e-business model: service to employees or organizational management” discussed the B2E e-business model and the technologies used to support it. These technologies include intranet and portals. The study also discussed the model’s benefits received by both employee services and organizational managements. The case study analysis showed that B2E e-business model is a service to the employees and such services support organizational efficiencies.

- Mootheril (2008) in his study entitled “Achieving organizational effectiveness with B2E e-business model ” studied 13 participants from three different organizations from different industry sectors including

education, local government and insurance. The researcher used a semi-structured questionnaire as the data collection tool. The study aimed at identifying the factors that led to organizational effectiveness from B2E e-business model and exploring it in Australian context. The result of this study indicates that B2E model is adopted differently depending on the nature of business. Moreover, the data revealed that B2E e-business led to internal effectiveness in organizations with electronic information and processes, and that more skilled and cohesive workforce led to organizational effectiveness of increased productivity.

- Tojib et al. (2008) in their study entitled “User satisfaction with business to employee portals: conceptualization and scale development” developed and validated business-to-employee portal user satisfaction (B2EPUS) measure by developing a five-dimension-factor model which operates using five stages of scale including: conceptual model development, item generation, content validation, exploratory study, and confirmatory study. Findings of the study delivered a better understanding of the multidimensionality of the (B2EPUS) through the previous five dimensions, enabling the organization to manage and control the important aspects of B2E Portals strategically during the portal implementation.

- Travica (2008) discussed the adoption of a self-service system in his study “Influence of Information Culture on Adoption of a Self-Service System”. This study is a qualitative case of adopting a self-service in Canada based on the human resource management systems. The study found that HRMS was not completely adopted, and the staff was not satisfied with the new computerized system, so they kept using the old paper-based system. The researcher also found that some cultural aspects evolving around the adoption of the new technology of HRMS show moderate adoption of the self-service information system.

- Rahim et al. (2009) in their study entitled “Empirical assessment of an instrument for operationalizing factors affecting use of B2E portals” discussed B2E portals adoption by using both qualitative and quantitative methods and describing an e-business model and study the factors that affect the adoption of B2E portals by large organizations to serve their employees. Study revealed that B2E represent innovative IT applications depend on web-technologies managed by standards well supported in the e-commerce literatures.

- Lai and Chen (2009) in their study entitled “Measuring e-business dependability: The employee perspective” developed a method of measuring e-business dependability from an employee perspective. They

surveyed 152 employees in six large manufacturing companies in Taiwan were the subject of this study. The researchers successfully specified the domain of e-business dependability (EBD) construct by conceptualizing and operationalizing it. This study also showed that information quality, system quality, usefulness, ease of use, reliability, and assurance are critical in order to enhance employee perceptions.

- Rahim et al (2009) in their study entitled “Empirical assessment of an instrument for operationalizing factors affecting use of b2e portals” studied the factors that affect the adoption of B2E portals in an e-business model using qualitative and quantitative methods. The researcher found that seven important factors were used in this study including: ease of use, usefulness, compatibility, motivation, helpdesk, organization support, and attitude.

- Urbach et al. (2009) in their study entitled “A Conceptual Model for Measuring the Effectiveness of Employee Portals” studied employee portal success using a conceptual model based on DeLone and McLean IS Success Model basis. In this study, the researchers collected their data using a survey distributed to a total of 35,000 employees in 18 companies. The study created a model to evaluate the employee portal. This model

emphasis on individual benefits of portal use, and recommend to study the organization benefits in future researches.

- Urbach et al. (2010a) in their study entitled “An empirical investigation of employee portal success” tested a theoretical model based on the Delone and Mclean IS Success model. Moreover, they developed hypotheses regarding the associations between different models success dimensions. The findings in their study indicated that the factors contributing to IS success and other success dimensions had to be considered when aiming for a successful employee portal.

- Urbach et al. (2010b) in their study entitled “Industry specificity of employee portal success a multi-group comparison” studied the employee portal success. In this study, data were collected using more than the responses of 6,000 employees in 22 companies among different industries to discover that affects specific industries. Collaboration quality was found to be an important success factor because of the significant influence on both use and user satisfaction. Other dimensional factors did not have significant influences on use and user satisfaction.

2.5 Study Contribution to Knowledge

Previous studies discussed different factors that affected the adoption of B2E portals and its effect on the usage of such portals. However, very few studies suggested a comprehensive model such as this study model that considers some key factors within the system.

Moreover, the model suggested by the researcher focuses on user characteristics along with portal characteristics, usefulness dimensions and organization support. This would help in understanding the differences of portal usage among different staff members.

Finally, the population of the study was the Royal Jordanian Airlines which represents an interesting case from a developing country, i.e. Jordan.

Chapter Three:

Methods and

Procedures

3.1 Introduction

This chapter discusses the methods used in the study to answer research questions and test the hypotheses by several statistical methods. This chapter is divided into the following five sections: Study Methodology; Study Population and Sample; Study Tools and Data Collection; Statistical Treatment; Reliability and Validity.

3.2 Study Methodology

This study used both descriptive and analytical analysis. Descriptive study includes data collected from previous related works and literature review. These resources were used to develop the theoretical model of this study.

Furthermore, statistical techniques were used for empirical analysis and a survey was designed to collect data from the population of the study, who were RJ ground staff.

3.3 Study Population and Sample

The population of the study is all ground staff in Royal Jordanian. A convenient random sample was taken from the population to represent all different company's departments while considering the relative weight of each department. The following table (3-1) shows the distribution of the staff in Royal Jordanian across the different departments.

Table (3-1) *the distribution of study population across departments*

No.	Department	Total	No.	Department	Total
1	Human Resources	68	11	Planning	53
2	Customer Quality Management	11	12	Public Relations	10
3	Internal Audit	7	13	Airport Services	1078
4	Legal Affairs	8	14	In-Flight Product	13
5	Safety & Security	96	15	Cargo	256
6	Finance	161	16	Engineering	636
7	Procurement	56	17	Operation control center	39
8	Insurance	9	18	Out Stations	517
9	IT	95	19	Passengers Services	1019
10	Marketing & Sales	127	Total number of staff		4259

The Passengers Services Department was eliminated from the total population because they are using another type of B2E Portal called e-crew and it is not the subject of this study.

The population = Total of depts. – passenger services

The population = 4259 – 1019 = 3240

A total of 450 surveys were distributed to the population of the study and 327 surveys (72.6%) were retrieved and valid for analysis. The following table (3-2) shows the exact number of distributed surveys and the number of respondents from each department.

Table (3-2) *the staff responses in the population of study*

No	Department	Distributed surveys	Adequate for analysis	No	Department	Distributed surveys	Adequate for analysis
1	Human Resources	7	5	10	Marketing & Sales	13	9
2	CQM	4	3	11	Planning	26	21
3	Internal Audit	3	2	12	Public Relations	2	2
4	Legal Affairs	4	4	13	Airport Services	180	146
5	Safety & Security	15	8	14	In-Flight Product	3	3
6	Finance	25	20	15	Cargo	40	32
7	Procurement	6	3	16	Engineering	60	33
8	Insurance	2	2	17	OCC	10	8
9	IT	20	18	18	Out Stations	30	8
All departments				Total		450	327

* Source: RJ HR data April 2011

3.4 Study Tools and Data Collection

The study tools rely on two approaches; theoretical and practical. In the theoretical part, the researcher used previous relevant academic research collected through academic library systems (both physical and online). On the other side, the researcher used a survey that was developed based on the theoretical model to collect the data. Each part in the survey measures a variable of the model in relevance to employee usage of the portal. These dimensions can be summarized as the following:

1. The independent variables

*Section one: **User Characteristics.*** The user characteristics information was collected with closed-ended questions to measure the user characteristics through (5) items: gender, age, education, salary, computer skills and internet skills.

*Section two: **Portal Characteristics.*** This section captures the portal characteristics through (9) items (navigation, search-ability, functionality, accessibility, compatibility, helpdesk, language support, output report) measured using a (5) level Likert-type scale.

*Section three: **Usefulness.*** This section captures the usefulness of the Portal through (5) items (convenient access, easy to find services, flexibility to get services, time saving, get updates and news) measured using a (5) level Likert-type scale.

*Section four: **Organization support.*** This section measured the organization support for the Portal by (4) items (training, encouragement, technical support, leadership support) measured using a (5) level Likert-type scale.

2. The dependent variable (Usage):

One major question was used to measure the usage level (frequency) using a (5) level a Likert-type scale.

3.5 Statistical Treatment

After collecting data from the returned responses, the researcher used the Statistical Package for the Social Sciences SPSS (v 19) to analyze the data. The researcher used suitable Statistical treatment for each question and hypothesis from the following tests:

- Cronbach Alpha (α) to test Reliability.
- Percentage and Frequency to describe the sample.
- Arithmetic Mean and Standard Deviation to answer the study questions.
- T-test and using ANOVA table to measure the impact of the user characteristics on the usage and the usage level of the Portal
- Simple Linear and Multiple Regression analysis with (F) test
- Relative importance, that is assigned using:

$$\text{Class Interval} = \frac{\text{Maximum class} - \text{Minimum Class}}{\text{Number of level}}$$

$$\text{Class Interval} = \frac{5 - 1}{3} = \frac{4}{3} = 1.33$$

The Low degree less than 2.33

The Median degree from 2.33 – 3.66

The High degree from 3.67 and above

3.6 Validity and Reliability

(A) Validation

To test for survey clarity and coherency, a macro review covering all research components was performed by academic reviewers - from Jordanian Universities - specialized in Business, Information Technology and Statistics. Therefore, some items were added based on their recommendations while some others were modified. The survey was reviewed by a total of (9) academic reviewers and the overall percentage of response which was 100%. Please see appendix “B” for the list of academic arbitrators.

(B) Reliability

To test the survey reliability, Cronbach Alpha (α) analysis was used to measure internal consistency. A minimum acceptable level ($\text{Alpha} \geq 0.65$) suggested by (Revelle & Zinbarg, 2009) was adopted. Results show that overall Cronbach Alpha (α) = 0.885, whereas, the high level of Cronbach Alpha (α) was for the portal characteristics dimensions (0.797) and the lowest level of Cronbach Alpha (α) was for organization support dimensions (0.698). Overall, these results are at acceptable level suggested by (Revelle & Zinbarg 2009). Results of Cronbach Alpha (α) are shown in the following Table (3-3).

Table (3-3) Reliability of survey Dimensions

Variables	No.	Dimensions	Cronbach Alpha (α)
Portal Characteristics 0.797	1	Navigation	0.798
	2	Search	0.767
	3	Function	0.771
	4	Access	0.774
	5	Compatible	0.797
	6	Help	0.755
	7	Language	0.775
	8	Information quality	0.780
	9	Reports	0.775
	Portal Characteristics		0.797
Usefulness 0.775	1	Convenient access	0.706
	2	Easy to find service	0.717
	3	Flexibility	0.745
	4	Time save	0.725
	5	News	0.778
	Usefulness		0.775
Organization Support 0.698	1	Training	0.610
	2	Encouragement	0.620
	3	Help desk	0.715
	4	Top management	0.572
	Organization Support		0.698
All survey including demographic variables			0.885

Chapter Four: Analysis

Results and Hypotheses

Testing

4.1 Introduction

Based on previous research framework, this chapter presented and described the statistical analysis results for the research questions and research hypotheses. The data analysis included a descriptive analysis using the Means and Standard Deviations for the questions of the study; t-test, ANOVA and Multiple and Simple Linear and Regression analysis for the empirical analysis.

Descriptive statistics for sample user characteristics

The descriptive analysis of user characteristics variables demonstrated in the table (4-1) below shows that 58.7% of the respondents are males while 41.3% are females. On the other hand, it is clear that 34.6% of the study sample ranged between (28 – 32) years old which represents the majority of the respondents. Educational level results show that most of the sample (76.1%) has bachelor degree. Computers and the internet skill results show that 58.1% of the respondents are with intermediate use of computers, and 74.9% have been using the internet for more than 6 years. Salary wise, statistics shows that 50.2% of the sample is paid more than 500JDs. The following table (4-1) shows frequency and percentage of user characteristics variables of the study's sample.

Table (4-1) *Frequency and percentage of demographic variables*

No.	Variables	Categorization	Frequency	Percent
1	Gender	Male	192	58.7
		Female	135	41.3
2	Age	18 – 22	5	1.5
		23 – 27	107	32.7
		28 – 32	113	34.6
		33 & above	102	31.2
3	Education	High school	16	4.9
		Diploma	34	10.4
		Bachelor	249	76.1
		Graduate studies	28	8.6
4	Salary	Less than 300	7	2.1
		301 – 400	52	15.9
		401 – 500	104	31.8
		More than 501	164	50.2
5	Computer Skills	Do not use computer	1	0.3
		Basic use	5	1.5
		Intermediate use	190	58.1
		Professional use	131	40.1
6	Internet Skills	Do not use internet	1	0.3
		1 – 2	14	4.3
		3 – 5	67	20.5
		6 & Above	245	74.9

4.2 Answers of Study Questions

Study question 1: What is the effect of user characteristics on B2E portal usage in RJ?

The effect of user characteristics is answered using hypothesis testing presented in the next section.

Study question 2: What other key factors affect the usage of B2E portal in RJ? What is the importance level for each dimension? How much do these factors affect B2E portal usage in RJ?

This question is answered by theoretical model, hypothesis testing in the next section and finally using relative importance formula. The following sub-questions are used:

Sub-Question 1: What is the level of importance of B2E Portal characteristics on the usage of B2E Portal?

Sub-Question 2: What is the level of importance of Usefulness on the usage of B2E Portal?

Sub-Question 3: What is the level of importance of Organization support on the usage of B2E Portal?

Sub-Question 1:

What is the level of importance of Portal characteristics on the usage of B2E Portal? To answer this question the researcher used the arithmetic mean, standard deviation, item of importance and level of importance as shown in Table (4-2).

Table (4-2) *Level of importance of the Portal characteristics*

No	Portal Characteristics	Mean	Standard deviation	Item importance	Level of importance
1	The site allows staff to navigate through portal pages easily	3.76	0.920	1	High
2	The portal contains a search tool	2.46	1.360	9	Medium
3	The portal's functions and services operate efficiently	3.22	1.058	5	Medium
4	The portal provides easy access for the handicapped	3.62	1.069	2	Medium
5	The computer's operating system affects the compatibility of the portal's services; e.g.: (Windows, Linux, Mobile OS)	2.76	1.013	6	Medium
6	The portal contains help tool to assist with all services	2.58	1.223	8	Medium
7	The portal is supported by more than one language to serve the users	2.71	1.293	7	Medium
8	The portal provides useful and high quality information	3.43	0.889	3	Medium
9	The portal provides information and reports in well-established designs	3.39	0.930	4	Medium
General Arithmetic mean and Standard deviation		3.573	0.747		

The above Table (4-2) shows the level of importance of Portal characteristics. The arithmetic means ranged between (2.64) and (3.76) compared to General Arithmetic mean amount of (3.573). It is observed that the high mean was to item “The site allows staff to navigate through portal pages easily” with arithmetic mean of (3.76) and standard deviation of (0.92) while the lowest arithmetic mean was to item “The portal contains a search tool” with arithmetic mean of (2.46) and Standard deviation of (1.36). In general, the level of importance of Portal characteristics in RJ B2E Portal was medium.

Sub–Question 2:

What is the level of importance of Usefulness on the usage of B2E Portal?

To answer this question, the researcher used the arithmetic mean, standard deviation, item of importance and level of importance as shown in Table (4-3).

Table (4-3) *Level of importance of the usefulness characteristics*

No	Usefulness	Mean	Standard deviation	Item if importance	Level of importance
1	Receiving services conveniently through the portal	3.61	0.899	1	Medium
2	Finding the required services easily from the portal	3.50	0.879	2	Medium
3	Flexibility in receiving services from the portal	3.02	0.920	5	Medium

4	The portal saves user's time in receiving the required service	3.46	0.974	3	Medium
5	The portal provides the latest news and updates on the company and work	3.06	1.115	4	Medium
General Arithmetic mean and Standard deviation		3.33	0.808		

Table (4-3) above shows that the arithmetic means for usefulness range between (3.02 – 3.61) compared to General Arithmetic mean amount of (3.33). It is observed that the high mean was to item “Receiving services conveniently through the portal” with arithmetic mean of (3.61) and standard deviation of (0.899) while the lowest arithmetic mean was to item “Flexibility in receiving services from the portal” with arithmetic mean of (3.02) and Standard deviation of (0.920). In general, the level of importance of Usefulness in RJ B2E Portal was medium.

Sub-Question 3:

What is the level of importance of Organization support on the usage of B2E Portal?

To answer this question the researcher used the arithmetic mean, standard deviation, item of importance and level of importance as shown in Table (4-4).

Table (4-4) below shows the level of importance of Organization support range between (2.47 - 3.25) compared with General Arithmetic mean amount of (2.62). It is observed that the high mean was to item “The Company provides helpdesk support to deal with any issue the users” with arithmetic mean of (3.25) and standard deviation of (1.075) while the lowest arithmetic mean was to item “The company ensures that employees get trained in using the portal” with arithmetic mean of (2.47) and Standard deviation of (1.104). In general, the level of importance of Organization support in the RJ B2E Portal was medium.

Table (4-4) *Level of importance of the organization support characteristics*

No	Organization support	Mean	Standard deviation	Item if importance	Level of importance
1	The company ensures that employees get trained in using the portal	2.47	1.104	4	Medium
2	The company encourages its employees to use the portal instead of the traditional methods; e.g.: (HR Dept.)	2.95	1.118	2	Medium
3	The company provides helpdesk support to deal with any issue the users face	3.25	1.075	1	Medium
4	Managers advise employees to use the portal	2.77	1.189	3	Medium
General Arithmetic mean and Standard deviation		2.62	1.01		

4.3 Study Hypothesis Testing

The researcher in this part used several statistical methods for analysis in order to test the main hypothesis and sub-hypotheses. These include Independent Sample T Test, one way ANOVA, simple linear and multiple regression analysis with (F) test.

Ho1: There are no statistically significant differences by **user characteristics** on using the B2E portal.

To ensure if there are any differences in using the B2E portal in Royal Jordanian by the *user characteristics*, the researcher divided the first main hypothesis into six sub-hypotheses, and used the Independent Sample T Test to test the *gender* and one way ANOVA to test *age, education level, salary, computer skills and internet skills*. The sub-hypotheses were tested and the results are shown as the following:

Ho1a: There are no statistically significant differences on using the B2E portal by *user gender*.

To answer this sub-hypothesis the researcher used the independent sample (T) test to ensure if there are any differences on using the RJ B2E Portal by the user's gender. Results are shown in Table (4-5).

Table (4-5): *The results of the user's gender differences on the usage of RJ B2E portal by Independent sample (T) test*

	T calculate	T Tabulated	DF	Sig (2-tailed)
Differences of Gender	0.001	1.960	325	0.999

* The impact is significant at level ($\alpha \leq 0.05$)

From Table (4-5) it is clear that there are no significant differences by user's gender on using the RJ B2E Portal, since absolute value of T calculated (0.001) is less than T tabulated at level ($\alpha \leq 0.05$) which was (1.960). This indicates that the first sub-hypothesis is valid. Therefore, the null sub-hypothesis was accepted and the alternative sub-hypotheses were rejected:

There are no statistically significant differences in using the B2E portal by the user gender at level ($\alpha \leq 0.05$)

Ho1b: There are no statistically significant differences in using B2E portal by the *user age*.

To answer this sub-hypothesis the researcher used the one way ANOVA to ensure if there any differences on using the RJ B2E Portal by the user's age as shown in Table (4-6).

Table (4-6): *The results of the user's age differences on the usage of RJ B2E portal by one way ANOVA*

	F calculate	F Tabulated	DF	Sig*
Differences of Age	5.888	2.650	3	0.016
			323	

* The impact is significant at level ($\alpha \leq 0.05$)

From Table (4-6) it is clear that there are significant differences of the user's age on using the RJ B2E Portal since the absolute value of F calculated (5.888) is greater than F tabulated (2.65) at level ($\alpha \leq 0.05$). This indicates that the second sub-hypothesis is invalid. Therefore, the null sub-hypotheses were refused and the alternative sub-hypotheses were accepted:

There are statistically significant differences in using the B2E portal by the user's age at level ($\alpha \leq 0.05$)

H01c: There are no statistically significant differences in using the B2E Portal by the *user education level*.

To answer this sub-hypothesis the researcher used the one way ANOVA to ensure if there any differences on using the RJ B2E Portal by the user's education level as shown in Table (4-7).

Table (4-7): *The results of the user's education level differences on the usage of RJ B2E portal by one way ANOVA*

	F calculate	F Tabulated	DF	Sig*
Differences of Education	0.302	2.650	3	0.583
			323	

* The impact is significant at level ($\alpha \leq 0.05$)

From Table (4-7) it is clear that there are no significant differences of the user's education level on using the RJ B2E Portal since the absolute value of F calculated (0.302) is less than F tabulated (2.650) at level ($\alpha \leq 0.05$). And that indicates that the second sub-hypothesis is valid. Therefore, the null sub-hypotheses were accepted and the alternative sub-hypotheses were refused:

There are no statistically significant differences in using the B2E Portal by the user education level at level ($\alpha \leq 0.05$)

Hold: There are no statistically significant differences in using the B2E portal by the *user salary*.

To answer this sub-hypothesis the researcher used the one way ANOVA to ensure if there any differences on using the RJ B2E Portal by the user's salary as shown in Table (4-8).

Table (4-8): *The results of the user's salary differences on the usage of RJ B2E portal by one way ANOVA*

	F calculate	F Tabulated	DF	Sig*
Differences of Salary	15.294	2.650	3	0.000
			323	

* The impact is significant at level ($\alpha \leq 0.05$)

From Table (4-8) it is clear that there are significant differences by the user's salary on using the RJ B2E Portal since the absolute value of F calculated (15.294) is greater than F tabulated (2.65) at level ($\alpha \leq 0.05$). And that indicates that the second sub-hypothesis is invalid. Therefore, the null sub-hypotheses were refused and the alternative sub-hypotheses were accepted:

There are statistically significant differences in using the B2E portal by the user's salary at level ($\alpha \leq 0.05$)

To test for group effect, multiple comparisons using Tukey test were used. This test can explain where the exact differences have been between staff groups salaries.

Table (4-9): *Multiple comparisons between staff salaries using Tukey test*

(i) Salary	(j) Salary	Less than 300	301 – 400	401 – 500	501 & More
Less than 300			0.996	0.999	0.452
301 – 400		0.996		0.999	0.014
401 – 500		0.999	0.999		0.000
501 & More		0.452	0.014	0.000	

Previous table shows that the significant category was within those staff with 501 & more.

Hole: There are no statistically significant differences in using the B2E portal by *user computer skills*.

To answer this sub-hypothesis the researcher used the one way ANOVA to ensure if there any differences on using the RJ B2E Portal by the user's computer skills as shown in Table (4-10).

Table (4-10): *The results of the user's computer skills differences on the usage of RJ B2E portal by one way ANOVA*

	F calculate	F Tabulated	DF	Sig*
Differences of Computer skills	3.899	2.650	3	0.049
			323	

* The impact is significant at level ($\alpha \leq 0.05$)

From Table (4-10) it is clear that there are significant differences by the user's computer skills on using the RJ B2E Portal since the absolute value of F calculated (3.899) is greater than F tabulated (2.65) at level ($\alpha \leq 0.05$). It indicates that the second sub-hypothesis is invalid. Therefore, null sub-hypotheses were refused and alternative sub-hypotheses were accepted:

There are statistically significant differences in using the B2E portal by the user's computer skills at level ($\alpha \leq 0.05$)

H_{01f}: There are no statistically significant differences on using the B2E portal by *user internet skills*.

To answer this sub-hypothesis the researcher used the one way ANOVA to ensure if there any differences on using the RJ B2E Portal by the user's internet skills as shown in Table (4-11).

Table (4-11): *The results of the user's internet skills differences on the usage of RJ B2E portal by one way ANOVA*

	F calculate	F Tabulated	DF	Sig*
Differences of Internet skills	0.325	2.650	3	0.569
			323	

* The impact is significant at level ($\alpha \leq 0.05$)

From Table (4-11) it is clear that there are no significant differences of the user's internet skills in using the RJ B2E Portal since the absolute value of F calculated (0.032) is less than F tabulated (2.650) at level ($\alpha \leq 0.05$). This indicates that the second sub-hypothesis is valid. Therefore, the null sub-hypotheses were accepted and the alternative sub-hypotheses were refused:

There are no statistically significant differences in using the B2E Portal by the user's internet skills at level ($\alpha \leq 0.05$)

Ho2: There is no significant effect for the **portal characteristics** in using the B2E portal.

To answer this hypothesis the researcher used the Simple linear Regression analysis to ensure if there is any effect by the portal characteristics on using the RJ B2E Portal as shown in Table (4-12).

Table (4-12) *Simple regression analysis test the results of the portal characteristics effect on the usage of RJ B2E portal*

	(R)	(R ²)	F calculate	F Tabulated	β	DF	Sig*
Effect of portal characteristics	0.183	0.033	11.219	3.89	0.183	1	0.001
						325	
						326	

* The impact is significant at level ($\alpha \leq 0.05$)

From Table (4-12) it is clear that there is significant effect of the portal characteristics on using the RJ B2E Portal. R was (0.183) at level ($\alpha \leq 0.05$) whereas the R² was (0.033) and β was (0.183) which indicate significant effect as F Calculate was (11.219) which is greater than F Tabulated which was (3.89) significant at level ($\alpha \leq 0.05$). This shows that the second main hypothesis is invalid. Therefore, the null hypotheses were refused and the alternative hypotheses were accepted:

There is significant effect for the portal characteristics in using the RJ B2E portal at level ($\alpha \leq 0.05$)

Ho3: There is no significant effect for the **usefulness** in using the B2E portal.

To answer this hypothesis the researcher used the Simple linear Regression analysis to measure if there is any effect of the usefulness on using the RJ B2E Portal as shown in Table (4-13).

Table (4-13) *Simple regression analysis test the results of usefulness effect on the usage of RJ B2E portal*

	(R)	(R ²)	F calculate	F Tabulated	β	DF	Sig*
Effect of Usefulness	0.186	0.034	11.607	3.89	0.186	1	0.001
						325	
						326	

* The impact is significant at level ($\alpha \leq 0.05$)

From Table (4-13) it is clear that there is significant effect of usefulness on using the RJ B2E Portal. The R was (0.186) at level ($\alpha \leq 0.05$) whereas the R² was (0.034) and β was (0.186) whereas F Calculate was (11.607) which is greater than F Tabulated which was (3.89) significant at level ($\alpha \leq 0.05$). This indicates that the third main hypothesis is invalid. Therefore, the null hypotheses were refused and the alternative hypotheses were accepted:

There is significant effect for usefulness in using the RJ B2E Portal at level ($\alpha \leq 0.05$)

Ho4: There is no significant effect for the **organization support** in using the B2E portal.

To answer this hypothesis the researcher used the Multiple Regression Analysis to ensure if there is any effect by any factor of the organization support on using the RJ B2E Portal as shown in Table (4-14).

Table (4-14): Multiple regression analysis test the results of the organization support effect on the usage of RJ B2E portal

	(R)	(R ²)	F calculate	F Tabulated	β	DF	Sig*	
Organization support	0.359	0.129	11.939	2.42	Training	.044	4	0.487
					Encouragement	-.073		0.228
					Help desk	.190	322	0.001
					Top MG	.267	326	0.000

* The impact is significant at level ($\alpha \leq 0.05$)

From Table (4-14) it is clear that there is no evidence for the effect of training and encouragement on portal usage. However, it is clear that there is significant effect for helpdesk and top management on portals usage. Overall R was (0.359) at level ($\alpha \leq 0.05$) whereas the R² was (0.129). Overall the study found that there is an effect for organization support since the absolute F Calculated was (11.939) and it is greater than F Tabulated which was (2.42) at level ($\alpha \leq 0.05$) Therefore, the null hypotheses were rejected and the alternative hypotheses was accepted:

There is significant effect for organization support in using the RJ B2E portal at level ($\alpha \leq 0.05$)

Chapter Five: Results Analysis & Recommendations

5.1 Results analysis

In this study, the researcher examined a set of questions and suggested a set of hypotheses and the study came out with a number of results that may contribute to increase B2E portal usage levels. The main results are:

5.1.1 Questions Results:

- The level of importance of **Portal characteristics** in RJ B2E Portal was medium.

Overall portal characteristics average were medium which showed that the staff finds portal characteristics not in the required level. Arithmetic mean indicates that search & help tool has the lowest mean which proposes that these characteristics either do not exist or are not efficiently supported within the portal characteristics.

- The level of importance of **Usefulness** in RJ B2E Portal was medium.

This indicates that staff members do not get the required utilities from the portal. Arithmetic mean indicates that low flexibility and updated news decrease the staff usefulness of the portal.

- The level of importance of **Organization support** in the RJ B2E Portal was medium.

In the organization support side training & top management support have the lowest arithmetic mean. This indicates low support of staff by their managers and no training to use the portal from the organization to the staff.

5.1.2 Hypotheses Results:

- *There are no statistically significant differences on using the B2E portal by the user's **gender** at level ($\alpha \leq 0.05$)*

This proposes that all staff regardless of their gender use RJ B2E Portal at the same level while looking for the same benefits.

- *There are statistically significant differences on using the B2E portal by the user's **age** at level ($\alpha \leq 0.05$)*

This shows that user's age differences affect that usage levels of the RJ B2E portal and suggest addressing these differences. Properly old staff is not using the portal in the same level with the young staff.

- *There are no statistically significant differences on using the B2E portal by the user's **educational level** at level ($\alpha \leq 0.05$)*

Regarding the educational level, no differences among the staff were noticed by the level of education on using the RJ B2E Portal. This might be due to the high educational levels of the staff. The descriptive statistics

showed that 76.1% of the staff holding bachelor degree while only 4.9% who hold high school certificate.

- *There are statistically significant differences on using the B2E portal by user's **salary** at level ($\alpha \leq 0.05$)*

Staff salary also indicates differences among the staff in using the RJ B2E Portal. Testing user salary results with Tukey in the one way ANOVA the multiple comparisons table showed that the most significant salary category were (501 & more). High salaries provide the employee with proper access to the portal such as availability of computer and internet access at home or by any wireless device they have. These differences in staff usage might refer to the luxurious lifestyle some of the members enjoy and staff whose salaries are high uses the portal more than the others.

- *There are statistically significant differences on using the B2E portal by the user's **computer skills** at level ($\alpha \leq 0.05$)*

The computer skills are not the same for all staff. Testing for computer skills showed differences on the usage of the RJ B2E Portal among the staff. The usage of the portal will be affected regarding the self-skill the staff. Staff with high computer skills seeks all their services from the portal. Yet, others who do not have that good skill will try to seek the old paper-based to get their services.

- *There are statistically significant differences on using the B2E portal by the user's **internet skills** at level ($\alpha \leq 0.05$)*

For the internet skills, the analysis showed no differences on using the RJ B2E Portal among the staff. Descriptive statistics showed that large number of the staff (almost 75%) was using the internet for a long time and their experiences are high.

- *There is significant effect for the **portal characteristics** on using the RJ B2E portal at level ($\alpha \leq 0.05$)*

These include: navigation, search-ability, functionality, accessibility, compatibility, helpdesk, language support, output report

Some of these factors such as language and information quality have higher effect on the usage. The portal is supported by English language only, and as long as all the employees are locals, Arabic is their native language. Information quality also has indicated high significant effect on the usage of the portal, the required quality of the information supported by the portal affect the staff usage. Staff does not need only information, but they seek other services and resources.

- *There is significant effect for **usefulness** on using the RJ B2E portal at level ($\alpha \leq 0.05$)*

The studied variables (convenient access, easy to find services, flexibility, time saving, and news) also showed effect on the RJ B2E Portal usage among staff and the suggested variables have an effect as whole.

The factors are *easy to find services; convenient access and time saving* were the most significant effect on portal usage. Thus, convenient access and finding the required service within short time is the main desire of the portal and that what increase its usefulness toward the staff.

- *There is significant effect for the **organization support** on using the RJ B2E portal at level ($\alpha \leq 0.05$)*

Regarding the organization support (training, encouragement, helpdesk, and top management) Results have shown that top management support has the most significant effect on the portal usage. Employees need management support to guide them through the change process. Getting service by the traditional way while available on the portal needs guidance,

Helpdesk was also significant. Employees need technical support to guide their use of the portal. Many face problems and issues and can wait long time before solved.

5.2 Recommendations

Based on previous results and conclusions, the following recommendations might help in enhancing B2E Portals:

1. The company needs to focus on those staff that has grown old with poor computers skills. The company need to provide computer skills training, education and workshops held on regular basis.
2. The company has to enhance the portal characteristics such as navigation, information quality and news. In addition, search & help tools need to be enhanced and be available to the staff. Moreover, adding Arabic language is crucial and can increase the portal usage especially by those who have difficulties with the English language.
3. The company has to make the portal more useful and increase the scope of information and services available. The company needs to keep updates continuously and enhance the interaction between the staff and their organization and improve the interrelation online.
4. The company has to train their employees and improve top management support for the use the B2E portal. Moreover, improving employee capabilities to handle their own services from the portal have to be supported by all managers at the different levels management leaders.

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APPENDIXES

Appendix – A – Survey

استبيان

جامعة الشرق الأوسط

كلية الأعمال

قسم الأعمال الالكترونية

الأخ الفاضل... الأخت الفاضلة..

تحية طيبة وبعد..

يقوم الباحث بإعداد دراسة بعنوان "أثر خصائص المستخدم الديموغرافية على استخدام بوابة الموظف الالكترونية في الملكية الأردنية للطيران". حيث يهدف الباحث من خلال هذه الدراسة إلى التعرف على تأثير هذه الخصائص على استخدام أنظمة البوابة الالكترونية للموظفين <http://rjstaff.rj.com/> ومدى فعالية وتكرار هذا الاستخدام.

لذا نرجو التكرم بالإجابة على كل فقرة من فقرات الاستبانة، بكل دقة وموضوعية، علماً بأن المعلومات التي ستدلون بها، ستعامل بسرية تامة، ولن تستخدم إلا لأغراض البحث العلمي فقط.

شاكرين حسن تعاونكم،،،

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الرجاء الاجابة على الأسئلة التالية بوضع دائرة حول الاجابة المناسبة..

الاجابة				البيانات الشخصية	أولا
		أنثى	ذكر	الجنس	1
33 فاكثر	32-28	27-23	22-18	العمر	2
دراسات عليا	بكالوريس	دبلوم	توجيهي	المؤهل العلمي	3
501 فاكثر	500-401	400-301	أقل من 300	الدخل الشهري	4
الاجابة				القدرة التكنولوجية	
استخدام متقدم (استخدام برامج حاسوب متقدمة)	استخدام متوسط ICDL MS-Office	استخدام أولي	لا أستخد الحاسوب	مستوى مهارة استخدام الحاسوب	1
6 – أكثر	5 – 3	2 – 1	لا أستخد الانترنت	عدد سنوات استخدام الانترنت	2

الرجاء الاجابة عن الأسئلة التالية بوضع اشارة / عند الاجابة المناسبة..

الإجابة					السؤال	الفقرة
غير موافق على الإطلاق	غير موافق	متوسط	موافق	موافق تماماً	خصائص بوابة الموظفين	ثانيا
					يتيح الموقع التنقل بين صفحات البوابة بسهولة	1
					يوجد في البوابة أداة بحث Search	2
					تعمل الوظائف والخدمات في البوابة بشكل فعال	3
					توفر البوابة سهولة الاستخدام لذوي الاحتياجات الخاصة	4
					يؤثر نظام التشغيل في الحاسوب على عمل وظائف البوابة كاستخدام (Windows, Linux, Mobile OS)	5
					يوجد دليل مساعدة محوسب لكافة خدمات البوابة Help	6
					البوابة مدعمة بأكثر من لغة تناسب المستخدم	7
					المعلومات في البوابة ذات جودة عالية ومفيدة	8
					توفر البوابة المعلومات والتقارير المطلوبة بتصميم جيد ومفهوم	9

غير موافق على الإطلاق	غير موافق	متوسط	موافق	موافق تماماً	الفائدة من استخدام البوابة	ثالثا
					الحصول على الخدمات عن طريق البوابة الالكترونية مريح	10
					سهولة العثور على الخدمات المطلوبة في البوابة	11
					تعدد الطرق للحصول على الخدمات من البوابة	12
					تساعد البوابة على تقليل الوقت اللازم للحصول على الخدمة المطلوبة	13
					توفر البوابة اخر الأخبار والمستجدات عن الشركة والعمل	14
غير موافق على الإطلاق	غير موافق	متوسط	موافق	موافق تماماً	دعم المنظمة لاستخدام البوابة	رابعا
					تحرص الشركة على تدريب وتوعية الموظفين لاستخدام البوابة	15
					تشجع الشركة استخدام البوابة الالكترونية عوضا عن الوسائل التقليدية (مثل خدمات دائرة الموارد البشرية)	16
					توفر الشركة قسم الدعم الفني للمشاكل التي يتعرض لها المستخدم Help desk support	17
					يحث المدراء ورؤساء الأقسام الموظفين على استخدام البوابة الالكترونية	18

• الرجاء الاجابة على الأسئلة التالية بوضع دائرة حول الاجابة المناسبة..

أبدا	نادرا	أحيانا	غالبا	دائما	هل تستخدم بوابة الموظف الالكترونية للحصول على الخدمات التي تريدها من الشركة؟	1
خمس مرات فأكثر	أربع مرات	ثلاث مرات	مرتين شهريا	مرة بالشهر	ما مدى استخدامك لخدمات البوابة خلال الشهر؟	2
ضعيف	مقبول	متوسط	جيد	متميز	ما مدى رضاك عن خدمات بوابة الموظف الالكترونية بشكل عام؟	3

Appendix – B – The academic arbitrators

No	Name	Specialization	Working Place
1	Prof. Mohammad Alnuimi	Electronic Business	MEU University
2	Dr. Sabah Hameed Agha	Business administration	MEU University
3	Dr. Younes Migdadi	Marketing	MEU University
4	Prof. Abdelnaser Noor	Accounting	MEU University
5	Dr. Hamza Khraim	Marketing	MEU University
6	Dr. Ali Aldalaeen	Business administration	MEU University
7	Dr. Mohammad Alshura	Marketing	MEU University
8	Dr. Kithara Alshayea	Computer science	Alzaytoonah University
9	Dr. Etedal Hashem	Statics	Alzaytoonah University