

Rationalizing the Investment Decision in Computerized Accounting Information Systems - An Applied Study on Saudi Arabian Companies

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Abstract

This paper aims to help companies to rationalize their investments in Computerized Accounting Information Systems (CAIS hereafter) through focusing on the experience of companies that have changed their systems. The paper opted for a survey research approach using a questionnaire which has been tested for its content validity. The questionnaire has been designed to capture the experience of companies that have changed their CAIS. The questionnaires were distributed among both accountants and managers of Saudi Arabian companies of different sizes and fields that have experienced problems in their CAIS. The paper provides an insight of the reasons behind the decision to change CAIS based on the practical experience of companies in Saudi Arabia. It shows that there has been a significant change in the priorities of choosing a CAIS due to experience. It is noted also that there are some features which are available in CAIS which are not widely required by system users, and hence, it would be unwise to pay for their costs. Finally, it is noted that there is no significant difference between the managers and the accountants' requirement regarding CAIS.

Keywords: computerized accounting information system, management information system, Saudi Arabia, investment decisions

1. Introduction

The advancements in Information Technology resulted in the reliance of companies on performing their business in an electronic form. A lot of companies in the Middle East started to use Computerized Accounting Information Systems ("CAIS" hereafter). A number of research studies showed that business generally were disappointed with their new purchases of CAIS. They did not get the benefits they expected, and the projects took substantially longer and cost more than anticipated (Tate, 1999). Ivancevich (S. Ivancevich, H. Ivancevich, & Elikai, 2010) stated that selecting the right accounting software is critical to any business. A wrong choice could mean incompatibility problems, functional limitations, and frustration, as well as unhappy workers and customers. The right choice means that a business can focus on the products or services that are relevant to its core business model rather than losing effort, time and money trying to overcome CAIS problems.

Building or rebuilding of CAIS is an expensive task, as it requires a lot of time, effort and money in each of the stages of building such a system whether in the stage of planning, analyzing, designing or implementing the system. Accordingly, it is assumed that such cost would have a positive effect on the organization performance in the form of increasing its profits on the long term. To achieve this, such resources have to be managed and employed in a good manner. This depends on a full understanding of how to utilize such systems to support the needs of the decision maker (Alkary, 2005).

It is noticed also in some Middle Eastern countries that companies (specially small and mid-size) face changing of CAIS several times due to the inappropriateness of it to their requirements.

The success of CAIS usage depends not only on the amount of the investments, but the right choice of hardware, software, database and personal qualifications. All these components are closely connected among themselves and reflect common, useful results, which have to be evaluated from economic, technical and social aspects (Asta Raupeliene & Linas Stabingis, 2003).

The importance of the output of accounting information systems is emphasized in several researches. Xu (Xu, 2009) stated that the quality of information is one of the competitive advantages for an organization. In an accounting information system, the quality of information provided is imperative to the success of the systems.

Meall (Meall, 2009) supported such opinion by stating that the information produced by CAIS is regarded as one of the basic resources of the organizations. It is the base of financial decision making whether it is related to operating, investing or financing decisions. Such decisions contribute to increase the level of organizational performance and create a strategic advantage to it, which reflects on its market value and hence increase investors' wealth. Also, Redman supported this (Redman, 1992) by stating that inaccurate or incomplete data may adversely affect the competitive success of an organization. Nord also supported this (Nord, Jeretta Horn Nord, & Xu, 2005) by stating that poor quality information can have a significant social and business impact.

However, the reliance on such CAIS has its accompanying risks. The system can fail due to several reasons such as the inability of users to cope with it, or it is technically inadequate to fulfill the company's requirements, or the riskiness of using it on the company's resources....etc. There are also operational risks as using such systems could lead to losing the company's assets whether by losing data or failure of the system to record all accounting information in a correct manner, or it could not be secured correctly which enables hackers or unauthorized users to access the system and change data whether intentionally or unintentionally.

Choosing an accounting system for large enterprise has never been easy, but then again it has never been more difficult than it is right now (Meall, 2009). Correctly choosing CAIS can have a positive influence on not only data processing, but also on the efficiency of an enterprise's activity (Asta Raupeliene & Linas Stabingis, 2003). All these factors show the importance of concentrating on the process of selecting the most suitable CAIS before implementing it.

This research shares the definition of the effectiveness of CAIS with another research (Nicolaou I., 2000) where it is defined in terms of the perceptions of decision makers that the output information available to them through transaction processing, management reporting, and budgeting systems meets their requirements for organizational coordination and control. Accordingly, to determine the effectiveness of CAIS, a comparison between the needs of users and company management are matched with the CAIS capabilities and features to find out the extent to which such CAIS meets those requirements.

2. Literature Review

The researches, which have been implemented in such a field, could be classified as follows:

2.1 Research Related to the Risk of Implementing CAIS

Yau and Auyeun (Yau & Auyeung, June 29 - July 2, 1995) studied the risks of implementing a CAIS, and they found that they were related to some problems such as; users are opposing the adoption of new techniques; the availability of "off-the-shelf" software (as a cheaper alternative to the tailored made software) implied that users have to try to fit their requirement to the software's capabilities; very few CAIS actually perform sophisticated management and cost accounting systems;

S.Ivancevich, (Ivancevich et al., 2010) studied the factors that influence the CAIS selection and those that lead to satisfaction. They surveyed a large number of professionals, and questioned several suggested factors that could affect the software's selection and satisfaction. The distributed questionnaire also addressed other issues such as what are the most important areas for improving the software and the reasons behind not changing the software. The results revealed that the functionality of the software was rated as most important to users when selecting the software. Also, security of data and real-time processing topped the list in importance. While report-writing and flexibility topped the areas of improvement. The "cost" appeared to be the most important obstacle for changing the software, and then the hassle associated with such a change comes next. It is also noted that there has been some similarities and differences between large and small company users. The study concluded that there is a need to develop a standard set of measures for management to ascertain the impact of information technology investment on the accounting system.

The conclusion of the previous study goes in coherent with the goals of this research, where it identifies the companies' requirements of CAIS and determining their priorities when choosing such systems in order to rationalize their investments in such a field. This goal implies that the CAIS should be fitting the requirements of the accountant's and the decision makers' needs. It is to be noted that the requirements of the decision makers could differ according to the culture and the environment in which the CAIS is implemented. This research will explore the CAIS selecting criteria in Saudi Arabia. Additionally, it will attempt to find the reasons of

abandoning CAIS to another new one and it will test the fitness of the current implemented CAIS to the users' needs.

2.2 Research Related to Developing Models of Evaluating CAIS

There are different researches that strived to develop a model of evaluating CAIS. Raupeliene and Stabingis, (Asta Raupeliene & Linas Stabingis, 2003) studied the models of evaluating CAIS and analysed the theoretical aspects of the enterprise's AIS effectiveness and formulated the following conclusions:

- The effectiveness of CAIS can be considered successful if it ensures user's needs.
- Most of the models which are provided in academic publications allow the evaluation of CAIS effectiveness only from technical-economic or in social-economic aspect.
- There isn't an integrated and for practical usage adjusted CAIS effectiveness evaluation model which allow CAIS effectiveness evaluation from economic, technical and social aspects contemporaneously.

The study suggested a theoretical mathematical model to measure the effectiveness of the CAIS; however, it didn't apply such a model in practice and it didn't show how companies could use such a model to be a useful tool in the process of choosing a new CAIS to be implemented. This adds to the importance of this research as it focuses on the features that is most important for users and explores the alignment of the users' needs with the CAIS capabilities, hence rationalizing the investment in such a field. Additionally, it could be regarded as a step towards designing a model to aid in choosing the CAIS for small and medium sized companies.

Ismail and king (Ismail & King, 2005) studied the relation between firm performance and CAIS alignment. Where they explored the fit between AIS requirements and AIS capacity and whether this fit is linked to performance in Small and Medium size Enterprises (SMEs). It measured AIS requirements in terms of importance to the business attached to 19 accounting information characteristics. AIS capacity was measured in terms of the Information System support available for each of the 19 accounting information characteristics. The results suggest that the firms' AIS processing capacities were in many cases insufficient to match their AIS requirements, which implies that the managers of SMEs were not being as effective as they could be in utilizing IT. Further, the results of the moderation perspective of measuring of fit indicated varying degrees of alignment of the nineteen information characteristics. However, using cluster analysis, three significantly different AIS alignment groups were later identified which could be clearly labeled as "aligned", "moderate", and "non-aligned". Finally, the three AIS alignment groups were tested against performance. The results show a positive association between AIS alignment and firm performance. Such results are of importance to the current research due to the fact that there is a positive association between CAIS alignment and firm's performance would lead to the conclusion that aligning CAIS would rationalize the investment in CAIS which is the goal of this research. Accordingly, this research will be exploring such alignment in the Saudi market and focusing on the important features which are required by the users of the CAIS.

3. Data Collection

This research aims to provide the experience of companies that implemented CAIS more than one time to be used to rationalize the investment in such field. It should answer questions of whether the priorities have changed from the first to the second time of implementation; what are the mostly required specifications of CAIS by companies and if the new implemented system fulfills such needs; whether the new CAIS comprises solutions to the previous problems that were the main reason of abandoning the previous CAIS; and finally whether the features of the CAIS differ from an accountant to a manager perspective. Based on such discussion, this research tests six hypothesis to answer those questions. The data are gathered through a questionnaire.

3.1 Designing of the Questionnaire

The questionnaire is designed to collect the information required to test the research hypothesis and to achieve the research objectives. (Appendix I).

3.1.1 Assessing Questionnaire Validity

The researcher has used the content validity method to assess the validity of the research questionnaire. The researcher has selected 15 experts in the area of accounting including academician (mainly University faculty members) and practitioners (accountants and managers working in professional firms) and distributed the questionnaire to them with a cover letter explaining the objectives and hypothesis of the study and asking them to indicate whether the questions in the attached questionnaire collect the data required to test the hypothesis and achieve the study objectives.

Most of them agreed that the questionnaire collects the required data and some of them had some concerns related to some questions as well as adding additional questions to cover the research objectives and hypothesis. The questionnaire is updated accordingly.

3.1.2 Assessing Questionnaire Reliability

The researcher has used the Test-retest method to assure that the questions are clear and specific and homogenous. With regard to test – retest method the researcher selected a small group of the research population (accountants & managers) and distributed the questionnaire to them and after 5 days he distributed the questionnaire a second time and the data was analyzed, and a correlation coefficient of the results of the first and second test is conducted, and it has been found that it is significant.

3.2 Sample of the Study

A number of 300 questionnaires have been distributed among accountants and senior decision making managers working in firms operating in Saudi Arabia that have changed their CAIS at least once. The questionnaire has been distributed randomly. The returned questionnaires amounted to 136 questionnaires (45.3%). Questionnaires were analyzed, and it was found that 15 questionnaires were invalid as either they were not complete or not answered in a valid way (such as repeating numbers in prioritizing the factors that affect the selection of CAIS). etc. Hence, there are 121 valid questionnaires collected representing 40.3% of the valid questionnaires. The distribution of the sample according to companies' field of business were as follows: Industrial 30%; Services 57% and Trading 13%.

To determine the size of the companies which comprises the sample of the study, two measures are considered; number of employee and capital size. Around 78% of the sample's companies employ more than 100 employees, while the mid-size companies (employing from 50-100 employees) represented 9%, and around 13% employed less than 50 employees.

From a capital perspective, the big companies (more than SR 50 million of capital) represent more than two thirds of the sample, while mid-size companies (SR 10- 50 million of capital) represented 9%, while companies with less than SR 10 million represented 21%. This measure of company size also supports the previous number of employees' measure, where both showed that large companies have greater weight in the sample size which is appropriate with the objective of the research.

4. Testing the Research Hypothesis and Findings

The researcher used the statistical program SPSS to perform the statistical analysis.

4.1 Testing the First Hypothesis: H1- The Priorities of CAIS Choosing Criteria Did Not Differ Significantly from the First to the Second Time of Implementation

Table 1. Determining the priorities of selecting CAIS

Order	1	2	3	4	5	6	7	8	9	10
First time	FO-1	FO-5	FO-6	FO-4	FO-3	FO-9	FO-2	FO-7	FO-8	FO-10
Frequency	40	30	29	15	6	1	0	0	0	0
Second time	FC-5	FC-6	FC-9	FC-3	FC-1	FC-4	FC-10	FC-2	FC-8	FC-7
Frequency	44	33	11	10	9	7	4	2	1	0

F1 Cost of acquiring the CAIS software

F2 User friendliness

F3 Easiness of system implementation

F4 The level of support provided by the CAIS developer

F5 CAIS capabilities and features

F6 Ability of CAIS to grow and be developed to meet future company growth

F7 Availability of full detailed manuals for the CAIS

F8 The developer of the software has a long list of clients

F9 Experience and reputation of the CAIS developer

F10 Cost of the needed Hardware (or compatibility of the present hardware) to run the CAIS

FO = Factors of Old CAIS

FC = Factors of Current CAIS

It is clear that the priorities of the selection criteria of the respondents have changed when implemented the CAIS from the first to the second time of implementation. To stand on the significance of such difference a ranked T-Test is performed for the relative frequencies of question 4 (variables FC) and 5 (variables FO) of the questionnaire and the following results could be summarized.

Table 2.

Factor	Mean	Std. Deviation	Rank	T Test	Sig.
FC-1	4.74	2.38	4	3.732	0.000 ^(*)
FO-1	3.53	2.75	1		
FC-2	5.40	2.59	6	0.324	0.746
FO-2	5.33	2.55	5		
FC-3	5.36	2.49	5	-0.631	0.529
FO-3	5.50	2.11	6		
FC-4	4.45	2.17	3	-0.036	0.971
FO-4	4.45	2.61	4		
FC-5	3.24	2.59	2	-2.156	0.033 ^(*)
FO-5	3.82	2.77	2		
FC-6	3.16	2.37	1	-3.721	0.000 ^(*)
FO-6	4.45	3.17	3		
FC-7	6.99	2.24	8	-3.891	0.000 ^(*)
FO-7	7.85	1.97	10		
FC-8	7.34	2.46	9	-1.867	0.064
FO-8	7.85	2.11	9		
FC-9	6.69	2.46	7	3.260	0.001 ^(*)
FO-9	6.04	1.83	7		
FC-10	7.50	2.72	10	5.037	0.000 ^(*)
FO-10	6.14	2.71	8		

Based on the previous table it could be concluded that there is a significant difference in priorities between the 1st and 2nd time of implementing the CAIS for the following factors; cost of acquiring the CAIS software (FC-1 & FO-1); CAIS capabilities and features (FC-5 & FO-5); Ability of CAIS to grow and be developed to meet future company growth (FC-6 & FO-6); Availability of full-detailed manuals for the CAIS (FC-7 & FO-7); Experience and reputation of the CAIS developer (FC-9 & FO-9); Cost of the needed hardware (or compatibility of the present hardware) to run the CAIS (FC-10 & FO-10);

While there is no significant difference in priorities between the 1st and 2nd time of implementing the CAIS for the following factors; user friendliness (FC-2 & FO-2); Easiness of system implementation (FC-3 & FO-3), the level of support provided by the CAIS developer (FC-4 & FO-4); and the developer of the software has a long list of clients (FC-8 & FO-8).

Based on the previous discussion it is clear that there were only four of the factors which didn't change significantly from the first to the second time of implementation, while the other six factors have changed significantly. Accordingly, the null hypothesis of H1 could be rejected, and the alternative hypothesis is accepted which states:

“The priorities of CAIS choosing criteria changed significantly when implementing such system from the first to the second time.”

4.2 Testing the Second & Third Hypothesis

The two hypotheses are formulated as follows:

H2: The CAIS implemented in the company fulfill the company's mostly needed requirements.

H3: CAIS features which are regarded as important by companies are present in the CAIS system implemented.

4.2.1 Determining the Required Features by Companies and Their Availability in CAIS

Based on analysing the questionnaire, a comparison is done between 20 features required by the company's accountants and managers and those features already available in the system. The following results are found:

Table 3.

Order	1	2	3	4	5	6	7	8	9	10
Required Features	R-1	R-18	R-4	R-2	R-7	R-10	R-14	R-20	R-5	R-12
Frequency	115	111	102	98	92	92	88	86	82	79
Present Features	P-1	P-13	P-3	P-9	P-20	P-4	P-5	P-7	P-10	P-16
Frequency	113	111	109	109	104	94	94	94	92	88

Order	11	12	13	14	15	16	17	18	19	20
Required Features	R-3	R-13	R-15	R-9	R-6	R-16	R-19	R-17	R-11	R-8
Frequency	78	76	72	61	55	50	47	46	42	39
Present Features	P-14	P-2	P-11	P-18	P-12	P-15	P-6	P-19	P-8	P-17
Frequency	86	83	82	82	78	75	54	52	39	39

R/P-1 Ability to prepare full set of financial statements.	R/P-11 Existence of statistical (nonfinancial) reports.
R/P-2 Capabilities to handle a multi-business	R/P-12 Ability to prepare reports on the level of a responsibility center.
R/P-3 Frequency of reporting.	R/P-13 Real-time processing for transactions.
R/P-4 Ability to customize reports.	R/P-14 Developing budgets and analyzing actual and budgeted figures
R/P-5 Real-time reporting.	R/P-15 Bank reconciliation and bank transaction management.
R/P-6 "What if" analysis.	R/P-16 Multi-Currency support
R/P-7 Strong internal controls.	R/P-17 Bilingual – Arabic /English support
R/P-8 Online help.	R/P-18 Disaster Recovery feature – Automatic Backup system
R/P-9 Existence of automatic entries for recurring transactions.	R/P-19 Internet integration and e-commerce capability.
R/P-10 Integration with other modules of ERP system.	R/P-20 Excel-Based financial reporting and custom reports.

R = Required Features
P = Present Features

Based on the previous table it could be concluded that the features required by the companies are not necessarily available by the same importance. The only features which is common in importance between what is required and what is available, is the preparation of a full set of financial statements (R-1) and (P-1) respectively. However, all the other features differed in importance (based on the frequency of the responses) between what is required and what is available.

4.2.2 Determining the Alignment of The CAIS Features to The Companies Requirements

In order to observe the available CAIS features alignment with those features required by the companies, a cross tabulation is prepared for each of the features in Question 6 (asking about the companies' preferred features) with the adjacent features in Question 7 (asking about the available features in the present CAIS).

The availability of the features is classified into three groups as follows:

- Highly available: Are those features which are reported by more than 75% of the respondents as "Available".
- Moderate Availability: Are those features which are reported by more than 50% and less than 75% of the respondents as "Available".
- Low Availability: Are those features which are reported by less than 50% of the respondents as "Available".

Respondents are asked to determine whether each feature is either "insignificant", "Neutral" or "important". The following table summarizes such results.

Table 4.

Importance	Availability		
	Low	Moderate	High
High		<ul style="list-style-type: none"> • Capabilities to handle multi-business; • Disaster Recovery feature (Automatic Backup system). 	<ul style="list-style-type: none"> • Ability to prepare full set of financial statements. • Ability to customize reports. • Integration with other modules of ERP system.
Moderate		<ul style="list-style-type: none"> • Ability to prepare reports on the level of a responsibility center. • Developing budgets and analyzing actual and budgeted figures. • Bank reconciliation and bank transaction management. 	<ul style="list-style-type: none"> • Frequency of reporting • Real-time reporting. • Strong internal controls. • Real-time processing for transactions. • Excel-Based financial reporting and custom reports.
Low	<ul style="list-style-type: none"> • “What if” analysis • Online help. • Bilingual – Arabic /English support. • Internet integration and e-commerce capability. 	<ul style="list-style-type: none"> • Existence of statistical (nonfinancial) reports. • Multi-Currency support. 	<ul style="list-style-type: none"> • Existence of automatic entries for recurring transactions

Based on the previous table the following could be deduced:

- There are 9 features representing 45% of the features are "Highly available", while, 3 features of them are of high importance, and 5 are of moderate importance, and 1 is of low importance.
- There are 7 features representing 35% are "Moderately available", while 2 features of them are of high importance, and 3 are of moderate importance, and 2 are of low importance.
- There are 4 features representing 20% are of "Low availability", and all of them are of low importance.
- On the other hand, there are 5 features which are regarded as important by the accountants, 3 features (representing 60%) are highly available, while 2 features (representing 40%) are moderately available. Hence, we can accept H2 and H3 of the research indicating that the CAIS implemented in the company fulfil the companies mostly required specification, and the CAIS features which are regarded as important by accountants, are present in the CAIS system implemented by their companies.

4.3 Testing The Fourth Hypothesis: H4 -The Features, Which Were One of The Reasons of Abandoning the Previous CAIS, Are Present in The Currently Adopted CAIS

4.3.1 Determining the Real Factors of Abandoning CAIS

In order to determine the factors which lead to abandoning a CAIS system, question 7 of the questionnaire is analysed and the following could be concluded.

Table 5.

Order	1	2	3	4	5	6	7	8	9	10
Feature that lead to the departure	A-10	A-14	A-2	A-18	A-20	A-7	A-1	A-12	A-3	A-4
Frequency	69	64	63	60	58	53	52	52	46	46
Order	11	12	13	14	15	16	17	18	19	20
Feature that lead to the departure	A-9	A-13	A-5	A-17	A-6	A16	A-15	A-11	A-19	A-8
Frequency	42	35	31	28	23	23	22	19	18	13

A = Features that lead to abandoning a CAIS system.

By applying Chi square Test to the answers of the respondents to question 7 of the questionnaire and by comparing the availability of the features which were a cause of abandoning the previous CAIS, the following results are found: (review table “3” for codes)

Table 6.

Feature #	Available in the current system	Not Cause of change		Cause of change		Total		Chi Square	Sig.
		#	%	#	%	#	%		
1	Not Available	8	11.6	0	0.0	8	6.6	6.46	0.011
	Available	61	88.4	52	100	113	93.4		
	Total	69	100	52	100	121	100		
2	Not Available	38	65.5	0	0.0	38	31.4	60.17	0.000
	Available	20	34.5	63	100	83	68.6		
	Total	58	100	63	100	121	100		
3	Not Available	10	13.3	2	4.3	12	9.9	2.58	0.108
	Available	65	86.7	44	95.7	109	90.1		
	Total	75	100	46	100	121	100		
4	Not Available	25	33.3	2	4.3	27	22.3	13.82	0.001
	Available	50	66.7	44	97.8	94	78.3		
	Total	75	100	46	100	121	100		
5	Not Available	26	28.9	1	3.2	27	22.3	8.76	0.003
	Available	64	71.1	30	96.8	94	77.7		
	Total	90	100	31	100	121	100		
6	Not Available	66	67.3	1	4.3	67	55.4	29.92	0.000
	Available	32	32.7	22	95.7	54	44.6		
	Total	98	100	23	100	121	100		
7	Not Available	27	39.7	0	0.0	27	22.3	27.09	0.000
	Available	41	60.3	53	100	94	77.7		
	Total	68	100	53	100	121	100		
8	Not Available	81	75.0	1	7.7	82	67.8	24.07	0.000
	Available	27	25.0	12	92.3	39	32.2		
	Total	108	100	13	100	121	100		
9	Not Available	11	13.9	1	2.4	12	9.9	4.09	0.043
	Available	68	86.1	41	97.6	109	90.1		
	Total	79	100	42	100	121	100		
10	Not Available	28	53.8	1	1.4	29	24.0	44.68	0.000
	Available	24	46.2	68	98.6	92	76.0		
	Total	52	100	69	100	121	100		

11	Not Available	39	38.2	0	0.0	39	32.2	10.72	0.000
	Available	63	61.8	19	100	82	67.8		
	Total	102	100	19	100	121	100		
12	Not Available	43	62.3	0	0.0	43	35.5	50.27	0.000
	Available	26	37.7	52	100	78	64.5		
	Total	69	100	52	100	121	100		
13	Not Available	10	11.6	0	0.0	10	8.3	4.44	0.035
	Available	76	88.4	35	100	111	91.7		
	Total	86	100	35	100	121	100		
14	Not Available	34	59.6	1	1.6	35	28.9	40.48	0.000
	Available	23	40.4	63	98.4	86	71.1		
	Total	57	100	64	100	121	100		
15	Not Available	45	45.4	1	4.5	46	35.9	12.78	0.001
	Available	54	54.6	21	95.5	75	64.1		
	Total	99	100	22	100	121	100		
16	Not Available	33	33.7	0	0.0	33	27.3	16.65	0.001
	Available	65	66.3	23	100	88	72.7		
	Total	98	100	23	100	121	100		
17	Not Available	82	88.2	0	0.0	82	67.8	76.60	0.000
	Available	11	11.8	28	100	39	32.2		
	Total	93	100	28	100	121	100		
18	Not Available	39	63.9	0	0.0	39	32.2	56.61	0.000
	Available	22	36.1	60	100	82	67.8		
	Total	61	100	60	100	121	100		
19	Not Available	69	67.0	0	0.0	69	57.0	28.06	0.000
	Available	34	33.0	18	100	52	43.0		
	Total	103	100	18	100	121	100		
20	Not Available	17	27.0	0	0.0	17	14.0	18.21	0.000
	Available	46	73.0	58	100	104	86.0		
	Total	63	100	58	100	121	100		

Based on the previous table, it could be concluded that Chi square test is significant for all of the features except for the frequency of reporting which appeared to be insignificant. Accordingly, it could be concluded that there is a relationship between the cause of change and the availability of the feature in the newly adopted CAIS, which is logical as those who are selecting the new CAIS would be looking for the features which were one of the reasons of abandoning the old CAIS. Accordingly, the fourth hypothesis H4 of this research could be accepted, indicating that the features which were one of the reasons of abandoning the previous CAIS, are present in the currently adopted CAIS.

4.4 Testing the Fifth Hypothesis: H5 -The Features Which Were One of the Reasons of Abandoning the Previous CAIS Are Those Features Which Are Regarded by the Respondents as "Important"

To test such hypothesis an analysis to the reasons of abandoning the old CAIS (in question 7) are compared by the importance of the feature (in question 6). By applying Chi square Test, the following results are obtained: (review table "3" for codes)

Table 7.

Item #	Cause	Not Cause		Cause		Total		Chi Square	Sig.
	Importance	#	%	#	%	#	%		
1	Natural	6	8.7	0	0.0	6	5.0	4.76	0.029
	Important	63	91.3	52	100	115	95.0		
	Total	69	100	52	100	121	100		
2	Insignificant	12	20.7	0	0.0	12	9.9	30.85	0.000

	Natural	11	19.0	0	0.0	11	9.1		
	Important	35	60.3	63	100	98	81.0		
	Total	58	100	63	100	121	100		
3	Insignificant	5	6.7	0	0.0	5	4.1	31.57	0.000
	Natural	36	48.0	2	4.3	38	31.4		
	Important	34	45.3	44	95.7	78	64.5		
	Total	75	100	46	100	121	100		
4	Insignificant	1	1.3	0	0.0	1	0.8	13.82	0.000
	Natural	18	24.0	0	0.0	18	14.9		
	Important	56	74.7	46	100	102	84.3		
	Total	75	100	46	100	121	100		
5	Insignificant	7	7.8	0	0.0	7	5.8	19.82	0.000
	Natural	32	35.6	0	0.0	32	26.4		
	Important	51	56.7	31	100	82	67.8		
	Total	90	100	31	100	121	100		
6	Insignificant	17	17.3	1	4.3	18	14.9	29.12	0.000
	Natural	48	49.0	0	0.0	48	39.7		
	Important	33	33.7	22	95.7	55	45.5		
	Total	98	100	23	100	121	100		
7	Insignificant	5	7.4	0	0.0	5	4.1	29.73	0.000
	Natural	24	35.3	0	0.0	24	19.8		
	Important	39	57.4	53	100	92	76.0		
	Total	68	100	53	100	121	100		
8	Insignificant	36	33.3	1	7.7	37	30.6	24.22	0.000
	Natural	45	41.7	0	0.0	45	37.2		
	Important	27	25.0	12	92.3	39	32.2		
	Total	108	100	13	100	121	100		
9	Insignificant	19	24.1	1	2.4	20	16.5	57.49	0.000
	Natural	40	50.6	0	0.0	40	33.1		
	Important	20	25.3	41	97.6	61	50.4		
	Total	79	100	42	100	121	100		
10	Insignificant	7	13.5	1	1.4	8	6.6	45.04	0.000
	Natural	21	40.4	0	0.0	21	17.4		
	Important	24	46.2	68	98.6	92	76.0		
	Total	52	100	69	100	121	100		
11	Insignificant	7	6.9	0	0.0	7	5.8	35.85	0.000
	Natural	71	69.6	1	5.3	72	59.5		
	Important	24	23.5	18	94.7	42	34.7		
	Total	102	100	19	100	121	100		
12	Insignificant	14	20.3	0	0.0	14	11.6	48.48	0.000
	Natural	28	40.6	0	0.0	28	23.1		
	Important	27	39.1	52	100	79	65.3		
	Total	69	100	52	100	121	100		
13	Natural	45	52.3	0	0.0	45	37.2	4.44	0.035
	Important	41	47.7	35	100	76	62.8		
	Total	86	100	35	100	121	100		
14	Insignificant	6	10.5	0	0.0	6	5.0	50.95	0.000
	Natural	27	47.4	0	0.0	27	22.3		
	Important	24	42.1	64	100	88	72.7		
	Total	57	100	64	100	121	100		
15	Insignificant	6	6.1	0	0.0	6	5.0	18.30	0.000
	Natural	43	43.4	0	0.0	43	35.5		
	Important	50	50.5	22	100	72	59.5		
	Total	99	100	22	100	121	100		

16	Insignificant	24	24.5	0	0.0	24	19.8	40.33	0.000
	Natural	47	48.0	0	0.0	47	38.8		
	Important	27	27.6	23	100	50	41.3		
	Total	98	100	23	100	121	100		
17	Insignificant	47	50.5	0	0.0	47	38.8	59.40	0.000
	Natural	28	30.1	0	0.0	28	23.1		
	Important	18	19.4	28	100	46	38.0		
	Total	93	100	28	100	121	100		
18	Natural	10	16.4	0	0.0	10	8.3	56.61	0.000
	Important	51	83.6	60	100	111	91.7		
	Total	61	100	60	100	121	100		
19	Insignificant	27	26.2	0	0.0	27	22.3	33.29	0.000
	Natural	47	45.6	0	0.0	47	38.8		
	Important	29	28.2	18	100	47	38.8		
	Total	103	100	18	100	121	100		
20	Insignificant	10	16.9	0	0.0	10	8.5	31.62	0.000
	Natural	19	32.2	2	3.4	21	17.9		
	Important	30	50.8	56	96.6	86	73.5		
	Total	59	100	58	100	117	100		

The features which were one of the reasons of abandoning the previous CAIS, are those features which are regarded by the respondents as "important" by 100% and chi square test is significant: (review table "3" for codes).

Table 8.

Feature #	Feature
1	Ability to prepare full set of financial statements
2	Capabilities to handle a multi-business
4	Ability to customize reports
5	Real-time reporting
7	Strong internal controls
12	Ability to prepare reports on the level of a responsibility center
13	Real-time processing for transactions
14	Developing budgets and analyzing actual and budgeted figures
15	Bank reconciliation and bank transaction management
16	Multi-Currency support
17	Bilingual - Arabic /English support
18	Disaster Recovery feature - Automatic Backup system
19	Internet integration and e-commerce capability

The other features which were one of the reasons of abandoning the previous CAIS, are those features which are regarded by the respondents as "important" by approximately 100% (ranges from 92.3% - 98.6%) and the chi square test is significant are as follow:

Table 9.

Feature #	Feature	%
3	Frequency of reporting	95.7%
6	What if" analysis	95.7%
8	Online help	92.3%
9	Existence of automatic entries for recurring transactions	97.6%
10	Integration with other modules of ERP system	98.6%
11	Existence of statistical (non-financial) reports	94.7%
20	Excel-Based financial reporting and custom reports	96.6%

From the previous analysis and since most of the respondents (90% and more) have indicated that the features which they have regarded as “important”, are the cause of change, then H5 could be accepted indicating that the features which were one of the reasons of abandoning the previous CAIS, are those features which are regarded by the respondents as “important”.

4.5 Testing The Sixth Hypothesis: H6- The Features That the Accountants Require in a CAIS Differ Significantly than Those Features Required by the Decision Maker

By comparing the responses of the managers and the accountants to “question 6” of the questionnaire, and by applying Chi square Test, the following results could be concluded. (review table “3” for codes).

Table 10.

Item #	Cause	Decision Maker		Accountant		Total		Chi Square	Sig.
	Importance	#	%	#	%	#	%		
1	Natural	2	3.4	4	6.5	6	5.0	0.60	0.438
	Important	57	96.6	58	94	115	95.0		
	Total	59	100	62	100	121	100		
2	Insignificant	9	15.3	3	4.8	12	9.9	3.67	0.159
	Natural	5	8.5	6	9.7	11	9.1		
	Important	45	76.3	53	85	98	81.0		
3	Insignificant	4	6.8	1	1.6	5	4.1	5.93	0.052
	Natural	23	39.0	15	24.2	38	31.4		
	Important	32	54.2	46	74.2	78	64.5		
4	Insignificant	1	1.7	0	0.0	1	0.8	2.96	0.227
	Natural	6	10.2	12	19.4	18	14.9		
	Important	52	88.1	50	81	102	84.3		
5	Insignificant	5	8.5	2	3.2	7	5.8	5.61	0.061
	Natural	20	33.9	12	19.4	32	26.4		
	Important	34	57.6	48	77	82	67.8		
6	Insignificant	13	22.0	5	8.1	18	14.9	5.04	0.080
	Natural	23	39.0	25	40.3	48	39.7		
	Important	23	39.0	32	51.6	55	45.5		
7	Insignificant	2	3.4	3	4.8	5	4.1	0.29	0.864
	Natural	11	18.6	13	21.0	24	19.8		
	Important	46	78.0	46	74	92	76.0		
8	Insignificant	19	32.2	18	29.0	37	30.6	0.18	0.915
	Natural	21	35.6	24	38.7	45	37.2		
	Important	19	32.2	20	32.3	39	32.2		
9	Insignificant	9	15.3	11	17.7	20	16.5	0.14	0.931
	Natural	20	33.9	20	32.3	40	33.1		
	Important	30	50.8	31	50.0	61	50.4		
10	Insignificant	5	8.5	3	4.8	8	6.6	0.87	0.649
	Natural	11	18.6	10	16.1	21	17.4		
	Important	43	72.9	49	79.0	92	76.0		
	Total	59	100	62	100	121	100		

Item #	Cause	Decision Maker		Accountant		Total		Chi Square	Sig.
		#	%	#	%	#	%		
11	Insignificant	4	6.8	3	4.8	7	5.8	2.32	0.314
	Natural	31	52.5	41	66.1	72	59.5		
	Important	24	40.7	18	29.0	42	34.7		
	Total	59	100	62	100	121	100		
12	Insignificant	8	13.6	6	9.7	14	11.6	1.81	0.405
	Natural	16	27.1	12	19.4	28	23.1		
	Important	35	59.3	44	71	79	65.3		
	Total	59	100	62	100	121	100		
13	Natural	26	44.1	19	30.6	45	37.2	2.33	0.127
	Important	33	55.9	43	69	76	62.8		
	Total	59	100	62	100	121	100		
14	Insignificant	5	8.5	1	1.6	6	5.0	8.51	0.014
	Natural	18	30.5	9	14.5	27	22.3		
	Important	36	61.0	52	84	88	72.7		
	Total	59	100	62	100	121	100		
15	Insignificant	5	8.5	1	1.6	6	5.0	5.18	0.075
	Natural	24	40.7	19	30.6	43	35.5		
	Important	30	50.8	42	68	72	59.5		
	Total	59	100	62	100	121	100		
16	Insignificant	12	20.3	12	19.4	24	19.8	0.84	0.658
	Natural	25	42.4	22	35.5	47	38.8		
	Important	22	37.3	28	45	50	41.3		
	Total	59	100	62	100	121	100		
17	Insignificant	27	45.8	20	32.3	47	38.8	6.20	0.045
	Natural	8	13.6	20	32.3	28	23.1		
	Important	24	40.7	22	35	46	38.0		
	Total	59	100	62	100	121	100		
18	Natural	6	10.2	4	6.5	10	8.3	0.55	0.458
	Important	53	89.8	58	94	111	91.7		
	Total	59	100	62	100	121	100		
19	Insignificant	13	22.0	14	22.6	27	22.3	0.69	0.709
	Natural	25	42.4	22	35.5	47	38.8		
	Important	21	35.6	26	42	47	38.8		
	Total	59	100	62	100	121	100		
20	Insignificant	5	8.8	5	8.3	10	8.5	0.72	0.991
	Natural	10	17.5	11	18.3	21	17.9		
	Important	42	73.7	44	73.3	86	73.5		
	Total	57	100	60	100	117	100		

Based on the previous chi square test, it could be concluded that there are only two features which differ significantly between accountants and managers.

- Feature no. 14 which is "Developing budgets and analyzing actual and budgeted figures". It is clear that the accountants required this features more than the decision makers, This could be explained that the accountants greatly need such a feature during budget preparation, while the decision makers uses the budget and they don't prepare its details and that is why they don't regard the preparation feature as important as the accountants.

- Feature no. 17 which is "Bilingual Arabic/English support". It is clear that the decision makers require this feature more than accountants. However, this feature is of low importance since there are only 38% of responses in the whole sample.

On the other hand, the other features mentioned in the questionnaire do not differ significantly from a decision maker to an accountant perspective.

Accordingly there are only one feature in CAIS that differ significantly between accountants and decision makers and the other nineteen features did not differ significantly. Hence, we can **reject** the 6th hypothesis of the research and accept the alternative hypothesis indicating that the features that the accountants require in a CAIS does not differ significantly than those features required by the managers.

5. Conclusions and Recommendations

5.1 Conclusions

This paper investigates the experience of companies that have changed their CAIS more than once. The aim of such investigation is to rationalize the investment decision in such a field. The results revealed that there is a significant change in the relative importance of the criteria used to choose CAIS from the first to the second time of implementation. It is concluded that the mostly required features by the accountants are present in the currently implemented CAIS and that the features that were the reason of abandoning the previous CAIS are present in the currently adopted one. As expected that the features which were one of the reasons of abandoning the previous accounting system, are those features which are regarded by the accountant as “important”. Finally, the opinion of the managers and the accountants differed significantly only in one feature while there is no significant change regarding the other features.

5.2 Recommendations

Based on the above conclusions and findings the researcher recommends the following recommendations to the companies which are planning to introduce or update their CAIS system in order to rationalize their investments in such a field:

- Companies should consider the change in priorities mentioned in this research while choosing their new CAIS to learn from the experience of others.
- Companies should concentrate on the main features required by both managers and accountants when choosing a CAIS. Other features which would appear valuable, and would increase the cost of the CAIS, but are neither required by the accountants nor by the managers. Hence, it should be eliminated as it would be regarded as extra cost without having a real added value.
- There are some companies which provide various types of CAIS which fulfills the needs of various types of businesses and companies. However, such CAIS varies in prices and in performance and the support provided by its developers, in addition to some differences in functions and specifications. Such variances and differences in the wide range spectrum which the companies provide make it fairly difficult for small and midsize companies to choose the appropriate CAIS. (Maheshwari & McLain, 2006). Based on that, the researcher recommends designing a model to allow companies to align their needs with the features present in the different CAIS available. Such a model should include the different variables such as the needs, the resources available to the companies and the different features of the CAIS, then uses such variables to suggest certain CAIS solutions to companies. This would be a topic of another research.

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Appendix I. General Information

Please check in front the appropriate answer that fits your company.

1. Company field of business

Industrial	Trading	Services	Distribution	Banking	Others : (Please Specify)
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

2- Number of Employees

1-49	50-100	Over 100
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

3. Company's Capital

Less than one Million	1 Million to 10 Million	10 Million to 50 Million	Over 50 Million
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

4. What are the priorities which you considered when selecting the Computerized Accounting Information System (CAIS hereafter) which you implemented lately? Please put a number from 1 to 10 in front of each factor. Please do not repeat the number twice. Where "1" is the most important, and "10" is the least important.

Factors that affect the selection of CAIS	Degree of importance
1. Cost of acquiring the CAIS software	
2. User friendliness	
3. Easiness of system implementation	
4. The level of support provided by the CAIS developer.	
5. CAIS capabilities and features	
6. Ability of CAIS to grow and be developed to meet future company growth.	
7. Presence of full detailed manuals for the CAIS	
8. The developer of the software has a long list of clients.	
9. Experience and reputation of the CAIS developer.	
10. Cost of the needed Hardware (or compatibility of the present hardware) to run the CAIS.	

5. If you have implemented a previous CAIS before, what were your priorities when you selected such a system?

Factors that affect the selection of CAIS	Degree of importance
1- Cost of acquiring the CAIS software .	
2- User friendliness	
3- Easiness of system implementation	
4- The level of support provided by the CAIS developer.	
5- CAIS capabilities and features	
6- Ability of CAIS to grow and be developed to meet future company growth.	
7- Presence of full detailed manuals for the CAIS	
8- The developer of the software has a long list of clients.	
9- Experience and reputation of the CAIS developer.	
10- Cost of the needed Hardware (or compatibility of the present hardware) to run the CAIS.	

6. Please indicate the importance of each of the following features which you would be considering when selecting a CAIS. Please check only one box in front of each feature:

Mostly required features in CAIS from an accountant/decision maker perspective: (What you hope to have in the system.)

Feature	Important	Neutral	Insignificant
1- Ability to prepare full set of financial statements.			
2. Capabilities to handle multi-business			
3. Frequency of reporting.			
4. Ability to customize reports.			
5. Real-time reporting.			
6. "What if" analysis.			
7. Strong internal controls.			
8. Online help.			
9. Existence of automatic entries for recurring transactions.			
10. Integration with other modules of ERP system.			
11. Existence of statistical (non-financial) reports.			
12. Ability to prepare reports on the level of a responsibility centre.			
13. Real-time processing for transactions.			
14. Developing budgets and analyzing actual and budgeted figures			
15. Bank reconciliation and bank transaction management.			
16. Multi-Currency support			
17. Bilingual – Arabic /English support			
18. Disaster Recovery feature – Automatic Backup system			
19. Internet integration and e-commerce capability.			
20. Excel-Based financial reporting and custom reports.			

7. The present features of CAIS already present in your implemented system.

Please indicate which of the following features are already available in your system. Only put one check in front of each feature. If you have implemented a new CAIS system instead of an older one, please check in the last column to the right which of these features was one of the reasons of such a change. In case that this is your first CAIS, then leave the last column to the right empty.

Feature	Available in the current system	Not available in the current system	This is one of the reasons that lead to the change from the older CAIS to the current one.
1. Ability to prepare full set of financial statements.			
2. Capabilities to handle multi-business			
3. Frequency of reporting.			
4. Ability to customize reports.			
5. Real-time reporting.			
6. "What if" analysis.			
7. Strong internal controls.			
8. Online help.			
9. Existence of automatic entries for recurring transactions.			
10. Integration with other modules of ERP system.			
11. Existence of statistical (non-financial) reports.			
12. Ability to prepare reports on the level of a responsibility center.			
13. Real-time processing for transactions.			
14. Developing budgets and analyzing actual and budgeted figures			
15. Bank reconciliation and bank transaction management.			
16. Multi-Currency support			
17. Bilingual – Arabic /English support			
18. Disaster Recovery feature – Automatic Backup system			
19. Internet integration and e-commerce capability.			
20. Excel-Based financial reporting and custom reports.			