Scientific Research

Factors Influencing the Successful Adoption of Human Resource Information System: The Content of Aqaba Special Economic Zone Authority

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ABSTRACT

This study examines the key factors that have impact on the successful adoption of Human Resource Information System (HRIS) within the Aqaba Special Economic Zone Authority (ASEZA)/Jordan. In order to accomplish the purpose of the study four critical factors are inquired. So, four critical factors are inquired: First, TAM Model (Perceived Ease of Use (PEOU) and Perceived Usefulness (PU)). Second, Information Technology Infrastructure (ITI). Third, Top Management Support (TMS). Finally, Individual Experience with Computer (IEC). The research model was applied to collect data from the questionnaires answered by 45 users of HRIS as a source of primary data, based on a convenience sample the response rate was about 91%. In addition, the results were analyzed by utilizing the Statistical Package for Social Software (SPSS). Furthermore, the findings were analyzed; multiple Regression analysis indicated that all research variables have significant relationship on successful adoption of HRIS. The findings indicated IT infrastructures have a positive and significant effect on the successful adoption of HRIS. But there is no significant of PU, PEOU, TMS, and IEC on the successful adoption of HRIS. Finally, the results indicated that no significant statistical differences of demographic characteristics on HRIS adoption. Depending on the research's findings; the researchers proposed a set of recommendations for better adoption of HRIS in SEZA.

1. Introduction

Now we live in the information age, where the explosion of knowledge, and flows of information, Global businesses seek to improve or maintain their competitiveness in the increasingly challenging global market place. Information systems are often used as a tool to improve customer service, shorten cycle times and reduce cost [1]. To improve business performance, organizations require an efficient planning and control system that synchronizes planning of all processes across the organization. The key to competitiveness lies in a solid Information System (IS) infrastructure seamlessly aligned with core business processes developed for the delivery of high quality products and services to customers within the best time [2]. In the globalised and skill based economies around the world, human capital is considered to be the most important resource for any organization [3]. In addition, according to [4] using HRIS provide value to the organization and improve HR professionals' own stand-ing in the organization. In another development, [5] recommended the need for HR to become a strategic partner.

HRIS support planning, administration, decision-making, and control. The system enhances applications such as employee selection and placement, payroll, pension and reimbursement management, ingestion and training projections, career-pathing, equity monitoring, and productivity evaluation. These information systems increase administrative efficiency and produce reports capable of improving decision-making [6]. From this standpoint, this study was conducted to focus on the critical factors that led to the successful implementation of HRS in the context the Aqaba special economy zone authority (ASEZA).

1.1. Research Problem

The problem of this study to identify the main factors that have a strong effect on HRIS's implementation in

the context of ASEZA, So the more influential factor has been requested for successful implementation HRIS to accomplish ASEZA functions in a perfect way can be determined through the research answers, so the aim of this study is to provide answers to the following questions:

1) What are the influences of (PEU and PU) toward HRIS's successful adoption?

2) Is Information Technology Infrastructure (ITI) influences on HRIS's successful adoption in the context of ASEZA?

3) What is the impact of Top Management Support (TMS) on HRIS's successful adoption?

4) Does the Individual Experience with Computer (IEC) have impacts on HRIS's successful implementation?

1.2. Research Importance

The significant of this study taken from these core points:

1) The importance of this study derived from the importance of HRIS, it is as the backbone of every organization and especially ASEZA, HRIS which holding the human element aspect that is the neural cell for successful or frailer any organization.

2) The empirical research which conducted in HRIS's adoption is Limited in quantity, this will add a uniqueness for this study which may become the basic foundation for other researches in this atmosphere.

3) The theoretical frame work is structured on work has already done which added to the solid foundation of existing knowledge derived from large organization such as ASEZA.

4) The results can be implemented in other situations which seeking for better HRIS's performance.

1.3. Research Aim and Objectives

1) To test whether TAM's with its tow terms (PEU and PU) accept or reject HRIS's adoption.

2) To examine the impact of the information system infrastructure on HRIS's successful adoption in the context of ASEZA.

3) To investigate the influence of top management support on HRIS's successful adoption.

4) To examine the impact of individual experience with computer on HRIS's successful adoption.

2. Theoretical Framework and Literature Review

2.1. Brief History and Development of HRIS

Recent developments in technology have made it probable to make a real-time information-based, self-service, and interactive work environment. Personnel Information Systems have developed from the automated employee recordkeeping from the 1960s into more complex reporting and decision systems of late [6]. Today, managers and employees are assuming activities once considered the field of human resource professionals and administrative personnel. As a result, given the authority and relevant accessible information for decision making, both managers and employees react more rapidly to changes [7].

2.2. The Concept of HRIS

Hendrickson [8] mentioned in his study "Human Resources Information Systems", Backbone Technology of Contemporary Human Resources, the concept of HRIS. He stated that HRIS is the case with any multifaceted organizational information system, HRIS is not limited to the computer hardware and software applications that encompass that technical part of the system, it also has the people, policies, producers and data required to manage the HR function. While Kovach *et al.* [9] study "Administrative and Strategic Advantages of HRIS", they believe that HRIS is a systematic process for collecting, storing, maintaining, retrieving and validating data needed by organization about its human resources, personal activities, and organization between human resource management and information technology. Also, Tannenbaum, [10] "HRIS information: user group implication" stated that HRIS as a technology-based system used to obtain store, treat, analyze, retrieve, and deal out pertinent information concerning an organization's human resources. Furthermore, Desanctic, [6] "Human Resource Information System—A current assessment" mentioned that HRIS merges HRM as a discipline and in exacting basic HR activities and producers with the information technology setting.

From the above definitions the researchers deducted that HRIS is "a comprehensive process for all employees' affairs in the institution including that HRIS is responsible for labor force tasks, needs, and improvements for a healthy work environment".

2.3. Components of HRIS

According to Dennison, [11] study "corporate culture and organizational effectiveness" HR principles are: stated values, beliefs and norms regarding what drives employee performance and how organizational resources and rewards should be allocated. HR policies: Organizational goals or objectives for managing human resources, Arthur *et al.*, [12]. E. Delery and D. Doty, [13] stated in their work modes of theorizing in strategic human resources management that HR programs are the set of formal HR activities used in the organization. Again, Wright *et al.*, [14] mentioned in their work human resources and the resource based view of the firms that HR

practices are the implementation and the experience of an organizations HR programs by lower-level managers and employees. HR climate according to Collins & Smith [15] is the shared employees perceptions and interpretations of the meaning of HR principles, policies and programs in their organization.

2.4. The Benefits of the HRIS

HRIS represents a great investment decision for organizations of all sizes, Leadrer, [16] discussed why the accuracy and timeline of HRIS is very significant in terms of operating, controlling and planning activities. In this vein, Beckers and Bsat, [17] summarized five reasons why companies should use HRIS: to increase competitiveness by improving HR practices; to create a greater number and diversity of HR operations; to transfer the focus of HR from the processing of transactions to strategic HRM; to make the employees part of HRIS, and to reengineer the entire HR role.

Computerized HRIS function enable faster decision making development, planning and administration of HR because data is much easier to store, update, classify and analyze. Beyond cost reduction and productivity improvements, HRIS potentially and fundamentally affect revenue channels.

Ideally, with an appropriate use of HRIS, less people should be needed to perform administrative tasks such as record keeping and more time will be made available for HR managers to assist by providing data at strategic level.

2.5. HRIS Functions

Function of HRIS is established to enable the information system in taking of procedures and policies used to manage the firm's human capital as well as the procedure required to operate the computer hardware and software applications [8]. According to Boating, [18] there are Some of the HRIS functions include: Integrating the Technologies of HRIS, make efficiency greater than before, Increased Effectiveness and IT-Enabled Processes, while information technology affects Human Resource (HR) practices [7] HRIS administration comprises a distinct supporting function within HR department.

2.6. Adoption and Implementation of Human Resources Information System (HRIS)

The wide range of literature on the adoption of (IS) or (IT) innovations by individuals has mainly used a variance approach, focusing on individual, organizational and technological factors that influence the level of adoption [19] and if the new IT is accepted and adopted by users, the chances of system and investments success

seriously increase [20]. Some experts believe that easy access to critical information will become an integrated part of much strategic decision-making process [9]. HRIS are being used extensively in organizations of all sizes. HRIS is adopted and implemented in organizations generally and in ASEZA specifically. There are several factors affecting the success application of information systems, therefore this study conducted to identify the variables that affecting the successful application of HRIS.

For this research purpose, Lee *et al.* [21] study in title "A model of Organizational Employees E-Learning System Acceptance" examined the factors that influencing employees adoption and use of e-learning systems by testing the applicability of the technology acceptance model TAM in the organizational context they found that all factors K subjective norm, organizational support, management support, individual experience with computer, perceived use, and perceived ease of use have the effect on e-learning acceptance; Data was gathered through 357 valid questionnaires from four industries in Taiwan. While, Gupta [22] study in title "enterprise resource planning systems and there implications for operations function 'aimed to explore the factors that may affect the usage of information communication technology adoption in Ireland. It was found that exhibition of high degree of ICT affecting information communication acceptance and use; Data was collected through a web-based questionnaire. Shen and Chiou [23] study in title' the impact of perceived ease of use on internet service adoption: the moderating effects of identify the effect of temporal distance and perceived Risk K aimed to identify the effect of perceived ease of use in internet service adoption. The study suggested that perceived ease of use increases the intention toward using online service; Data was collected through interview with focus group internet auction users.

Furthermore, Direz and Mclntosh [24] study in title "a review of the factors which influence the use and usefulness of information systems" aimed to identify the factors that have been found to influence the used and usefulness of IS and to provide a device for managing development and implementation. The study found that TAM usefulness and users characteristics user participation and perceptions, intentions, user computer experience, top management support, training, external pressure, and the availability of external information sources have significant effect on successful adoption of IT and on its widely acceptance; hypothesis tests based on data which gathered through the papers reviewed, preimplementation process Studies associate useful IS.

Also, Calisier and Calisier [25] study in title "the relation of interface usability characteristics, perceived use-

fulness and perceived ease of use to end user satisfaction with enterprise resource planning systems" aimed to identify of data warehouse technology; study found that TMS is an important factor affecting the adoption of data warehouse technology. A questionnaire was used to collect appropriate data in Taiwanese banks. Hwang *et al.*, [26] study in title "Critical factors influencing the adoption of data warehouse technology: a study of the banking industry in Taiwan" aimed to identify critical factors influencing the adoption of data warehouse technology. The study found that TMS is an important factor affecting the adoption of data warehouse technology; the questionnaires used in this study are to collect appropriate data in Taiwanese banks. A total of 50 questionnaires were mailed to CIOs in domestic banks. The response rate was 60%. Discriminant analysis was employed to test hypotheses. The results revealed that factors such as support from the top management, size of the bank, effect of champion, internal needs, and competitive pressure would affect the adoption of data warehouse technology.

Cunha and Cunha [27] study in title "Impact of strategy, HRM strength and HRM Bundles on innovation performance and organizational performance" aimed to develop a model for companies to measure their performances toward new system of human resource management. The study found that two types of HR bundles functional flexibility and performance management have significant positive effect on HR systems; Survey questionnaire addressed to the senior HR manager in all countries Data tested on sample of 1822 companies 1999/2000 survey on strategic HRM.

2.7. Research Model

To study the main factors influencing successful adoption of HRIS the researchers relies on previous studies, the TAM model and his observations in building the proposed model below. The dependent variable in this research is the successful adoption of HRIS, while the independent variables are PEOU, PU derived from the TAM model, top management support, IT Infrastructure and Individual Experience with Computer.

2.8. Research Hypotheses

To test the strength of the model shown in **Figure 1**, the researchers suggest the following null hypotheses:

H01: There is no statistical significant impact for the system's PEOU on the successful adoption of HRIS within the context of ASEZA.

H02: There is no statistical significant impact for the System's PU on the successful adoption of HRIS within the context of ASEZA.

H03: There is no statistical significant impact for the TMS on the successful adoption of HRIS within the con-
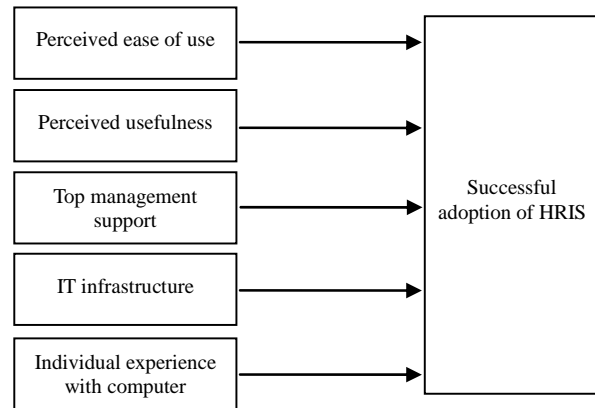

Figure 1. Research model.

text of ASEZA.

H04: There is no statistical significant impact for individual computer experience on the successful adoption of HRIS within the context of ASEZA.

H05: There is no statistical significant impact for IT infrastructure on the successful adoption of HRIS within the context of ASEZA.

3. Research Approach

Survey approach is used in this research. Because this study depends on documentation of previous studies for developing conceptual model, formulation hypotheses and conducting the results [28]. Quantitative approach is suitable design for this study because this approach well-being can be summarized as follows: questionnaires on well-being can be used with extensive samples, they can be easily adapted to various settings, and can be applied in cross-sectional and longitudinal studies [29] The researchers uses a deductive approach which is more likely to work with quantitative data to answer the questions about relationships among the vital variables with the purpose of explaining, predicting and controlling phenomena. Thus, the aim of a deductive approach is to reach the reasoned conclusion by a logical generalization [30].

3.1. The Research Population

The research population exclusively concerns the Directorate of Human Resources (HR) in ASEZA. The total number of the HR is 49. The research population consists of 49 employees in Human resources directorate; 49 total number in sample, 45 total number of responses. However, according to the Neuman [31] formula to calculate response rate, the total response rate, as shown in the equations below, is 91 percent. It is "very high" to take the data analysis. The response rate is 91%. There are 4 questionnaires which did not be returned by the employees.

3.2. Sample Selection and Sample Size

The researchers chooses Directorate of Human Resources which consist of 1 top manager, 4 head of department and 44 employees; The researchers choose the whole population to distribute the questionnaires across them because the size of population is small and all of them deal and interact daily with HRIS to perform various functions that associated with staff of ASEZA, So the researchers saw that HR's staff is the most capacity of ASEZA employees for getting actual and basic required data in quickly and effectively way. The researchers distributed 49 questionnaires, all the questionnaires are filled, returned and valid for analysis. The researchers left the employees alone to fill the questionnaires to avoid any bias or confusion.

3.3. Data Collection Methods

The research methodology consisted of primary and secondary sources:
- Secondary sources included computer searches on academic databases such as since direct databases, ACM (DL) digital library, Wiley online library, reviewing relevant book, and previous studies which is related to the research's topic.
- Primary data gathered through distribution of questionnaires which contain the vital important variables; done by the researchers on order to obtain the relevant data.

3.4. Questionnaire Construction

The researchers designed the questionnaire with structure serves the research's purpose and includes the specific related factors which will be analyzed by gathered data through the questionnaire. The questionnaire is divided into 2 main sections: the first section includes gender, age, job description, experience and educational level; the second section includes 20 items which measuring the successful factors of HRIS and the affecting factors: (PEOU, PU, IT infrastructure, TMS, and ICE). The five-point Likert scale was employed in order to explore the employee's views. Likert scales were used in the second section to attain the information. A five-point scale is used to test the (PEOU, PU, IT infrastructure, TMS and ICE) that have impact the successful adoption of HRIS.

3.5. Data Analysis Tools and Techniques

The researchers used the Statistical Package for Social Science (SPSS) to analyze the data. To test the hypotheses of the research; the researchers uses these data analysis methods (Independent sample t-test, one-way ANOVA, Descriptive statistics, Cronbach's Alpha and Correlation

of item-to-total). Constancy factor was calculated according to (Cronbach Alpha) for internal correspondence of total formulation and for each variable with all dimensions. The questionnaire was distributed to 5 subjects outside of the sample, the results as shown in **Table 1**.

4. Data Analysis and Hypotheses Testing

Percentage of respondents according to their gender 53.3% of the respondents were males and 46.7% were females.

Percentage of respondents according to their age: There are 15.6% of respondents their age range was 20 - 26 years old, and 44.4% of respondents were between 26 - 31 years old, 20% of age respondents between 32 - 37 years old, 8.9% between 38 - 43 years old and more.

Percentage of respondents according to their educational level: 8.9% have secondary stage education; 15.6% have college diploma degree; 15.6% are B.A. holders; and 11.1% are masters.

Percentage of respondents according to their experience: 15.6% of the respondents had 3 years of experience and less. 15.6% of the respondents had an experience that ranged from 7 - 9 years. 8.9% of the respondents had an experience that ranged from 10 - 12 years. 24.4 of respondents had 12 years and more of experience. 35.6% of the respondents had experience from 4 - 6 years, which indicates that most of the human resource directorates have low experience.

4.1. Hypotheses Testing

This part deals with hypotheses testing. The hypotheses were tested using t-test and multiple regression analysis, in order to determine if know if either there is an impact of independent variables; PEOU, PU, TMS, IT Infrastructure and IEC on Successful Adoption of HRIS as the dependent or not. According to the Decision rule, factors: "accept" the null hypothesis (H0) if calculated value (t-calculated) is less than critical value (t-tabulated) and "reject" (H0) if resultant value is greater than critical value. Also, "0.05" level of significance was used to analyze the collected data. According to the Decision rule: "accept" null hypothesis (H0) if the significance level (α)

Table 1. Cronbach's alpha for the scales.

Variables	No. of items	No. of cases	Cronach's alpha
PU	4	45	0.838
PEOU	4	45	0.812
IT infrastructure	4	45	0.816
TMS	4	45	0.679
IEC	4	45	0.710

of the question is greater than 0.05 significance level, and "reject" (H0) if the significance (α) level equals or is less than 0.05 [32]. As a result for this decision rule, the researchers have tested statistically the proposed hypothesis and found the following results: Hypotheses: There is no statistical significant impact for PEOU, PU, TMS, IT Infrastructure and IEC on successful HRIS's adoption within the context of ASEZA.

As shown in the results of **Table 2**, PU and PEOU have no significant direct impact on the successful adoption of HRIS in ASEZA (t = 1.520, sig = 0.137), (t = 1.237, sig = 0.210), but in contrast, IT infrastructure has a significant direct impact on the successful adoption of HRIS in ASEZA (t = 2.283, sig = 0.028) TMS and IEC have significant direct effect on the successful adoption of HRIS in ASEZA (t = 0.169, sig = 0.867), (t = 1.145, sig = 0.259).

Based on the results shown in **Table 3**, there are no significant statistical differences between respondents' perceptions toward HRIS adoption according to their demographic characteristics in the context ASEZA. The researchers calculated the differences among the respondent's perceptions toward adopting HRIS based on the demographic characteristics.

Based on the results shown in **Table 4**, t-test analysis (independent sample t-test) was used to test if there is no significant statistical difference between respondent's perceptions towards adoption of HRIS according to the gender. Result showed a (f = 0.425, sig = 0.518) for gender.

In **Table 5**, ANOVA was used to test if there is no significant statistical difference between respondent's perceptions towards the adoption of HRIS according to the age, education level, and Experience. Results showed a (f = 1.578, sig = 0.142) for age, has (f = 1.524, sig = 0.161) for education level, and has (f = 1.278, sig = 0.276) for experience. Thus, (H04) was accepted. And therefore,

Table 2. T-value and significance level (α) coefficients.

Model	Unstandardized coefficients		Standardized coefficients	T	Sig
	B	S.D. ERROR	BETA		
Constant	1.658	0.351		4.725	0.000
PU	0.134	0.088	0.262	1.520	0.137
PEOU	0.101	0.079	0.178	1.273	0.210
IT infrastructure	0.221	0.097	0.381	2.283	0.028
TMS	0.014	0.085	0.021	0.169	0.867
IEC	0.097	0.085	0.118	1.145	0.259

Table 3. Summary of the results of hypotheses testing.

Null hypothesis	t	Sig	Accept/Reject at 5% level
H01			
H0 (1.1)	1.520	0.137	Accept H0
H0 (1.2)	1.273	0.210	Accept H0
H02	2.283	0.028	Reject H0
H03	0.169	0.867	Accept H0
H04	1.145	0.259	Accept H0

Table 4. Level of significance of the user gender and the implement of HRIS.

		Levene's test for equality variance		T-test for equality of means		
		f	Sig	t	df	Sig (2-tailed)
HRIS	Equal variance not assumed	0.425	0.518	1.212	43	0.232
	Equal variance not assumed			1.221	42.976	0.229

Statistically significant at the level of significance.

Table 5. Level of significance of the age, education level, and experience toward the adoption of HRIS.

Demographic characteristics		Sum of squares	df	Mean square	f	Sig
Age	Between groups	28.361	15	1.891	1.578	0.142
	Within groups	34.750	29	1.198		
	Total	63.111	44			
Experience	Between groups	36.478	15	2.432	1.278	0.276
	Within groups	55.167	29	1.902		
	Total	91.644	44			
Educational level	Between groups	11.361	15	0.757	1.524	0.161
	Within groups	14.417	29	0.497		
	Total	25.778	44			

it was found that there is no significant statistical difference between respondent's perceptions towards HRIS adoption in terms of their (gender, age, education level, experience). **Table 6** summarizes the results of hypotheses testing using t-test and ANOVA methods.

Table 6. Summary of the results of hypotheses testing.

Null hypothesis	f	Sig	Accept/Reject at 5% level
H04			
H0 (4.1)	0.425	0.518	Accept H0
H0 (4.2)	1.578	0.142	Accept H0
H0 (4.3)	1.524	0.161	Accept H0
H0 (4.5)	1.278	0.276	Accept H0

5. Conclusions and Recommendations

5.1. Discussion of the Findings

The findings indicated that the employees in ASEZA related the successful HRIS adoption based on IT infrastructure. These results are similar with the findings of previous studies. The research's aim and the hypotheses testing in chapter fourth researchers have exposed the following conclusions:

5.1.1. TAM Model

5.1.1.1. Perceived Usefulness
The research accepted H01.1. This is due to the fact that HRIS in ASEZA is suffered from many problems, so that the employees in HR's directorate do most of their tasks through excel program .So they don't gain benefits from HRIS, so PU does not have any effect on the successful adoption of HRIS. In contrast, [33] found that PU has positive effects on Web Course Tools (WebCT) adoption.

5.1.1.2. Perceived Ease of Use
H01.2 also is accepted by this research and this depends on the respondents that see the system's PEOU does not have any effect on the successful adoption of HRIS. In contrast, Bueno and Salmeron, [34] found that PEOU have positive effects on enterprise resource planning (ERP) acceptance adoption. Though, in this research, the researchers found that PEOU has no effect on the successful adoption of HRIS within the context

5.1.1.3. IT Infrastructure
Through testing the H02, the researchers found that IT infrastructure has a positive role in the successful adoption of HRIS in the context of ASEZA, when this H02 is rejected. This result based on the facts that ASEZA includes very improved computers, high powerful stored databases, new phone calls and faxes which facilitate gathers, stores, and provides appropriate information process; ASEZA has strong technical basic for new system adoption. This results is similar to the results arrived by Fink and Neumann, [35] who found that IT infrastructure is critical factor for perceiving business value of

the flexibility of ASEZA.

5.1.1.4. Top Management Support
The researchers arrived that TMS has no effect on the successful adoption of HRIS in ASEZA, hence H03 is accepted, and this result is related to the respondents' personal responses which exposes the highest percentage of refused ASEZA's Top Management strategies. Though TMS is critical variable for adoption of new IS, because it is supported tool for the employees to encourage them to deal with HRIS effectively as found in Law and Ngai study [36], that TMS is important factor has positive impact on ERP success.

5.1.1.5. Individual Experiences with Computer
The research accepted H04, although the researchers believes it has impact on any new IS dealing and interacting which reflected on its adoption. That some factors that generated by Individual Experience with Computer such as familiarity, anxiety, taking training courses and the age of the individuals have impact on HRIS, as what is arrived by McDonald, [37], which leads to the rapid changes in exposure to technology.

5.2. Conclusions

1) IT infrastructure has a positive effect on the successful adoption of HRIS context of ASEZA.
2) The remaining factors (PU, PEOU, TMS, and IEC) and demographic characteristics) have no effect on the successful adoption of HRIS in the context of ASEZA.
3) The researchers noticed that HRIS doesn't perceive usefulness or supporting for the employees of human resource directorate, they can working without it by using other programs such as excel.
4) The researchers noticed there is no clear gap between senior management and the employees of human resource directorate that might be resulted from poor communications or misperception of ASEZA's strategies, which creates unsatisfaction for top management roles and visions.
5) There is a strong foundation of IT infrastructure in ASEZA which contributes in successful IS application.

5.3. Recommendations

1) Holding Regular meetings between senior management and staff of human resource directorate in ASEZA to clarify the vision and defining the functions of both parties.
2) ASEZA must setup HRIS with high operational capabilities to enhance services providing and increase the performance level of the employees.
3) ASEZA has to pay much attention to establish qualified and specialized IT team who are able to deal

with any malfunction continuously in effective way.

4) ASEZA should prepare manual references for the employees of human resource directorate which enable them to interact with HRIS step by step in logical and critical manner as starting point for successful adoption of HRIS.

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