USERS', MANAGEMENT AND DEVELOPERS' ROLES ON THE SUCCESS OF COMPUTERISED APPLICATION SYSTEMS IMPLEMENTATION IN THE MALAYSIAN PUBLIC SECTOR

by

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TABLE OF CONTENTS

LIST OF TABLES

LISTS OF FIGURES

ABSTRAK

Objektif kajian ini ialah untuk menentukan sama ada peranan yang dimainkan oleh para pengguna, pihak pengurusan dan pembangun sistem boleh mempengaruhi kejayaan implementasi CAS di sektor awam.

Terdapat satu pembolehubah bersandar iaitu kejayaan implementasi CAS, lapan pembolehubah tak bersandar yang dikategorikan kepada peranan para pengguna, peranan pengurusan dan peranan pembangun CAS dan tiga pembolehubah aruhan iaitu saiz projek, struktur projek dan dokumentasi sistem sebelum implementasi CAS. Satu set soal selidik telah disediakan (sebagai alat mengumpul data primer) dan telah diedarkan melalui pos kepada 160 responden yang terdiri daripada kakitangan komputer di 120 organisasi kerajaan. Setiap responden telah diminta supaya memilih satu CAS yang telah diimplementasikan di organisasi mereka. Sebanyak 138 CAS telah dianalisis dengan menggunakan statistik (multiple regression).

Didapati bahawa peranan para pengguna, pengurusan dan pembangun CAS memberi kesan kepada kejayaan implementasi CAS. Manakala struktur projek dan dokumentasi sistem sebelum implementasi CAS memberi kesan aruhan. Oleh yang demikian, amatlah penting agar para pengguna, pengurusan dan pembangun CAS memainkan peranan mereka masing-masing bagi menjayakan implementasi kesemua projek CAS kerajaan.

ABSTRACT

The objective of this research is to investigate whether the different roles played by users, management and developers could influence the success of CAS implementation in the public sector.

The dependent variable is the success of CAS implementation, 8 independent variables are categorized into 3 categories namely the users' roles, management roles and developers' roles and 3 moderating variables namely projects size, projects structure and adequate documentation of existing system. A set of questionnaire has been constructed and it acts as an instrument to collect primary data and it will be distributed via mail to 160 respondents comprising of computer personnel in 120 government organizations. Statistical analysis using multiple regression (enter method) was performed to the138 CAS.

From the study, users', management and developers' roles have a significant impact on the success of CAS implementation. While projects structure and sufficient documentation of existing system prior to the CAS implementation have a moderating effect on this relationship. Thus, it is crucial for users, management and developers to play their respective roles in order to ensure that all government CAS projects will be successfully implemented.

Chapter 1

INTRODUCTION

1.0 Introduction

Computerized Application System (CAS) as part of the government's information technology plays an important role in improving the day-to-day operations as well as improving the quality of services provided to the public. The importance of CAS is recognized by the government and the government has taken several steps to implement CAS in the public sector which include providing sufficient budget for CAS development, favorable CAS policies and plan to government agencies and departments. However, the government must understand that there are 3 parties involved in the CAS implementation and each of these parties must play their roles in order for the CAS to be successfully implemented. Thus, this study investigate these roles that influence the successful implementation of computerized application systems in the public sector.

1.1 Problem Statement

When we compare the operations of organizations in the public sector with those in the private sector, in terms of productivity, service quality and efficiency, there is little doubt that the public sector is still lacking in many areas. Now, with the government investing heavily from public money in realizing its Electronic Government concept and the MSC's development, so as to re-invent the way the government operates, the public would expect the government to perform its obligations to the public by providing a better service quality and the government offices are expected to perform its operation effectively and efficiently. It is important

for the government to be aware of those factors that could influence the implementation outcome of computerized application systems and to ensure that the risk of system failure is minimal and not to put the tax payers money into the drain.

1.2 Research Objective

The objective of this research is to investigate and to identify what are the roles needed to be played by users, management and developers that could influence the implementation outcome of computerized application system in the public sector.

1.3 Research Questions

The research tries to answer the following questions :-

(i) Do users' roles have an impact on the success of CAS implementation in the public sector ?

(ii) Does management role has an impact on the success of CAS implementation in the public sector ?

(iii) Do developers' roles have an impact on the success of CAS implementation in the public sector ?

The point that this research is trying to establish is that developers are not the only party that is responsible for ensuring that the CAS implementation in the public sector is a successful one. That is to say, when CAS implementation fails, is it unfair for us to just blame developers alone.

1.4 Research Scope

The scope of the study is CAS projects implemented in the public sector. CAS projects include any application systems that was developed either in-house or

through external consultants. Public sector include ministries, state governments, federal government departments and agencies, state governments departments and agencies, local authorities and government owned corporations.

1.5 Significance of the Study

The result of the study would be valuable to the government organizations for the better understanding of what their roles are so as to minimize the risk of failures when they are implementing CAS in their respective organizations.

1.6 Definitions

(i) Computerized Application Systems means any application system such as Accounting System (General Ledger, Accounts Payable, Account Receivable, etc), Human Resource Management System, Payroll System, Geographical Information System (GIS), Fixed Assets System, Inventory Management Control System, or any other system that is developed by the IT staff/professionals (either by the internal EDP staff or by outsourcing the development to vendors) using programming languages such as Oracle, Informix, Power Builder, etc or by using Case Tools such as Four Gen Case Tool, etc, under any platforms (it can be Windows NT, UNIX, NOVELL, DOS, etc) and under any machines (servers, workstations, cabling and network equipment).

(ii) Public Sector encompasses both the Federal and States Governments, Federal and States Statutory Bodies and all Local Governments and City Councils (lib.upm.edu.my/federal.htm and msia.hypermart.net/links/Government/state)

(iii) Implementation refers to all organizational activities working toward the adoption, management, and routinization of an innovation (Laudon & Laudon, 1998).

Implementation entails bringing a system or subsystem into operational use and turning it over to the end user (Leong, 1997). The implementation phase in Management Information System (MIS) is the culmination of the design process (Multinovich and Vlahovich, 1984).

(iv) Successful Information Systems means accurate, reliable, work as intended and is widely used (Leong, 1997). The systems will achieve the organization business goals, operate at acceptable cost, meet defined performance standards, and be flexible and easy to learn and use (Debrander & Thiers, 1984).

(v) Users' roles means users responsibility and duty in ensuring that the application system is successfully implemented.

(vi) Users' Involvement And Participation means users participate actively in the design and development processes.

(vii) Users' Commitment And Priority means users must be committed towards the project and treat the development and implementation of the CAS as their top priority.

(viii) Management role means the expectations of activities that managers should perform in an organization (Laudon & Laudon, 1998).

(ix) Developers' roles means the computer staffs (can be from internally or externally) who are involved and responsible for the development of CAS must play their active role in ensuring that the system is successfully implemented.

(x) Computer Department Staffs' Competence And Experience With Technology means the degree of experience and know-how the EDP stafsf has concerning with the programming language used, the type of relational database management system (RDBMS) used, the type of operating system used and the type of machines and cabling used in the development of the application system. If the

developer has a limited experience and know-how concerning the CAS implement, then the development of the CAS meets users requirement is utmost difficult.

(xi) Computer Departments Must Be Adequate In Strength means the project team that is responsible for the development of the CAS must be adequately and properly staffed and the EDP personnel responsible for the maintenance of the CAS once put into production must also be adequate in staff.

(xii) Narrowing Down The Users-Designers Communication Gap means the difference in backgrounds, interests, and priorities that impede communication and problem solving among end users and information systems specialists (Laudon & Laudon, 1998).

(xiii) Sufficient Documentation For IT Staffs And Users means the developer must provide sufficient documentation to both users and the EDP staffs responsible for the maintenance of the CAS put to production.

(xiv) Users' Education And Training means users must be trained in order to be able to use the newly implemented CAS. This include the training of data-entry, updating records and printing reports.

(xv) Projects Size means how big is the development project in terms of the ringgit spent, the size of the implementation staff, the time allocated to implementation, and the number of organizational units affected (Laudon & Laudon, 1998).

(xvi) Projects Structure means the projects requirements, their inputs, processes and outputs are clearly defined.

(xvii) Adequate Documentation Of Existing System means the present system prior to the implementation of the CAS must be sufficiently documented in terms of work flow and procedures so as to enable developers to understand better and easier about

the present systems work flow during the feasibility study and to enable them to come-up with the proposed CAS effectively.

1.7 Organization of the Report

Chapter 2 reviews and examines the previous studies that are related to the study. Chapter 3 describes the theoretical framework which forms the foundation of the entire study. Chapter 4 describes the findings of this study using statistical analysis like descriptive statistics, measures of association and regression analysis. Chapter 5 describes both the theoritical and practical contributions of the study, the limitations and future directions of the study and it also conclude the study.

Chapter 2

LITERATURE REVIEW

2.0 Introduction

This chapter is trying to examine and explain literatures from previous studies that are related to this research. The discussion will comprise of setting-up of concept, variables and terminology used. Laudon and Laudon (1998) explained that about 75 % of all large system are operating failures. Although these systems in running live, they take so much extra time and money to implement. A research done by Standish Group International Inc in 1994 revealed that 31 % of all corporate software development projects are abandoned; 51 % of these projects cost far more than budgeted and took longer tome to finished than expected (Bulkeley, 1996).

Many application systems are considered failures simply because;

(i) They are either not used as intended or they are not used at all. In many cases, users have to develop their own parallel manual procedures in order to make these systems work properly (Laudon, 1998).

(ii) For some systems, their generated reports to management are not read at all. To the management, these reports are considered worthless and full of figures which are of no consequences for management decision making (Lucas, 1981).

(iii) Some systems are not user friendly and therefore they are not used by users. They are difficult to use or their data is not valid, accurate, timely and reliable.

(iv) Other typical reasons include processing delays, excessive operational costs or severe production problems.

Due to these reasons, many discussions has taken place with regards to this topic world wide. This research focuses on the public sector for the following reasons :-

(a) **Government Heavy Investment On IT**

According to Venugopal (1992), almost two-thirds of the actions taken by the government are supply oriented, with emphasis on knowledge building, knowledge deployment, and innovation directive. By examining these actions, Venugopal found that the government has invested in education of IT professionals, setting up R&D institutions, and development of IT infrastructure. On the demand side, Venugopal also found that the government has invested heavily in using computers and setting up show cases such as the Executive Management Information System in the Prime Minister's Office. Table 2.1 shows the nature of the IT actions taken by the government.

Table 2.1: Classification And Mapping Of IT Policy Actions (Raman & Yap, 1996)

Type of action	Supply		Demand		Total
	Cell 1 Influence	Cell III Regulation	Cell II Influence	Cell IV Regulation	
Knowledge building	5				5
Knowledge deployment	4	5	7		16
Mobilization			5		5
Subsidy		2	1	1	4
Innovation directive	9				9
Standards		1			1
Total	18	8	13	2	24

Table 2.2 illustrates that investment on IT has increased from RM3,800 millions in 1995 to RM4,840 millions in 1998 with an annual growth rate of 8.4 % during this period.

Table 2.2: Expenditure On IT Based On Sectors

Sector	1995 (RM million)	%	1998 (RM million)	%	Average Annual Growth Rate (%) 1996-1998
Architecturing, Engineering & Construction	152	4.0	48	1.0	-31.9
Banking & Finance	1,026	27.0	678	14.0	-12.9
Distributed Commerce	304	8.0	484	10.0	16.8
Research & Education	114	3.0	194	4.0	19.4
Government	380	10.0	339	7.0	-3.7
Agriculture and Mining	76	2.0	48	1.0	-14.2
Manufacturing	494	13.0	823	17.0	18.6
Oil & Gas	380	10.0	290	6.0	-8.6
Telecommunication	Not available	-	387	8.0	-
Transport	114	3.0	242	5.0	28.5
Utility	266	7.0	290	6.0	2.9
Household & private	76	2.0	436	9.0	79.0
Others	418	11.0	581	12.0	11.6
Total	3,800	100.0	4,840	100.0	8.4

Source : Mid-Term Review of Seventh Malaysian Plan (1996-2000)

(b) The Role of IT Organizations Today

Raman and Yap (1996) mentioned that in Malaysia, Education, and Research and Development (R&D) are mostly funded by the government. In R&D, the main organizations involved are the Malaysian Institute of Microelectronics System (MIMOS), universities, and the Technology Park Malaysia. US$ 160 million has been allocated by the government for R&D in the period of 1985-1990, out of which US$ 3.5 million (2.2%) was for R&D in IT related areas. In terms of IT R&D, MIMOS focuses on computer systems, industrial technology and applications, communication technology, design methodology, and semiconductor technology. In addition to these, MIMOS also promotes the microelectronics-based industries growth. On the other hand, IT R&D efforts of universities focus on languages

translation, library management systems, land management systems/geographical information systems, management information systems for government, and industrial automation and control. For the period of 1986-1990, universities received US$ 1.2 million for R&D. US$ 80 million has been invested by the Ministry of Science, Technology, and Environment in the Technology Park Malaysia near Kuala Lumpur which was completed in 1991. The High Technology Park in Kulim, Kedah with a US$ 40 million investment focuses on R&D in microelectronics. The technology park in Tanjong Langsar, Johore with a similar capital investment aims to support and encourage the high technology industries growth through R&D. The government has spent RM976.6 million on Information Technology for the period from 1996 to 1998. Investment on IT has also increased from RM3.8 billion to RM4.84 billion for the year 1998. The allocation for IT amounting to RM2.013 billion for the Malaysian Seventh Plan has been increased to RM4.01 billion. The government has also created various grants and funds like the Technology and Acquisition Fund (RM61million), the Commercialization of R&D Fund (RM 100 million), the Scheme For Women Entrepreneurs (RM10 million), the Multimedia Grant Scheme (RM50 million), the Industrial Grant Scheme (RM100 million), the Directions Application Grant Scheme (RM50 million, the IRPA Grant, the ITAF 1,2,3 & 4 and the Assistant and Grant for the small and medium industry, all totaling up to RM1 billion for the IT development in the country. In addition to these grants and funds, several exploratory capital funds such as the Multimedia Development Corporation Exploratory Capital Fund (RM100 million), the Malaysian Technology and Development Corporation Internet Fund (RM20 million), a fund set up by Microsoft, Sapura & HP (RM30 million), a fund set up by Acer Inc. (RM76 million), a fund set up by Hwang-DBS (RM40 million) and also the various funds set up by PNB-NJI, BPMB-NIF, 3I Pic and H&Q Asia Pacific.

(c) The Use of Computers In The Public Sector

Raman and Yap (1996) also mentioned that the public sector has pioneered the use of computers in Malaysia back in 1965, the National Electricity Board installed an IBM 1401 and led the way in computerization in the years that followed. Later, the government has been actively promoting computerization of its departments and agencies. This is evident from the substantial increase in the number of mainframe and mini computers and investment in computer systems during the 1980s as shown in Table 2.3.

Table 2.3: Government Investment In Mainframe And Minicomputers

Period	US$ million	No. of computers (cummulative)
Prior to 1980	75.3	81
1983-1986	41.1	226
1987	19.1	290
1988	56.8	340
1989	63.3	393
1998	RM4.01 billion	Not available

Source: Malaysian Government Computerization Policy

(d) The Public Sector Towards Electronic Government

Tan Sri Dato' Abdul Halim Bin Ali (1997) explained that part of the success of the civil service in introducing management and administrative reforms is the result of the increasingly widespread use of information technology. The government attention will continue to be focussed on expanding the use of the latest technology, in the overall effort of the government towards achieving a paperless Civil Service, and the implementation of Electronic Government as part of the Multimedia Super Corridor (MSC) development. The government has taken active roles in bringing the country into the Information Age. Electronic Government is one of the MSC Flagship

Application applying Multimedia technologies to improve the government's operations. Electronic Government will improve the government's operations in two ways. First, it will improves the operations within the government departments and agencies. Second, it will improve the delivery of services to the public. Electronic Government aims to improve convenience, accessibility, and quality of interactions with the public (citizens and businesses) ;simultaneously, it will improve information flows and processes within government to improve the speed and quality of policy development, coordination, and enforcement. Electronic Government plays important roles in promoting the MSC's development, as well as furthering the social, political and economic agenda under vision 2020.

(e) IT Education And Skills Development

To realize the aspiration of the Electronic Government, the government has under taken several measures to ensure that its civil servants are fully computer literate and proficient.

Referring to Raman and Yap (1996), IT education and skills development and matching supply and demand of IT skills is important to support IT production and use. Although Malaysia invested heavily in education in general and in specific IT training programmes, there continues to be shortage of trained IT personnel and a mismatch between demand and supply of IT skills. The government has carried out several programmes to increase the supply of IT professionals and this can be seen from Table 2.4 which indicate the growth of IT professionals in the public sector since 1972.

Table 2.4: Number Of IT Professionals In The Public Sector

Year	Systems analysts		Programmers	
	Number	% of posts vacant	Number	% of posts vacant
1972	43	Na	34	na
1977	95	39	128	23
1979	170	23	198	32
1984	265	36	292	27
1986	243	22	314	23
1987	289	19	320	13
1989	822	13	758	12

Source : Malaysian Government Computerization Policy (P. Venugopal, 1990)

It can be seen that the increase from 77 in 1972 to 1,580 in 1989 is impressive, resulting in a compound growth rate of 19.5% for the 17 years. Despite this growth in supply of IT professionals, 12% of IT posts in the public sector were vacant in 1989 and IT professionals continue to be in short supply. It is found that at national level, shortage of IT professionals is even more acute. The Malaysian National Computer Confederation has published a survey in 1990 which shows that IT user organizations need a 23% increase in IT professionals over the current staffing level to meet their requirements. Table 2.5 gives the detail number of IT professionals.

Table 2.5: National Figures Of IT Professionals

Category	% of total IT staff	% increase required
IT management	6.8	41.4
Systems analysts	22.9	22.4
Analyst/Programmers	14.4	26.6
Operations	43.5	10.0
Specialists	12.4	18.0
Total	100.0	22.9

Source : Malaysian IT Survey (MNCC, 1990).

2.1 Previous Study

A research was done by Leong (1998) on the behavioral management strategies in ensuring the success of Information System implementation in the manufacturing companies. The dependent variable in Leong's study was the successful implementation of Information System in manufacturing companies. Leong's has categorized the independent variables as two namely the Training Strategy and the involvement strategy. While the moderating variables, Leong's has categorized the moderating variables into two namely the Environmental Characteristics and the Task Characteristics. The Environmental Characteristics consist of User Competent, IS Department Competent and Top Management Support. The Task Characteristics consist of the Project Size, the Task Structure and the System Innovative. The investigation of the contingent relationship between the behavioral management strategies of IS implementation and IS success with respect to the six categories variable presents the following results :-

(i) The Involvement Strategy enhance IS success when top management is supportive.

(ii) The Involvement Strategy enhance IS success when the IS is innovative.

(iii) The Training Strategy enhance IS success when top management is supportive.

(iv) The Training Strategy enhance IS success when the IS is innovative.

(v) The Involvement Strategy has significant positive influence upon IS success when the user is more competent and the task is less structured.

(vi) The Involvement Strategy does not enhance the IS success when IS department is not competent.

2.2 Dependent Variable

A major problem in determining the implementation success factors has been the deficiency in establishing appropriate implementation success measures (Delone et al., 1992). Ives and Olson (1984) mentioned that the most common outcome variable to measure the successful implementation of CAS is user information satisfaction which is defined as the extent to which users believe their information systems meets their information requirement and contribute to the organizational performance. Many measures were suggested (examples from many are : profitability (Garity, 1963); widespread use (Swanson, 1974); better communication, better control, cost savings; time savings, better teamwork, response to 'the new' (Keen, 1981), repeat use, and time taken in decision making (Nunmaker et al., 1989). Swanson (1974) and Nunmaker et al., (1989) suggested whether the system is indeed used, while Kim (1989) suggested user-satisfaction. Thus, no set of success measures has found universal acceptance. However in this study, the successful implementation of CAS is measured in terms of 15 items that tap the degree to which

i. the user is dependent upon the CAS in performing the task (Nunamaker et al., 1989; Barki & Huff, 1985; Swanson, 1974)

ii. the CAS has increased the job satisfaction (Kim, 1989; Mumford & Weir, 1979)

iii. the CAS is easy to use (Cale & Eriksen, 1994; Davis, 1989; Westcott, 1985)

iv. the CAS has enabled the tasks to be carried out easily and efficiently (Stein & Vandenbosch, 1996; Nord & Nord, 1994)

v. the information provided by the CAS is accurate and reliable (Westcott, 1985; Ives et al., 1983)

vi. the CAS is contributive to achieving organizational goals and objectives (Laudon & Laudon, 1998; Scott, 1991)

vii. the CAS can response to "new" (can be easily adjusted to new conditions, demands and circumstances of the organization (Cale & Eriksen, 1994; Keen, 1981)

viii. the information provided by the IS is sufficient for performing tasks (Laudon & Laudon, 1998; Alter, 1997)

ix. there is high levels of system use (extensive usage) (Cale & Eriksen, 1994; Yin, 1981; Swanson, 1974)

x. there is low levels of system breakdown (Laudon & Laudon, 1998)

xi. the manual intervention is needed to complete the task (Laudon & Laudon, 1998)

xii. the IT provided better communication (Paul & Morteza, 1998)

xiii. the CAS provided better control (Paul & Morteza, 1998)

xiv. the CAS provided cost savings (Jin, 1993; Garity, J.T, 1963) and

xv. the CAS provided time saving (Paul & Morteza, 1998) that is shorter time taken in decision making (Paul et al., 1998).

2.3 Independent Variables

Implementation research to date has found no single explanation for system success or failure. However, in this research, the implementation outcome can be largely be determined by 3 categories of factors (Delong, 1988), namely;

(i) The users' roles

(ii) The management role

(iii) The developers' roles

The model of implementation describe the relationship as one between developers, users, and management, who are responsible for managing the implementation effort to bridge the gap between design and utilization (Swanson, 1988).

i. The Users' Roles

This research identify that users play important roles in ensuring that the application system is successfully implemented. There are 2 variables under the users' roles.

(a) Users' involvement and participation

Users' involvement in the design and operation of CAS has a significant influence on the successful implementation of the CAS (Kappelman & McLean, 1991; Tait et al., 1988; Barki et al., 1989; Franz et al., 1984). First, if users are heavily involved in the systems design according to their priorities and business requirements and more opportunities to control the outcome (Laudon & Laudon, 1998; Swanson, 1994; McKeen et al., 1994; Ives & Olson, 1984; Zmud & Cox, 1979). Second, they are most likely to reach positively to the system because they have been active participants in the change process itself (Lucas, 1974).

(b) Users' commitment and priority

Users' commitment and giving top priority to the implementation is an important criteria for the success and it has a significant positive relationship to the successful implementation of the CAS (Newman et al., 1996). Users must sufficiently be committed during the various stages of system development cycle especially during the testing of the system whereby user need to create sufficient test data or to review the test results (White et al., 1986). Users must devote much of their time to the testing effort (Laudon & Laudon, 1998). Users must also give high priority to the

data-entry process especially during the creation of master files and the creation of various codes, which would otherwise delay the project implementation.

ii. The Management Role

This research also identify management role as another important factor that has a significant positive relationship to the success outcome of the CAS implementation (Thong et al., 1996; Doll, 1985). There is one variable under the managements roles namely management support. If the implementation project has the backing and approval of management at various levels, then both users and developers will perceive it as positive as their participation in the development process will receive higher level attention and priority (Laudon & Laudon, 1998; Garity, 1994). Both users and IT staff will be recognized and rewarded for the time and effort they put on the project. Management backing and support also ensures that the project implementation will receive adequate funds and resources. Furthermore, all the changes associated with the new application system in terms of work habits, rules and regulations, norm, cultures, procedures and any organizational realignments need a full management support to be enforced effectively (Patricia, 1993). The subordinates will treat the system to be top priority if the managers threat the same way (Doll, 1985; Ein-Dor & Segev, 1978). Also, Management support for the implementation to create a suitable environment for change, thus ensuring that the CAS is successfully implemented (Lewin, 1951). Lack of management support and involvement could lead to the failure of many CAS implementation (Davis, 1985).

iii. The Developers Roles

This research also identify that developers of the system too play important roles in ensuring the success of CAS implementation (Clement & Vanden Besselaar, 1993; Welsch, 1981). There are 5 variables under the developers' roles that have significant positive relationship to the success of CAS implementation and they are listed as follows :-

(a) Computer department staffs' competence and experience with technology

The extend to which computer department staffs' competence and the number of years they have with the technology applied with CAS projects has a significant positive relationship to the success of CAS implementation (McFarlan, 1981). Patricia (1993) explained further that system analysts must learn new technologies, otherwise, they risk being left behind. Analysts who cling desperately to old technologies as the answer to all problems are clutching at a straw in a hurricane. While there is nothing inherently wrong with the straw, it should simply be recognized that other options are available. If the developers (IT staff) are lacking in the required technical expertise then the project risk is higher. That is to say, if the IT staffs are lacking in terms of experience and the technical know how in terms of hardware (servers, workstations, network equipment and cabling), software (development tools, operating system, database management system and network protocols like the Transmission Control Protocol/ Internetworking Protocol (TCP/IP)) and system development cycle techniques proposed for the application system, most likely one or all of the following might occur:

- Unanticipated time slippage due to the reason that IT staffs need time to master the new technology and skills

- A variety of technical problems will arise, if IT staffs have not mastered thoroughly the tools needed for the development.
- Heavy expenditures and extra time needed for the IT staffs to learn the new technology. (Laudon & Laudon, 1998).

And these could give rise to the organization CAS implementation failure.

(b) **Computer departments' adequate in strength**

Computer departments with adequate strength in terms of staff have a positive significant relationship to the success of CAS implementation. Whenever the nature of an organization, the effectiveness of its operations and functions inevitably depends very largely upon the staff it employs. The most important function in any organization is effective recruitment and selection. Organizations need to appoint staffs with the right ability, temperament and willingness, otherwise all the fancy theories on motivation, empowerment and commitment are of no use (Mullins, 1996). Kraemer and Dedrick (1995) suggested that one of the major policies to promote development of the IT services industry was to develop human resources needed to deploy IT. Thus, the project team must be properly staffed. IT department must be properly structured and be adequately staff (sufficient numbers of systems analysts, systems engineers and programmers) to take the specialized EDP functions like systems development unit, system maintenance unit, network maintenance, research & development unit, operations unit and training unit. Understaffed EDP department will lead to the project team will not be properly staffed. EDP personnel must not be assigned on an " as available" basis as this will not be able to make them dedicate to the project (Starkey, 1992; Drucker, 1985; Kingston; 1971). The organization must be able to create a conducive environment for the EDP staff to

motivate themselves and a proper reward system must be maintained in order to avoid a high turn over rate among EDP staff. A high turn over in the IT department could cause the implementation project to fail.

(c) **Narrowing down the users-designers communication gap.**

Narrowing down the users-designers communication gap has a positive significant relationship to the success of CAS implementation (Laudon & Laudon, 1998). "Assuming system analysts decide to change their attitudes rather than their careers, where should they start ? Simply by recognizing that user satisfaction is the goal, and the key to user satisfaction is service" (Patricia, 1993). The relationship between the designers and users has been long be an issue in the implementation of application system (Robey, 1983). This is due to the facts that they both have a different backgrounds, interests, priorities and objectives which latter can lead to divergent organizational loyalties, approaches to solve problem and vocabularies. IT specialists use highly sophisticated technical solutions by optimizing the usage of both hardware and software while sacrificing the ease of use and organizational effectiveness. Whereas users prefer systems which are oriented to both facilitating organizational tasks and solving business problems Because of these differences, they both tend to speak differently. Table 2.6 illustrates the differences in the concerns for both groups.

One of the reasons why users are driven out of the implementation process and why users requirements are not included in the design is due to the user-designer communication gap. This could lead to a very high risk of system failure and eventually the system fails to meet organizational goals.

Table 2.6: **The Users-Designers Communication Gap (Laudon & Laudon, 1998)**

User Concerns	Designer Concerns
Will the system deliver the information I need for my work ?	How much disk storage space will the master file consume ?
How quickly can I access the data ?	How many lines of program code will it take to perform this function ?
How easily can I retrieve the data ?	How can we cut down the CPU time when we run the system ?
How much clerical support will I need to enter data into the system ?	What is the most efficient way of storing this piece of data ?
How will the operation of the system fit into my daily business schedule ?	What database management system should we use ?

(d) Sufficient documentation for IT Staffs and Users

Sufficient documentation for IT staffs and users has a significant positive relationship to the success of CAS implementation. Designers must provide sufficient documentation to IT staff and this is especially true if the development is outsource to vendors. The documentation include the overall system documentation, program documentation, database (files/tables/fields) documentation, system administrator documentation, and network administrators documentation. The overall systems documentation explains the overall system including the system flowchart (graphic design tool that depicts the physical media and sequence of processing steps used in an entire information system) and is particularly useful for any one who wants to get an insight view of the overall system. The program documentation is particularly useful to programmers, containing the latest list of the program codes, a detail explanation of each of the program involved, the description of all the files that the program access and the explanation for all reports generated by each of the programs. The database documentation is useful especially to the database administrator as it contain detail information with regard to all the files and fields exist in the database and the types of database management system used. The system administrator

documentation contain all information with regards to the daily maintenance processes which the system administrator need to know. It tells the step by step of how back up to the data and the programs to be done and contains all the possible system errors which an administrator could accouter and what are the corrective actions to be under taken by the administrator. The network administrations documentation is actually the client/server infrastructure system design report and is particularly useful to the network administrator/engineer. It contain information like the server and client workstation hardware profile, client and server networking (client & server architecture, operating system directory services and system policies, the template approach and user profile), operating system network operations profile (naming convention, username, server naming, client PC naming, partitioning and directory structure and operating system security) and operational and organizational support structure. Developers must also provide sufficient documentation to users for reference purpose (Mirel, 1998; Mark & Judy, 1994). The documentation include operator manual and user manual. The operator manual describe the step by step on how to operate the system which include how to execute batch runs, how to key in data and how to react to errors. The user manual tells users how to carry out the data entry process, how to update information and how to delete records. It also describe how to print various reports and how to deal with situations in case there is errors. The documentation must be written in a user-friendly manner.

(e) Users' education and training

Users education and training has a significant positive relationship to the success of CAS implementation. Training is to ensure that end users are confortable with the new CAS implemented and fully understand its potential uses is often sacrificed or

forgotten in systems development projects. In part because the budget is strained toward the end of a project, and at the very point of startup there are insufficient funds for training (Bikson et al., 1985). Users can be trained either internally by the internal EDP staff or externally by vendors. Users must be trained on how to key-in data involving updating, deleting or creating new records of both the master file data as well as the transaction file data through the input screens from input source documents (Cronan et al., 1990). Users are also more likely to feel satisfied with an information system if they have been trained to use it properly (Cronan & Douglas, 1990). Training should be given to all staff associated with the newly implemented application system (Ein-Dor & Segev, 1982; Zmud, 1979; Lucas, 1975). User training during the implementation process is important in both general and specific application systems use (Fuerst & Cheney, 1982). Managers too should be trained to give them "a knowledge and appreciation of the requirements" of MIS (Walker, 1968). System analysis and design involves tasks that are sequentially linked, cannot be performed in isolation, and require extensive communications and training (Brooks, 1972).

2.4 Moderating Variables

This research identify that the projects or tasks complexity also have a moderating effects between the independent variables and the dependent variable mentioned above. Increase in projects or tasks complexity decrease the level of assurance of attainment of project goals (Naumann, 1980). There is an interaction effect between the independent variables mentioned above and the tasks or projects complexity with the success of CAS implementation. That is to say, the relationship between the

independent variables and the successful implementation of CAS would differ depending on the degree of complexity of the projects or tasks.

There are 3 moderating variables which are classified under the projects or tasks characteristics and they are as follows :-

(a) Projects size

The larger the projects (as indicated by the cost incurred, the size of the staff involved, the time allocated and the number of organizational units involved for the implementation), the higher the risk of CAS implementation failure (Laudon, 1989; Davis & Olson, 1985; McFarlan, 1981).

(b) Projects structure

Projects which are highly structured are clearly understand and their requirements are clear and straightforward and their outputs and processes can easily defined (McFarlan, 1981). Thus users will know exactly what do they really need and what is to be expected from the system (Laudon & Laudon, 1998; Gorry, 1971). These projects run a much lower risk of failure as compared to those projects (unstructured); requirements undefined, changing and output can not be fixed as users could not agree on what they want. Jin (1993) recommended an approach that would be again to introduce and utilize the concept of modular planned system approach. In this approach, integration can be achieved in phases on steps that justify the incremental cost associated with the installing the sub-system to be achieved. Emery (1987) suggested that each application be kept to the minimum feasible size and that a process of several implementation of relatively small chunks of the system provides more immediate benefits from the early applications and allows subsequent pieces to

take advantage of the learning that occurs during the course of developing and using the earlier. Table 2.7 shows that eight different possibilities, each with a different degree of risk. The higher the risk, the more likely the implementation will fail.

Table 2.7: Dimensions Of Project Risk

Project Structure	Project Technology Level	Project Size	Degree of Risk
High	Low	Large	Low
High	Low	Small	Very low
High	High	Large	Medium
High	High	Small	Medium-low
Low	Low	Large	Low
Low	Low	Small	Very low
Low	High	Large	Very high
Low	High	Small	High

(c) Adequate documentation of existing system

The present system (which could be manually driven or in a computerized environment) must be sufficiently documented. Documentation of existing system prior to the CAS implementation include standard operating procedures and work procedure manual for manual system and system and program manuals for a computerized environment (Government of Malaysia Public Administration Circular; 1991). According to Laudon and Laudon (1998), employees develop reasonably precise rules, procedures, and practices to cope with all expected situations. Some of these standards operating procedures are written down as formal procedures, but most standards operating procedures are rules of thumb to be followed in selected situations. Well documented existing system is important because the development team need to refer to the present system to gather all information with regard to user requirement during the feasibility study. Once the feasibility study is done, then only the development team can up with a proposed system flowchart to be tabled at a

meeting with users and management for their feedback. Improper documentation of the present system and work flow could delay the project implementation. This suggest that adequate documentation of existing system plays an important role in ensuring the CAS is successfully implemented.

Chapter 3

RESEARCH METHODOLOGY

3.0 Introduction

This chapter describes the theoretical framework which is the foundation on which the entire research is based. It is a logically developed, described, and elaborated network of associations among variables that have been identified through literature survey.

3.1 Theoretical Framework

3.1.1 Dependent Variable

Application System Implementation Success : A major problem in determining the computerized application system implementation success factors has been the deficiency in establishing appropriate implementation success measures. No set of success measure has been found universal acceptance (Paul & Morteza, 1998). But in this research the following measures are used and the number in bracket indicate the relevant question in the questionnaire.

i. the user is dependent upon the CAS in performing the task (F1).

ii. the CAS has increased the job satisfaction (F2).

iii. the CAS is easy to use (F3).

iv. the CAS has enabled the tasks to be carried out easily and efficiently (F4).

v. the information provided by the CAS is valid, accurate, reliable and timely (F5).

vi. the CAS is contributive to achieving organizational goals and objectives (F6).

vii. the CAS can response to "new" (F7).

viii. the information provided by the CAS is sufficient for performing tasks (F8).

ix. there is high levels of system use (F9).

x. there is low levels of system breakdown (F10).

xi. the manual intervention is needed to complete the task (F11).

xii. the IT provided better communication (F12).

xiii. the CAS provided better control (F13).

xiv. the CAS provided cost savings (F14).

xv. the CAS provided time saving (F15) that is shorter time taken in decision making.

3.1.2 Independent Variables

Independent variables has been categorized into 3 types as mentioned below :-

(i) The Users' Roles

There are 2 independent variables under this category and they are listed below :-

(a) Users' Involvement and Participation

The corresponding questions in the questionnaire for users' involvement and influence are items G1, G2, G3, G4, and G5.

(b) Users' Commitment and Priority

The relevant questions in the questionnaire for users' commitment and priority are items H1, H2, H3 and H4.

(ii) The Management Role

The independent variable is management support and the relevant questions in the questionnaire are items I1, I2, I3, I4, I5, I6, I7, I8 and I9.

(iii)The Developers' Roles

There are 4 variables under this category and they are listed as follows :-

(a) Computer Department Staffs' Competence And Experience With Technology

The questions in the questionnaire which refer to computer department staffs' competence and experience with technology are items J1, J2, J3, J4 and J5.

(b) Computer Departments' Adequate In Strength

For computer departments must be adequate in strength, the required questions in the questionnaire are items K1, K2 and K3.

(c) Narrowing Down Users-Designers Communication Gap

Items L1, L2, L3, L4, L5 and L6 in the questionnaire are the relevant questions for narrowing down users-designers communication gap.

(d) Documentation For Computer Staffs And Users

M1, M2, M3, M4, M5, M6, M7, M8, M9, M10 and M11 are the questions in the questionnaire which are referring to sufficient documentation for IT staffs and users.

(e) Users' Education and Training

For users' education and training, the relevant questions in the questionnaire are items N1, N2, N3 and N4.

3.1.3 Moderating Variables

The 3 moderating variables identified under Projects or Tasks characteristics are mentioned as below :-

(a) Projects Size

Items O1, O2, O3 and O4 are the questions in the questionnaire that are relevant to projects size.

(b) Projects Structure

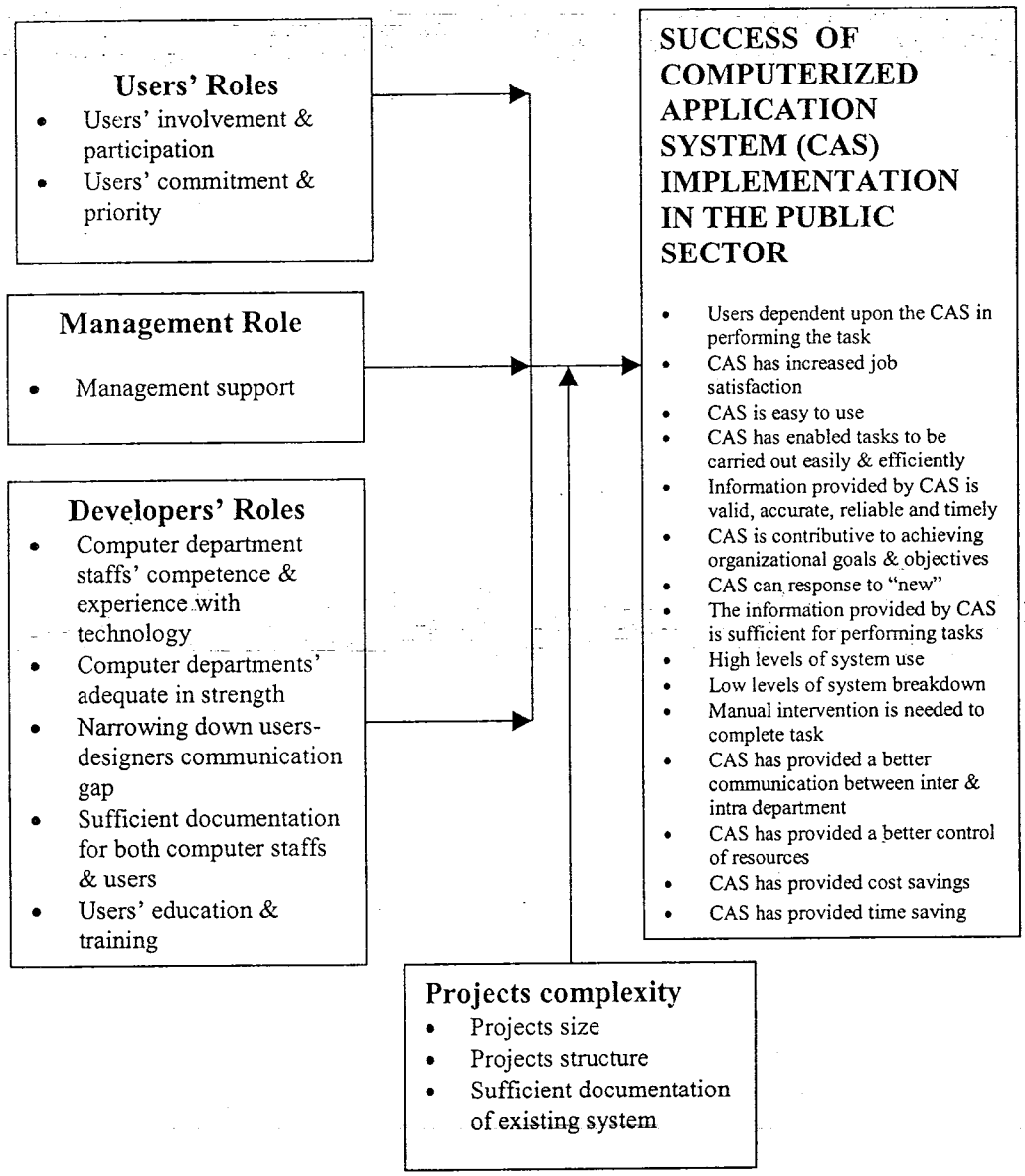
In the questionnaire, items P1, P2, P3, P4, P5, P6, P7, P8 and P9 are the questions that are relevant to projects structure.

(c) Adequate Documentation Of Existing System

The questions that are relevant to adequate documentation of existing system in the questionnaire are items Q1 and Q2.

The schematic diagram of the theoretical framework is shown in Figure 3.1.

Figure 3.1 : The Schematic Diagram Of The Theoretical Framework.



3.2 Research Hypotheses

This research examines and analyzes the following hypotheses :

H1: There is significant positive relationship between users' roles on the success of CAS implementation in the public sector.

H1(a): There is significant positive relationship between users' involvement and participation on the success of CAS implementation in the public sector.

H1(b): There is significant positive relationship between users' commitment and priority on the success of CAS implementation of in the public sector.

H1(c): There is significant positive relationship between users' education and training on the success of CAS implementation in the public sector.

H2: There is significant positive relationship between management role (support) on the success of CAS implementation in the public sector.

H3: There is significant positive relationship between developers' roles on the success of CAS implementation in the public sector.

H3(a): There is significant positive relationship between computer department staffs' competence on the success of CAS implementation in the public sector.

H3(b): There is significant positive relationship between computer departments' adequate in strength on the success of CAS implementation in the public sector.

H3(c): There is significant positive relationship between the narrowing down users-designers communication gap on the success of CAS implementation in the public sector.

H3(d): There is significant positive relationship between sufficient documentation for computer staffs and users on the success of CAS implementation in the public sector.

H4: There is significant positive relationship between users' roles on the success of CAS implementation in the public sector when the CAS projects are larger.

H4(a): There is significant positive relationship between users' involvement and participation on the success of CAS implementation in the public sector when the CAS projects are larger.

H4(b): There is significant positive relationship between users' commitment and priority on the success of CAS implementation in the public sector when the CAS projects are larger.

H5: There is significant positive relationship between management role (support) on the success of CAS implementation in the public sector when the CAS projects are larger.

H6: There is significant positive relationship between developers' roles on the successof CAS implementation in the public sector when the CAS projects are larger.

H6(a): There is significant positive relationship between computer department staffs' competence on the success of CAS implementation in the public sector when the CAS projects are larger.

H6(b): There is significant positive relationship between computer departments' adequate in strength on the success of CAS implementation in the public sector when the CAS projects are larger.

H6(c): There is significant positive relationship between the narrowing down users-designers communication gap on the success of CAS implementation in the public sector when the CAS projects are larger.

H6(d): There is significant positive relationship between sufficient documentation for computer staffs and users on the success of CAS implementation in the public sector when the CAS projects are larger.

H6(e): There is significant positive relationship between users' education and training on the success of CAS implementation in the public sector when the CAS projects are larger.

H7: There is significant positive relationship between users' roles on the success of CAS implementation in the public sector when the CAS projects are more structured.

H7(a): There is significant positive relationship between users' involvement and participation on the success implementation of CAS in the public sector when the CAS projects are more structured.

H7(b): There is significant positive relationship between users' commitment and priority on the success of CAS implementation in the public sector when the CAS projects are more structured.

H8: There is significant positive relationship between management role (support) on the success of CAS implementation in the public sector when the CAS projects are more structured.

H9: There is significant positive relationship between developers' roles on the success of CAS implementation in the public sector when the CAS projects are more sructured.

H9(a): There is significant positive relationship between computer department staffs' competence on the success of CAS implementation in the public sector when the CAS projects are more structured.

H9(b): There is significant positive relationship between computer departments' adequate in strength on the success of CAS implementation in the public sector when the CAS projects are more structured.

H9(c): There is significant positive relationship between the narrowing down users-designers communication gap on the success of CAS implementation in the public sector when the CAS project are more structured.

H9(d): There is significant positive relationship between sufficient documentation for computer staffs and users on the success of CAS implementation in the public sector when the CAS projects are more structured.

H9(e): There is significant positive relationship between users' education and training on the success of CAS implementation in the public sector when the CAS projects are more structured.

H10: There is significant positive relationship between users' roles on the success of CAS implementation in the public sector when the existing system documentation (prior to CAS implementation) is sufficient.

H10(a): There is significant positive relationship between users' involvement and participation on the success of CAS implementation in the public sector when the existing system documentation (prior to CAS implementation) is sufficient.

H10(b): There is significant positive relationship between users' commitment and priority on the success of CAS implementation in the public sector when the existing system documentation (prior to CAS implementation) is sufficient.

H11: There is significant positive relationship between management role (support) on the success of CAS implementation in the public sector when the existing system documentation (prior to CAS implementation) is sufficient.

H12: There is significant positive relationship between developers' roles on the success of CAS implementation in the public sector when the existing system documentation (prior to CAS implementation) is sufficient.

H12(a): There is significant positive relationship between computer department staffs' competence on the success of CAS implementation in the public sector when the existing system documentation (prior to CAS implementation) is sufficient.

H12(b): There is significant positive relationship between computer departments' adequate in strength on the success of CAS implementation in the public sector when the existing system documentation (prior to CAS implementation) is sufficient.

H12(c): There is significant positive relationship between the narrowing down users-designers communication gap on the success of CAS implementation in the public sector when the existing system documentation (prior to CAS implementation) is sufficient.

H12(d): There is significant positive relationship between sufficient documentation for computer staffs and users on the success of CAS implementation in the public sector when the existing system documentation (prior to CAS implementation) is sufficient.

H12(e): There is significant positive relationship between users' education and training on the success of CAS implementation in the public sector when the existing system documentation (prior to CAS implementation) is sufficient.

H13: There is significant positive relationship between users' roles, management role and developers' roles on the success of CAS implementation in the public sector.

H14: There is an interaction effect between users' roles, management role and developers' roles on the success of CAS implementation in the public sector when the projects size are larger.

H15: There is an interaction effect between users' roles, management role and developers' roles on the success of CAS implementation in the public sector when the projects are more structured.

H16: There is an interaction effect between users' roles, management role and developers' roles on the success of CAS implementation in the public sector when the existing system documentation (prior to CAS implementation) is sufficient.

H17: There is an interaction effect between users' roles, management role and developers' roles on the success of CAS implementation in the public sector when the projects size are larger and the projects are more structured.

H18: There is an interaction effect between users' roles, management role and developers' roles on the success of CAS implementation in the public sector when the projects are more structured and when the existing system documentation (prior to CAS implementation) is sufficient.

H19: There is an interaction effect between users' roles, management role and developers' roles on the success of CAS implementation in the public sector when the projects size are larger, the project are more structured and the existing system documentation (prior to CAS implementation) is sufficient

H20: There is an interaction effect between users' roles, management role and developers' roles on the success of CAS implementation in the public sector.

3.3 Data Collection

The population of the study comprised of all CAS throughout the public sector in Malaysia. The respondents who took in this study were the computer personnel who were involved directly with the CAS during its development and implementation stages. Based on a list of government departments and agencies obtained from the Association of Statutory Bodies (Persatuan Badan Berkanun Malaysia), Malaysia Mart : Government: State (msia.hypermart.net/links/Government/State) and Federal

Ministries and Government Agencies (lib.upm.edu.my/federal.htm), 120 government organizations were selected to participate in this study.

3.4 Sources of Data

The primary data were obtained through responses to the questionnaire that were distributed via mail to selected 120 organizations. The unit of analysis were the computer application system (CAS) project in the government organizations. The computer personnel was the respondent simply because they were computer expert and most of the questions in the questionnaire were of technical related issues at which a layman might find the questionnaire a bit difficult to answer. The respondents were asked to choose arbitrarily one typical computerized application system and answer the questionnaire with respect to the selected application system.

3.5 Measurement

The questionnaire is divided into 17 sections.

(a) **Section A**: This section refers to the organization background. There is 1 question in this section.

(b) **Section B**: This section refers to the respondent's background. There is 1 question in this section.

For Sections A and B, all questions are measured in terms of a multiple category type of rating scales with a single response.

(c) **Section C**: This section refers to the selected one computerized application system (CAS). There are 2 questions in this section. Question 1 requires the respondent to tick one major CAS that was implemented in the respondent's organization which the respondent was involved directly during both the CAS

development and implementation stages. Question 2 requres the respondent to fill in the blank.

(d) Section **D**: This section refers to the developers of the CAS. There is 1 question in this section and this question requires the respondent to circle (one only) the appropriate choice.

(e) Section **E**: This section refers to the users of CAS. There is 1 question in this section and it is measured in terms of a multiple category type of rating scales with a single response.

(f) **Section F**: This section refers to the dependent variable CAS implementation success. There are 15 questions in this section to measure "success".

(g) **Section G**: This section refers to the independent variable users' involvement and participation. There are 5 questions in this section which measures this variable.

(h) **Section H**: This section refers to the independent variable users' commitment and priority. There are 4 questions in this section which measures this variable

(i) **Section I**: This section refers to the independent variable management role (support). There are 9 questions in this section which measures this variable.

For sections F to I, all questions are measured on a five-point Likert scale in which "1" means "Very Low" and "5" means "Very High".

(j) **Section J**: This section refers to the independent variable computer department staffs' competence and experience with technology. There are 5 questions in this section which measures this variable. Question 1 is measured in terms of a multiple category type of rating with a single response. Questions 2, 3 and 4 require the respondent to fill in. Questions 5 is measured on a five-point Likert scale in which "1" means "Very Low" and "5" means "Very High".

(k) **Section K**: This section refers to the independent variable computer departments' adequate in strength. There are 3 questions in this section which measures this variable. Questions 1 and 2 require the respondent to fill in. Questions 3 is measured on a five-point Likert scale in which "1" means "Very Low" and "5" means "Very High".

(l) **Section L**: This section refers to the independent variable narrowing down users-designers communication gap. There are 6 questions in this section which measures this variable.

(m) **Section M**: This section refers to the independent variable adequate documentation for computer staffs and users. There are 11 questions in this section which measures this variable.

(n) Section N: This section refers to the independent variable users' education and training. There are 4 questions in this section which measures this variable

(o) **Section O**: This section refers to the moderating variable projects size. There are 4 questions in this section which measures this variable. All questions require the respondent to fill in.

(p) **Section P**: This section refers to the independent variable projects structure. There are 9 questions in this section which measures this variable

(q) **Section Q**: This section refers to the moderating variable adequate documentation of existing system prior to the implementation of CAS. There are 2 questions in this section which measures this variable.

For sections M, N, P and Q, all questions are measured on a five-point Likert scale in which "1" means "Very Low" and "5" means "Very High".

3.6 Data Analysis Techniques

The data collected was analyzed using the software "Statistical Packages For The Social Science (SPSS)" For Windows Release 6.0. Descriptive statistics was used to describe the respondents while inferential statistics was used to signify the realationships between the dependent and the independent variables. This study applied Descriptive Statistics for all variables, Pearson's correlation for all variables, reliability analyses to dependent and independent variables and multiple regression analyses using enter method to dependent, independent and moderating variables, with significant level at 5 %.

Chapter 4

FINDINGS

4.0 Introduction

A total of 160 sets of questionnaire were distributed via post to 120 government organizations in Peninsular Malaysia, and surprisingly about 156 sets of questionnaire from all the 120 government organizations were returned via post, which brings about the response rate of 98 %. Out of the 154 sets of questionnaire that were returned 10 sets were rejected simply because the respondents have replied that they did not have a Computerized Application System (CAS) implemented in their organizations and 9 sets were not included in the analysis because they were received after the dateline specified. Therefore only 138 sets of questionnaire were analyzed in this study. As the unit of analysis is the CAS, there can be more than 1 respondents in an organization but only one respondent is allowed to comment for each CAS in an organization.

4.1 Sample Characteristics

By applying descriptive statistics, a frequency distribution was obtained for each of the variables related to the background of both the respondents and their respective organizations. About 24.6 % of total respondents came from the various federal government departments, 21.7 % from the ministries, 21.7 % from the federal statutory bodies, 13.8 % from the state government departments and 5.8 % from the state statutory bodies. The detail breakdown in terms of its frequencies and percentage is given by the Table 4.1.

Table 4.1: Organizations By Category

Organization Category	Frequency	Percent
Ministry	30	21.7
Federal Government Department	34	24.6
State Government Department	19	13.8
Federal Statutory Body	30	21.7
State Statutory Body	8	5.8
City Council/Local Authority	5	3.6
Government Owned Corporation	8	5.8
Others	4	2.9
Total	138	100.0

The majority of the respondents (44.2 %) of the respondents are the MIS officers/ Systems Analysts, 28.3 % are the Computer Head/Manager, 26 % are assistants MIS officers/Programmers and 12 % are others. Table 4.2 shows the current job status of the respondents, their frequencies and their percentages.

Table 4.2: Job Status

Respondents' Current Job Status	Frequency	Percent
Computer Manager/Head	39	28.3
MIS Officer/Systems Analyst	61	44.2
Assistant MIS Officer/Programmer	26	18.8
Others	12	8.7
Total	138	100.0

Approximately 13 % of the total respondents chose the Accounting/Finance System as their CAS, 13.0 % choose Homepage, 10.1 % choose the Billing/Receipting System, 6.5 % choose the Human Resource Management System, 4.3 % choose the

Payroll System, 3.6 % choose the Inventory/Stock Management System, 2.9 % choose the Geographical Information System (GIS), 1.4 % choose the Fixed Assets System, whilst the other 41.9 % choose other systems which are not listed in the questionnaire. Table 4.3 shows the type of CAS selected by respondents.

Table 4.3: Types of CAS

Computerized Application System (CAS) Selected	Frequency	Percent
Accounting/Finance System	18	13.0
Billing/Receipting System	14	10.1
Inventory/Stock Management System	5	3.6
Fixed Assets System	2	1.4
Geographical Information System	4	2.9
Payroll System	6	4.3
Human Resource Management System	9	6.5
Homepage	18	13.0
Housing Application System	4	2.9
Others	58	41.9
Total	138	100.0

About 53.6 % of the CAS were developed by the internal computer staff, 50 % of the CAS were developed by the external staff like vendors and about 10.1 % are developed by others. Table 4.4 shows the frequencies and the percentages of the CAS developed by the various categories of developers.

Table 4.4: Categories of Developers

Developer	Frequency	Percent
Internal Computer (EDP) Staff	74	53.6
External Developer	50	36.2
Others	14	10.1
Total	138	100.0

Approximately 15.2 % of the CAS were developed using Visual Basics, 14.5 % using Oracle, 13.0 % using Power Builder, 8.7 % using Informix, 6.5 % using Cobol, 4.3 % using Java, 3.6 % using C++, 3.6 % using ARCInfo, 0.7 % using System Builder and 23.4 % using other programming languages. Table 4.5 shows the type of programming languages used in the CAS development.

Table 4.5: Types of Programming Languages

Programming Language	Frequency	Percent
Oracle	20	14.5
Informix	12	8.7
PowerBuilder	18	13.0
System Builder	1	0.7
C++	5	3.6
Visual Basic	21	15.2
Lotus Notes	7	5.1
COBOL	9	6.5
Java	6	4.3
ArcInfo	5	3.6
Others	32	23.4
Total	136	98.6

About 41.3 % of the CAS were developed using Unix as their platforms, 34.1 % Windows NT, 5.8 % Novell, 0.7 % NetWare and 25 % of the CAS were using other operating systems to developed the CAS. Table 4.6 shows the type of operating system used in the CAS development.

Table 4.6: Types Of Operating System

Operating System Used	Frequency	Percent
Unix	57	41.3
Windows NT	47	34.1
Novell	8	5.8
NetWare	1	0.7
Others	25	18.1
Total	138	100.0

Approximately 10.9 % of the CAS developed were using SQLBase as their database, 10.1 % Sybase, 9.4 % Informix, 4.3 % Ingress and while 54.4 % of the CAS were using other forms of databases. Table 4.7 shows the type of database system used in the CAS development.

Table 4.7: Types of Database System

Database System Used	Frequency	Percent
Sybase	14	10.1
Informix	13	9.4
Ingress	6	4.3
SQLBase	15	10.9
Others	75	54.4
Missing value	15	10.9
Total	123	89.1

Majority of the CAS implementation (25.4 %) used Sun as servers, 23.2 % HP, 20.3 % IBM, 8.0 % Acer, 2.9 % Compaq, 2.2 % Dell, 1.4 % NEC and 11.5 % of CAS used other brands of servers. Table 4.8 shows the type of server used in the CAS development.

Table 4.8: Types of Servers

Servers Used	Frequency	Percent
IBM	28	20.3
HP	32	23.2
Sun	35	25.4
Acer	11	8.0
Dell	3	2.2
Compaq	4	2.9
NEC	2	1.4
Others	16	11.5
Total	131	94.9

4.2 Goodness of Measures

To check for the interitem consistency reliability of the independent and the dependent variables, Cronbach's alpha reliability coefficient was obtained through reliability analyses. Cronbach alpha coefficients of the variable grouping are shown in Table 4.9.

Table 4.9: Cronbach Alpha Values For Variable Groupings

Variables	Questions Accepted	Questions Discarded	Alpha
Application System Implementation Success	F1 to F15	-	0.91
Users Involvement And Participation	G1 to G5	-	0.92
Users Commitment And Support	H1 and H3	H2 and H4	0.88
Managements Support	I1 to I 7 and I9	I8	0.94
Narrowing Down Users-Designers Communication Gap	L1 to L6	-	0.89
Adequate Documentation For Computer Staffs And Users	M1 to M11	-	0.96
Users Education And Training	N1 to N4	-	0.89
Projects Structure	P1 to P2 and P4 to P8	P3 and P9	0.90
Adequate Documentation Of Existing System	Q1 to Q2	-	0.56

The analyses indicate that the Cronbach's alpha for the 15 items CAS Implementation Success was 0.91. The independent variables; Users' Involvement and Participation, Users' Commitment and Support, Management Support, Narrowing Down Users-Designers Communication Gap, Adequate Documentation For Computer Staffs and Users and Users' Education and Training, were 0.92, 0.88, 0.94, 0.89, 0.96 and 0.89, respectively. The moderating variable; Projects Structure, was 0.90. Thus, the internal consistency reliability of the measures used in this study is considered to be excellent. The descriptive statistics of the variable groupings are shown in Table 4.10.

Table 4.10 : Mean, Standard Deviation And Median For Variables

Variables Groupings	Cases	Mean	Standard Deviation	Median
Computer Application System (CAS) Implementation Success	138	3.70	0.56	3.77
Users' Involvement And Participation	138	3.73	0.70	3.80
Users' Commitment And Support	135	3.69	0.84	4.00
Management Support	138	3.66	0.78	3.75
Narrowing Down Users-Designers Gap	137	3.82	0.63	3.83
Adequate Documentation For Computer Staffs And Users	137	3.23	0.70	3.18
Users' Education And Training	136	3.67	0.63	3.75
Projects Structure	136	3.44	0.66	3.43
Adequate Documentation Of Existing System (Prior To The CAS Implementation)	136	3.37	0.75	3.50

The calculated alpha values ranged from 0.56 to 0.96. Some of the items were deleted in order to further improve the reliability.

4.3 Description of Major Variables

i. Application System Implementation Success

Table 4.11 illustrates that 66.7 % of the CAS projects show high dependency from their respective organizations towards CAS for its day to day activities and 21.7%

indicate a moderate dependency of their respective organizations towards them. About 60 % of the CAS projects show high users job satisfaction and 23.9 % of the CAS project show moderate increased users job satisfaction. Approximately 76.1 % of the CAS project show high enabled the task to be carried out easily and efficiently in their respective organizations. About 71 % of the CAS show that they provide accurate and reliable data to users and top management in their respective organizations. Approximately 61 % of the CAS show that they have contributed highly to the achievement of organizational objectives and they have met their specified goals in their respective organizations. About 60.9 % of the CAS show that they could easily be modified to meet new conditions, demands and circumstances in their respective organizations. Approximately 60 % of the CAS show that they have provided highly sufficient information to users and top management in their respective organizations. About 50.5 % of the CAS show that widespread use by users in their respective organizations. About 50.2 % of the CAS show that they were free from system breakdown during operation in their respective organizations. About 40.6 % of the CAS show that they need no manual intervention to complete their tasks in their respective organizations. About 50.9 % of the CAS show that they enhanced better communication between departments in their respective organizations. Approximately 51 % of the CAS show that they have provided better control on resources in their respective organizations. About 60.2 % of the CAS show that they have provided cost saving to their respective organizations. About 68.1 % of the CAS show that they have provided shorter time taken in decision making in their organizations. The mean value of 3.71 represents the fact that the government organizations had experienced fairly high success of CAS implementation with a low standard deviation of 0.56.

Table 4.11: Application System Implementation Success

	Application System Implementation Success	Frequency/Percent				
		Very Low	Low	Medium	High	Very High
1	My organization depends upon the application system in performing its day-today activities.	4 (2.9%)	11 (8.0 %)	30 (21.7 %)	51 (37.0%)	41 (29.7%)
2	The CAS has increased users job Satisfaction in my organization.	0 (0.0%)	12 (8.7%)	33 (23.9%)	68 (49.3%)	23 (16.7%)
3	The CAS is easy to use by users in my organization.	0 (0.0%)	4 (2.9%)	28 (20.3%)	74 (53.6%)	31 (22.5%)
4	The CAS has enabled the tasks to be carried out easily and efficiently in my organization.	0 (0.0%)	6 (4.3%)	26 (18.8%)	73 (52.9%)	33 (23.9%)
5	The CAS has provided accurate & reliable data to users and top management in my organization.	0 (0.0%)	7 (5.1%)	33 (23.9%)	70 (50.7%)	28 (20.3%)
6	The CAS has contributed to achievement of organizational objectives and meets its specified goals in my organization.	0 (0.0%)	5 (3.6%)	48 (34.8%)	59 (42.8%)	25 (18.1%)
7	The CAS can easily be modified (flexibility) to meet new conditions, demands and circumstances in my organization.	2 (1.4%)	7 (5.1%)	44 (31.9%)	60 (43.5%)	24 (17.4%)
8	The CAS has provided sufficient information to users and top management in my organization.	0 (0.0%)	5 (3.6%)	40 (29.0%)	67 (48.6%)	24 (17.4%)
9	The CAS is widespread use by users in my organization.	1 (0.7%)	9 (6.5%)	48 (34.8%)	48 (34.8%)	30 (21.7%)
10	The CAS has run well that is free from system breakdown/job abort in my organization.	0 (0.0%)	12 (8.7%)	53 (38.4%)	60 (43.5%)	12 (8.7%)
11	The CAS needs no manual intervention to complete its tasks in my organization.	3 (2.2%)	10 (7.2%)	68 (49.3%)	47 (34.1%)	9 (6.5%)
12	The CAS enhances better communication between departments in my organization.	4 (2.9%)	15 (10.9%)	42 (30.4%)	59 (42.8%)	14 (10.1%)
13	The CAS provides better control on resources in my organization.	2 (1.4%)	16 (11.6%)	45 (32.6%)	61 (44.2%)	10 (7.2%)
14	The CAS provides cost saving to my organization in the long run.	2 (1.4%)	7 (5.1%)	44 (31.9%)	59 (42.8%)	24 (17.4%)
15	The CAS provides shorter time taken in decision making in my organization.	2 (1.4%)	9 (6.5%)	29 (21.0%)	77 (55.8%)	17 (12.3%)
Mean of composite measure		3.71				
Standard deviation of composite measure		0.56				

ii. Users' Involvement And Participation

Table 4.12 shows that about 64.5 % of the CAS reported that users have put sufficient effort to enable the project team develop a realistic expectation of the CAS in their

respective organizations. About 68.1 % of the CAS show that users have continuously involved and cooperate during the process of the CAS implementation in their respective organizations. Approximately 63 % of the CAS indicate that users have put sufficient effort to activate the implementation of the CAS prototype in their organizations. About 71 % of the CAS show that users have positive attitudes towards the CAS implementation and 55.8 % indicate that users have involved and participated actively during the CAS design phase. A mean of 3.73 and a standard deviation of 0.70 indicate that users have involved and participated actively during the CAS implementation.

Table 4.12: Users' Involvement and Participation

	User involvement and participation	Frequency/Percent				
		Very Low	Low	Medium	High	Very High
1	User has put sufficient effort to enable the project team develop a realistic expectation of the CAS in my organization.	1 (0.7%)	6 (4.3%)	40 (29.0%)	72 (52.2%)	17 (12.3%)
2	User has continuously involved and cooperates during the process of the CAS implementation in my organization.	1 (0.7%)	7 (5.1%)	33 (23.9%)	74 (53.6%)	20 (14.5%)
3	User has put sufficient effort to activate the Implementation of the CAS prototype in my organization.	2 (1.4%)	8 (5.8%)	37 (26.8%)	68 (49.3%)	19 (13.8%)
4	User has positive attitudes towards the CAS implementation in my organization.	0 (0.0%)	4 (2.9%)	35 (25.4%)	76 (55.1%)	22 (15.9%)
5	User has involved and participates actively during the CAS design phase in my organization.	2 (1.4%)	11 (8.0%)	47 (34.1%)	57 (41.3%)	20 (14.5%)
Mean of composite measure		3.73				
Standard deviation of composite measure		0.70				

iii. Users' Commitment And Priority

Table 4.13 illustrates that 65.2 % of the CAS indicate a high effort users made to key-in data during the master-file set up, about half indicate that user has made high effort to run test data during the CAS testing phase, 58.7 % of the CAS mentioned that users

have put sufficient effort to key in data during the parallel run phase and 60.1 % of the CAS show that users have spent sufficient time in helping the project team to provide the requisite information during the analysis stage. The mean value of 3.69 and a standard deviation of 0.84 represents the fact that users are committed and have put high priority towards the CAS implementation.

Table 4.13: Users' Commitment and Priority

User commitment and priority		Frequency/Percent				
		Very Low	Low	Medium	High	Very High
1	User has put sufficient effort to key-in data during the master-file set up in my organization.	1 (0.7%)	11 (0.0%)	33 (23.9%)	66 (47.8%)	24 (17.4%)
2	User has made sufficient effort to run test data during the CAS testing phase in my organization.	1 (0.7%)	16 (11.6%)	50 (36.2%)	49 (35.5%)	20 (14.5%)
3	User has made sufficient effort to key-in data during the parallel run phase in my organization.	2 (1.4%)	12 (8.7%)	39 (28.3%)	62 (44.9%)	19 (13.8%)
4	User has spent sufficient time in helping the project team to provide the requisite information during the analysis stage in my organization.	0 (0.0%)	13 (9.4%)	41 (29.7%)	66 (47.8%)	17 (12.3%)
Mean of composite measure		3.69				
Standard deviation of composite measure		0.84				

iv. Management Support

Table 4.14 shows that 65.2 % of the CAS show that their respective top management have put high effort to encourage user departments to use the CAS, 68.1 % show that their top management were highly concerned with the CAS performance, 65.9 % show that their top management have provided sufficient funding and resources for the CAS development and operation, 59.4 % show that their respective top management have taken active roles in deciding the priority of the CAS implementation project and 59.4 % of the CAS show that their top management have highly emphasized in effective management and control for the CAS development and operation in their respective organizations. About 54.4 % of the CAS show that

ıeir respective top management were highly concerned with the CAS usage rate. pproximately 46 % of the CAS show that their respective top management articipated actively in the planning process of the CAS development and operation in ıeir organizations. About 26 % of the CAS show that their respective top ıanagement has taken sufficient effort to develop reward system to encourage the :AS usage in their organizations. Approximately 46 % of the CAS show that their espective top management were highly concerned not to relocate any staff who were ıvolved directly with the CAS development while the CAS were still under evelopment stage. A mean of 3.66 represents the fact that the respondents were in he opinion that their management has provided high support for the CAS mplementation with a low standard deviation of 0.78.

Table 4.14: Management Support

	Management support	Frequency/Percent				
		Very Low	*Low*	Medium	High	Very High
1	The top management has made sufficient effort to encourage user department to use the CAS in my organization.	0 (0.0%)	6 (4.3%)	42 (30.4%)	58 (42.0%)	32 (23.2%)
2	The top management is concern with the CAS performance evaluation in my organization.	0 (0.0%)	14 (10.1%)	30 (21.7%)	62 (44.9%)	32 (23.2%)
3	The top management has provide sufficient funding and resources for the CAS development and operation in my organization.	0 (0.0%)	8 (5.8%)	38 (27.5%)	49 (35.5%)	42 (30.4%)
4	The top management has taken an active role in deciding the priority of the CAS implementation project in my organization.	0 (0.0%)	14 (10.1%)	40 (29.0%)	49 (35.5%)	33 (23.9%)
5	The top management emphasis in effective management and control for the CAS development and operation in my organization.	2 (1.4%)	14 (10.1%)	39 (28.3%)	53 (38.4%)	29 (21.0%)
6	The top management is concerned with the CAS usage rate in my organization.	1 (0.7%)	16 (11.6%)	45 (32.6%)	55 (39.9%)	20 (14.5%)
7	The top management participation actively in the planning process of the CAS development and operation in my organization.	3 (2.2%)	22 (15.9%)	48 (34.8%)	50 (36.2%)	14 (10.1%)

Management support		Frequency/Percent				
		Very Low	*Low*	Medium	High	Very High
8	The top management has taken sufficient effort to develop reward system to encourage the CAS use in my organization.	9 (6.5%)	32 (23.2%)	57 (41.3%)	30 (21.7%)	6 (4.3%)
9	The top management is concern not to relocate/ transfer any staff involved directly with the CAS development while the CAS is still in the middle of development stage implementation in my organization.	3 (2.2%)	23 (16.7%)	45 (32.6%)	47 (34.1%)	17 (12.3%)
Mean of composite measure		3.66				
Standard deviation of composite measure		0.78				

v. Computer Department Staffs' Competence And Experience With Technology

(a) Developers number of years of experience.

The result from Table 4.15 shows that more than half of the developers have less than 5 years experience working with the type of programming languages, operating systems, databases and hardware used for the CAS development. Less than 25 % of the developers have 6 to 10 years experiences working with the technology and only slightly more than 10 % of the developers have over 16 years of experiences working with the technology. The mean of working experience with the technology of 4.75 indicates that the developers on the whole had few working experiences with the type of technology used for the CAS development. The standard deviation is quite high, 3.89.

Table 4.15: Developers' Experience

Number of years of experience	Frequency	Percent
Less than 6 years	90	65.2
6 to 10 years	31	22.5
11 to 15 years	3	2.2
More than16 years	14	10.1
Total	138	100.0

(b) **Number of applications developers have developed.**

The result from Table 4.16 shows that 79 % of the CAS developers have developed less than 11 applications system before the CAS implementation. Approximately 2 % of the developers have developed between 11 to 20 application systems prior to the CAS implementation. The mean of number of application system developed by developers is 5.17 indicate that the developers on the whole had a few experiences in developing application system The standard deviation is high, 11.02.

Table 4.16: Number Of Applications Developers Have Developed

Number of applications developer has developed	Frequency	Percent
Less than 10 units	109	79.0
11 to 20 units	3	2.2
21 to 30 units	1	0.7
31 to 40 units	1	0.7
41 to 50 units	1	0.7
More than 91 units	1	0.7
Total	116	84.1

(c) Proper training plan to encourage continuous learning process.

Table 4.17 depicted that 45.6 % of the CAS show that their respective MIS officers have a proper training plan to encourage continuous learning process of their computer department staff to update and improve their skill and knowledge with regards to the CAS development. The mean of 3.38 indicate that slightly above average that such plan for continuous learning process exists in their respective organizations. The standard deviation is 0.89.

Table 4.17: Proper Training Plan to Encourage Continuous Learning Process

	Proper training plan to encourage continuous learning process.	Very Low	*Low*	*Medium*	*High*	Very *High*
1	The MIS Officer has a proper training plan to encourage continuous learning process of the computer department staff to update and improve skill and knowledge with regards to CAS development in my organization.	1 (0.7%)	22 (15.9%)	51 (37.0%)	50 (36.2%)	13 (9.4%)
Mean		3.38				
Standard deviation		0.89				

vi. **Computer Departments' Adequate In Strength**

(a) **Number of computer staffs involved during the CAS implementation.**

The result from Table 4.18 illustrates that 91.3 % of the CAS involved less than 10 technical staff during its implementation. The mean of number of computer staff involved with the CAS implementation is 4.75 and the standard deviation is 3.89.

Table 4.18: Number of Computer Staffs Involved During CAS Implementation

Number of computer staff involved during the CAS implementation	Frequency	Percent
Less than 10 persons	126	91.3
11 to 20 persons	3	2.2
21 to 30 persons	3	2.2
31 to 40 persons	1	0.7
41 to 50 persons	1	0.7
More than 61 persons	1	0.7
Total	135	97.8
Mean	4.75	
Standard deviation	3.89	

(b) **Adequate provisions for the CAS maintenance.**

Table 4.19 explained that 37 % of the CAS show that there were adequate provisions for CAS maintenance in their respective organizations. About 43.5 % show that there were moderate provisions for the CAS maintenance in their respective organizations.

The mean value of 3.16 represents that slightly above moderate that the organizations provide provisions for the CAS maintenance with a standard deviation of 0.95.

Table 4.19: Adequate Provisions for the CAS Maintenance

	Adequate provisions for CAS maintenance	Very Low	*Low*	*Medium*	*High*	Very *High*
1	There is adequate provisions for CAS maintenance in my organization. (For example, sufficient computer department staffs are trained to support the system and to make maintenance changes in my organization).	9 (6.5%)	18 (13.0%)	60 (43.5%)	44 (31.9%)	7 (5.1%)
	Mean	3.16				
	Standard deviation	0.95				

vii. Narrowing Down Users-Designers Communication Gap

Referring to Table 4.20, 65.9 % of the CAS show that their developers have made sufficient effort to ensure that there was effective communication between users and developers in their respective organizations. Approximately 70.3 % of the CAS show that their developers were highly concerned with whether the CAS could deliver the information needed by their respective users to perform their work. About 74.7 % of the CAS show that their respective developers were highly concerned with how quickly user could access the data. Approximately 75 % of the CAS show that their respective developers were highly concerned with how easily could user retrieved data. About 52.2 % of the CAS show that their respective developers were highly concerned with how many clerical support would users needed to enter data into the system. Approximately 63 % of the CAS show that their respective developers were highly concerned with how would the operation of the CAS fitted into users' daily business schedule. The mean value of 3.82 represents the fact that CAS developers were highly concerned with the narrowing down user-designer communication gap with a low standard deviation of 0.63.

Table 4.20: Narrowing Down Users-Designers Communication Gap

	User-designer gap	Frequency/Percent				
		Very Low	*Low*	*Medium*	*High*	Very High
1	The developer has made sufficient effort to ensure that there is effective communication between users and developer in my organization.	1 (0.7%)	4 (2.9%)	41 (29.7%)	70 (50.7%)	21 (15.2%)
2	The developer is concern whether the CAS can deliver the information needed by the user to perform their work in my organization.	0 (0.0%)	3 (2.2%)	36 (26.1%)	64 (46.4%)	33 (23.9%)
3	The developer is concern with how quickly user can access the data in my organization.	0 (0.0%)	3 (2.2%)	29 (21.0%)	75 (54.3%)	28 (20.3%)
4	The developer is concern with how easily can user retrieve the data in my organization.	0 (0.0%)	6 (4.3%)	25 (18.1%)	71 (51.4%)	32 (23.2%)
5	The developer is concern with how many clerical support will user need to enter data into the system in my organization	2 (1.4%)	11 (8.0%)	48 (34.8%)	55 (39.9%)	17 (12.3%)
6	The developer is concern with on how will the operation of the CAS fit into user's daily business schedule in my organization.	2 (1.4%)	9 (6.5%)	36 (26.1%)	64 (46.4%)	23 (16.7%)
	Mean of composite measure	3.82				
	Standard deviation of composite measure	0.63				

viii. Adequate Documentation For Computer Department Staffs And Users

As it can be seen from Table 4.21, 28.2 % of the CAS shows that the overall system documentation for the CAS implementation and operations were adequate. About 28.2 % of the CAS show that the overall program documentation for the CAS implementation and operations were adequate. About 34.7 % of the CAS show that the overall database documentation for the CAS implementation and operations were adequate. Approximately 35 % of the CAS show that the overall system administration documentation were adequate. About 28.3 % of the CAS show that the disaster contingency planning manuals were adequate. Approximately 30 % of the CAS show highly that the users' manuals were complete and adequate. About 29 % of the CAS show that the operators' manuals were complete and adequate. A mean of

3.23 and a standard deviation of 0.70 indicate that adequate documentation for computer staff and users were slightly above moderate.

Table 4.21: Adequate Documentation For Computer Staffs And Users

	Adequate documentation for computer staff and user	Frequency/Percent				
		Very Low	*Low*	*Medium*	*High*	Very High
1	In my organization, the overall system documentation for the CAS implementation and operation is adequate.).	1 (0.7%)	18 (13.0%)	78 (56.5%)	33 (23.9%)	6 (4.3%)
2	In my organization, the overall program documentation for the CAS implementation and operation is adequate.	1 (0.7%)	23 (16.7%)	72 (52.2%)	33 (23.9%)	6 (4.3%)
3	In my organization, the overall database/files/tables documentation for the CAS implementation and operation is adequate.	3 (2.2%)	16 (11.6%)	69 (50.0%)	42 (30.4%)	6 (4.3%)
4	In my organization, the overall system administration documentation for the CAS implementation and operation is adequate.	1 (0.7%)	19 (13.8%)	68 (49.3%)	43 (31.2%)	5 (3.6%)
5	In my organization, the disaster contingency planning manual for the CAS is adequate.	5 (3.6%)	26 (18.8%)	66 (47.8%)	31 (22.5%)	8 (5.8%)
6	In my organization, the user manual for the CAS implementation and operation is adequate.	2 (1.4%)	20 (14.5%)	65 (47.1%)	40 (29.0)	6 (4.3%)
7	In my organization, the operator manual for the CAS implementation and operation is adequate.	2 (1.4%)	21 (15.2%)	70 (50.7%)	31 (22.5%)	8 (5.8%)
8	In my organization, the user manual for the CAS implementation and operation is complete and adequate.	2 (1.4%)	22 (15.9%)	68 (49.3%)	36 (26.1%)	6 (4.3%)
9	In my organization, the operator manual for the CAS implementation and operation is complete and adequate.	2 (1.4%)	24 (17.4%)	65 (47.1%)	35 (25.4%)	5 (3.6%)
10	In my organization, the user manual is easy to understand by user.	1 (1.4%)	17 (12.3%)	54 (39.1%)	51 (37.0%)	9 (6.5%)
11	In my organization, the operator manual is easy to understand by operator.	2 (1.4%)	15 (10.9%)	57 (41.3%)	50 (36.2%)	6 (4.3%)
	Mean of composite measure	3.23				
	Standard deviation of composite measure	0.70				

ix. Users' Education And Training

Table 4.22 shows that 62.3 % of the CAS show that their respective developers had made sufficient effort to activate users' training process. Approximately 66 % of the CAS show that their respective developers had made sufficient effort to encourage users' learning process of CAS use. About 71 % of the CAS show that the respective developers had taken sufficient effort to train users on how to enter data, update data

and print reports. About 52.9 % of the CAS show that their respective developers had taken sufficient effort to train users on how to deal with errors when operating the system. The mean of user education and training of 3.67 indicate that there were high user education and training process for the CAS implementation. The standard deviation is low, 0.63.

Table 4.22: Users' Education and Training

	User education and training	Frequency/Percent				
		Very Low	Low	*Medium*	High	Very High
1	In my organization, the developer has made sufficient effort to activate the training process for users.	1 (0.7%)	6 (4.3%)	43 (31.2%)	73 (52.9%)	13 (9.4%)
2	In my organization, the developer has made sufficient effort to encourage user's learning process of CAS use.	0 (0.0%)	8 (5.8%)	37 (26.8%)	78 (56.5%)	13 (9.4%)
3	In my organization, the developer has taken sufficient effort to train user on how to key-in data, update data and print report.	0 (0.0%)	6 (4.3%)	30 (21.7%)	83 (60.1%)	15 (10.9%)
4	In my organization, the developer has taken sufficient effort to train user on how to deal with errors when operating the CAS.	0 (0.0%)	14 (10.1%)	48 (34.8%)	64 (46.4%)	9 (6.5%)
	Mean of composite measure	3.67				
	Standard deviation of composite measure	0.63				

x. Projects Size

(a) Cost spent for CAS projects.

The result from the Table 4.23 shows that more than half (56.5 %) of the CAS project were more than RM50,000. This shows that most of the CAS projects could be considered as large projects and the awards of these projects have to undergo a process of open tenders. The mean of CAS projects cost of RM1.69 million was high and a standard deviation of RM 0.45 million.

Table 4.23: Cost Spent For CAS Projects Implementation

	Cost spent for the CAS project implementation	Frequency	Percent
1	Less than RM 50,000	60	43.5
2	RM 51,000 to RM 1,000,000	49	35.5
3	RM 1,000,001 to RM 5,000,000	21	15.2
4	RM 5,000,001 to RM 10,000,000	1	0.7
5	RM 10,000,001 to RM 15,000,000	2	1.4
6	RM 15,000,001 to RM 20,000,000	3	2.2
7	RM 20,000,001 to RM 30,000,000	1	0.7
8	More than RM 30,000,001	1	0.7
	Total	138	100.0
	Mean	RM 1.69 million	
	Standard deviation	0.454 million	

b) Time taken to implement the CAS.

The result from Table 4.24 shows that more than half (53.6 %) of the CAS projects took less than 10 months to complete and 46.4 % of the CAS projects took more than 11 months to complete. Thus, this shows that quite a high proportion of CAS projects took more than 1 year to complete. The mean is 11 months and the standard deviation is 9.81 months.

Table 4.24: Time Taken To Implement The CAS Projects

Time taken to implement the CAS project	Frequency	Percent
Less than 10 months	74	53.6
11 to 20 months	36	26.1
21 to 30 months	12	8.7
31 to 40 months	4	2.9
41 to 50 months	1	0.7
More than 51 months	1	0.7
Total	128	92.8
Mean	11.01 months	
Standard deviation	9.81	

c) Size of implementation staffs.

The result from Table 4.25 below shows that 69.6 % of the CAS projects involved less than 10 persons to be implemented. This shows than majority of the CAS projects

involved very few people to be implemented. The mean is 30.26 person and the standard deviation was 119.45 person.

Table 4.25: Size Of Implementation Staffs

Size of implementation staff	Frequency	Percent
Less than 10 persons	96	69.6
11 to 20 persons	10	7.2
21 to 30 persons	6	4.3
31 to 40 persons	2	1.4
41 to 50 persons	2	1.4
51 to 60 persons	1	0.7
91 to 100 persons	2	1.4
101 to 500 persons	5	3.6
More than 1,001 persons	1	0.7
Total	125	90.6
Mean	30.26 persons	
Standard deviation	119.45	

(d) Number of user departments affected.

The result from Table 4.26 shows that 73.9 % of the CAS projects affected less than 10 departments. This shows that majority of the CAS projects affected only a very few departments. The mean is 16.18 and the standard deviation was 67.37.

Table 4.26: Number of User Departments Affected

Number of user departments affected	Frequency	Percent
Less than 10 units	102	73.9
11 to 20 units	14	10.1
21 to 30 units	2	1.4
31 to 40 units	2	1.4
101 to 500 units	4	2.9
More than 501 units	1	0.7
Total	125	90.6
Mean	16.18 units	
Standard deviation	67.37	

xi. Projects Structure

Table 4.27 illustrates that 42.8 % of the CAS show that the tasks procedures have changed as the CAS were implemented in their respective organizations. About 38.4

% of the CAS show that the contents and methods of tasks have changed as CAS projects were implemented in their respective organizations. Only 13 % of the CA show that their respective organizational structure have changed as the CAS were implemented. Approximately 53 % of the CAS show that the tasks have been standardized as the CAS projects were implemented. About 37.7 % of the CAS projects show that the task procedures were documented in the job manuals. About 42.8 % of the CAS show that the tasks objectives and ranges were specified for the CAS to be implemented in their respective organizations. Approximately 57 % of the CAS show that the tasks had become routinely performed as the CAS were implemented. Approximately 59 % of the CAS show that the tasks could easily be performed with the CAS implementation. About 27.5 % of the CAS show that the relationships between organizational members had changed as the CAS was implemented. The mean value of 3.44 represents the fact that CAS were highly structured and with a low standard deviation of 0.66.

xii. Adequate Documentation of Existing System

The Table 4.28 illustrates that 31.9 % of the CAS projects show that the system requirements for the CAS were derived from adequate documentation of existing system/work flow. About 59.4 % of the CAS projects show that their respective users were able to give sufficient information to project team during feasibility and design stage of the CAS. The mean value of 3.37 represents that the existing system documentation is moderately sufficient with a low standard deviation of 0.75.

Table 4.27: Projects Structure

	Project structure	Frequency/Percent				
		Very Low	*Low*	*Medium*	*High*	Very High
1	The task procedure has changed as the CAS is implemented in my organization.	4 (2.9%)	22 (15.9%)	50 (36.2%)	48 (34.8%)	11 (8.0%)
2	The contents and methods of tasks have changed as the CAS is implemented in my organization.	5 (3.6%)	22 (15.9%)	55 (39.9%)	47 (34.1%)	6 (4.3%)
3	The organizational structure has changed as the CAS is implemented in my organization.	30 (21.7%)	41 (29.7%)	46 (33.3%)	17 (12.3%)	1 (0.7%)
4	The tasks has been standardized as the CAS is implemented in my organization.	2 (1.4%)	13 (9.4%)	46 (33.3%)	58 (42.0%)	15 (10.9%)
5	In my organization, the task procedure is documented in the job manual.	4 (2.9%)	16 (11.6%)	61 (44.2%)	41 (29.7%)	11 (8.0%)
6	The task objectives and ranges are specified for the CAS to be implemented in my organization.	1 (0.7%)	15 (10.9%)	55 (39.9%)	51 (37.0%)	8 (5.8%)
7	The tasks has become routinely performed as the CAS is implemented in my organization.	0 (0.0%)	6 (4.3%)	50 (36.2%)	65 (47.1%)	13 (9.4%)
8	In my organization, the tasks can easily be performed with the CAS implementation.	0 (0.0%)	4 (2.9%)	50 (36.2%)	67 (48.6%)	14 (10.1%)
9	The relationships between organizational members has changed as the CAS is implemented in my organization.	5 (3.6%)	30 (21.7%)	58 (42.0%)	32 (23.2%)	6 (4.3%)
	Mean of composite measure	3.44				
	Standard deviation of composite measure	0.66				

Table 4.28: Adequate Documentation Of Existing System

	Adequate documentation of existing system	Frequency/Percent				
		Very Low	*Low*	*Medium*	*High*	Very High
1	In my organization, the system requirement for the CAS is derived from adequate documentation of existing system.	7 (5.1%)	26 (18.8%)	57 (41.3%)	35 (25.4%)	9 (6.5%)
2	Users are able to give sufficient information to project team during feasibility and design stage of the CAS in my organization.	0 (0.0%)	13 (9.4%)	41 (29.7%)	65 (47.1%)	17 (12.3%)
	Mean of composite measure	3.37				
	Standard deviation of composite measure	0.75				

iii. Summary

The means and standard deviations for both the dependent, independent and moderating variables are summarized in Table 4.29. The dependent variable, Success of CAS Implementation, has a mean of 3.71, which is much greater than the average

on a five-point Likert scale. The same goes with the means for the independent variables, Users' Involvement and Participation, which is above average (3.73), Users' Commitment and Priority (3.69), Management Support (3.66), Computer Department Staffs' Competence and Experience With Technology (3.38), Computer Departments' Adequate In Strength (3.16), Narrowing Down Users-Designers Gap (3.82), Adequate Documentation For Computer Department Staffs and Users (3.23) and Users' Education and Training (3.67). The standard deviations for Application System Implementation Success, Users' Involvement and Participation, Users' Commitment and Priority, Management Support, Computer Department Staffs' Competence and Experience With Technology, Computer Departments Adequate In Strength, Narrowing Down Users-Designers Gap, Adequate Documentation For Computer Department Staffs and Users and Users' Education and Training are very small: 0.56, 0.70, 0.84, 0.78, 0.89, 0.95, 0.63, 0.70 and 0.63, respectively.

4.4 Measures Of Association

Initial analysis using Pearson's correlation was done to test the relationship between variables. From Table 4.30, it is found that there is an association (positive correlation) between Application System Implementation Success and the 10 variables Users' Involvement and Participation, Users' Commitment and Priority, Management Support, Computer Department Staffs' Competence and Experience With Technology, Computer Departments' Adequate In Strength, Narrowing Down Users-Designers Communication Gap, Adequate Documentation For Computer Department Staffs and Users, Users' Education and Training, Projects More Structured and Sufficient Existing Documentation since $0 <$ correlation coefficient, $r < 1$ and p-value is less than 5 %, which means that their correlation are significant.

However, the moderating variable Large Projects Size indicate a weak relationship with the dependent variable, Application System Implementation Success and its p-value > 5 %, which means that its correlation is not significant.

Table 4.29: Mean and Standard Deviation for Major Variables

	Variables	Mean	Standard deviation
1	Dependent Variable		
	1.1 Application System Implementation Success	3.71	0.56
2	Independent Variables		
	2.1 Users' involvement and participation	3.73	0.70
	2.2 Users' commitment and priority	3.69	0.84
	2.3 Managements' support	3.66	0.78
	2.4 Computer department staffs' competence and experience with technology (proper training plan to encourage continuous learning process)	3.38	0.89
	2.5 Computer departments' adequate in strength (adequate provisions for CAS maintenance)	3.16	0.95
	2.5 Narrowing down users-designers gap	3.82	0.63
	2.6 Adequate documentation for computer department staffs and users	3.23	0.70
	2.7 Users' education and training	3.67	0.63
3	Moderating Variables		
	3.1 Projects size (cost spend for project (RM))	1.7 million	5.2 million
	3.2 Projects structure	3.44	0.66
	3.3 Adequate documentation of existing system	3.37	0.75

Table 4.30: Results of Pearson's Correlation Matrix

	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.
1. Success											
2. Users' Involvement	* .5297										
3. Users' Commitment	* .4768	* .6478									
4. Management Support	* .6091	* .4959	* .3956								
5. Computer Staffs' Experience	*** .2185	* .3601	* .3401	* .2456							
6. Computer Departments' Strength	* .4051	** .1799	** .1824	* .5348	* .3516						
7. Narrowing Down Users-Designers Comm. Gap	* .6234	* .5029	* .4244	* .4549	** .2139	* .2684					
8. Doc. For Computer Staffs/Users	* .4327	* .3799	* .3928	* .3031	* .2765	* .3468	* .4577				
9. Users' Education & Training	* .4135	* .4311	* .3449	** .1872	* .2285	.1250	* .6684	* .5306			
10. Large Projects Size	.0803	*** .1965	-.0429	** .2320	*** .2099	** .2366	.1292	.0762	.1672		
11. More Structured Projects	* .5090	* .2719	.0799	* .3032	.1121	*** .1972	* .5006	* .4893	* .5007	.1797	
12. Sufficient Existing Doc.	** .2793	** .2583	*** .2172	*** .1937	.0100	.1367	* .3645	* .5005	* .4032	.2073	* .4697

* $p < 0.01$; ** $p < 0.05$; *** $p < 0.10$

.5 Regression Analysis

Users' Involvement and Participation and the Success of CAS mplementation.

There is a significance relationship between users' involvement and participation it t = 7.282; p < 0.05 on the success of CAS implementation. Table 4.31 shows that ignificant relationship exists at 1 % significance level. The coefficient of letermination, R^2, is 0.281. Users' involvement and participation account for about 28 % variance in the success of CAS implementation. There is no auto correlation as lepicted by the Durbin-Watson Test statistics of 1.72, which is within the acceptable ange of 1.5 to 2.5.

The relationship can be represented by the following linear equation: -

Success of CAS Implementation = 2.12 (Constant) + 0.427 (Users' Involvement and Participation)

Table 4.31: Linear Regression Analyses with Independent Variable

Independent Variable	Beta Coefficient	Std Error B	T	Sig. T
Users' involvement and participation	0.427	0.059	7.282	0.000
(constant)	2.117	0.222	9.521	0.000

Sig. F : 0.000; R^2 : 0.281

i. Users' Commitment and Priority and the Success of CAS Implementation.

There is a significance relationship between users' commitment and priority at t =6.256; p < 0.05 on the success of CAS implementation. Table 4.32 shows that ignificant relationship exists at 1 % significance level. The coefficient of letermination, R^2, is 0.227. Users' commitment and priority account for about 23 %

variance in the success of CAS implementation. There is no auto correlation as depicted by the Durbin-Watson Test statistics of 2.02 which is within the acceptable range of 1.5 to 2.5.

The relationship can be represented by the following linear equation: -

Success of CAS Implementation = 2.52 (Constant) + 0.32 (Users' Commitment and Priority)

Table 4.32: Linear Regression Analyses with Independent Variable

Independent Variable	Beta Coef.	Std Error Beta	T	Sig. T
Users' commitment and priority	0.320	0.051	6.256	0.000
(constant)	2.520	0.193	13.034	0.000

Sig. F : 0.000; R^2 : 0.227

iii. Users' Education and Training and the Success of CAS Implementation.

There is a significance relationship between users' education and training at $t = 5.257$; $p < 0.05$ on the success of CAS implementation. Table 4.33 shows that significant relationship exists at 1 % significance level. The coefficient of determination, R^2, is 0.171. About 17 % variance in the success of CAS implementation is accounted for by users' education and training. There is no auto correlation as depicted by the Durbin-Watson Test statistics of 1.92, which is within the acceptable range of 1.5 to 2.5.

The relationship can be represented by the following linear equation: -

Success of CAS Implementation = 2.36 (Constant) + 0.369 (Users' Education and Training)

Table 4.33: Linear Regression Analyses with Independent Variable

Independent Variable	Beta Coef.	Std Error Beta	T	Sig. T
Users' education and trainin	0.369	0.070	5.257	0.000
(constant)	2.355	0.261	9.016	0.000

Sig. F : 0.000; R^2 : 0.171

v. **Management Role (Support) and The Success of CAS mplementation.**

There is a significance relationship between management support at $t = 8.957; p < 0.05$ on the success of CAS implementation. Table 4.34 shows that significant relationship exists at 1 % significance level. The coefficient of determination, R^2, is 0.371. About 37 % variance in the success of CAS implementation is accounted for by management support. There is no auto correlation as depicted by the Durbin-Watson Test statistics of 2.15 which is within the acceptable range of 1.5 to 2.5.

The relationship can be represented by the following linear equation: -

Success of CAS Implementation = 2.098 (Constant) + 0.371 (Management Support)

Table 4.34: Linear Regression Analyses with Independent Variable

Independent Variable	Beta Coef.	Std Error Beta	T	Sig. T
Managements' support	0.440	0.049	8.957	0.000
(constant)	2.098	0.184	11.412	0.000

Sig. F : 0.000; R^2 : 0.281

v. Computer Department Staffs' Competence and The Success of CAS Implementation.

There is a significance relationship between computer department staffs' competence at $t = 2.602$; $p < 0.05$ on the success of CAS implementation. Table 4.35 shows that significant relationship exists at 1 % significance level. The coefficient of determination, R^2, is 0.048. Computer department staffs' competence and experience with technology account for about 4.8 % variance in the success of CAS implementation. There is no auto correlation as depicted by the Durbin-Watson Test statistics of 1.91, which is within the acceptable range of 1.5 to 2.5.

The relationship can be represented by the following linear equation: -

Success of CAS Implementation = 3.251 (Constant) + 0.048 (Computer Department Staffs' Competence and Experience with Technology)

Table 4.35: Linear Regression Analyses with Independent Variable

Independent Variable	Beta Coef.	Std Error Beta	T	Sig. T
Computer department staffs' competence and experience with technology	0.137	0.053	2.602	0.010
(constant)	3.251	0.184	17.677	0.000

Sig. F : 0.000, R^2 : 0.048

vi. **Computer Departments' Adequate In Strength and The Success of CAS Implementation.**

There is a significance relationship between computer departments' adequate in strength at $t = 5.167$; $p < 0.05$ on the success of CAS implementation. Table 4.36 shows that significant relationship exists at 1 % significance level. The coefficient of determination, R^2, is 0.164. About 16.4 % variance in the success of CAS

mplementation is accounted for by computer departments' adequate in strength. There is no auto correlation as depicted by the Durbin-Watson Test statistics of 2.04 which is within the acceptable range of 1.5 to 2.5.

The relationship can be represented by the following linear equation: -

Success of CAS Implementation = 2.950 (Constant) + 0.240 (Computer Departments' Adequate in Strength)

Table 4.36: Linear Regression Analyses with Independent Variable

Independent Variable	Beta Coef.	Std Error Beta	T	Sig. T
Computer departments' adequate in strength	0.240	0.047	5.167	0.000
(constant)	2.950	0.153	19.260	0.000

Sig. F : 0.000, R^2 : 0.281

vii. The Narrowing Down Users-Designers Communication Gap and The Success of CAS Implementation.

There is a significance relationship between narrowing down users-designers communication gap at $t = 9.264$; $p < 0.05$ on the success of CAS implementation. Table 4.37 illustrates that significant relationship exists at 1 % significance level. The coefficient of determination, R^2, is 0.389. About 39 % variance in the success of CAS implementation is accounted for by the narrowing down users-designers communication gap. There is no auto correlation as depicted by the Durbin-Watson Test statistics of 1.84, which is within the acceptable range of 1.5 to 2.5.

The relationship can be represented by the following linear equation: -

Success of CAS Implementation = 1.585 (Constant) + 0.556 (Narrowing Down Users-Designers Communication Gap)

Table 4.37: Linear Regression Analyses with Independent Variable

Independent Variable	Beta Coef.	Std Error Beta	T	Sig. T
Narrowing down users-designers communication gap	0.556	0.060	9.264	0.000
(constant)	1.585	0.232	6.827	0.000

Sig. F : 0.000, R^2 : 0.389

viii. **Sufficient Documentation For Computer Staffs And Users and the Success of CAS Implementation.**

There is a significance relationship between sufficient documentation for computer staffs and users at t = 5.577; p < 0.05 on the success of CAS implementation. Table 4.38 shows that significant relationship exists at 1 % significance level. The coefficient of determination, R^2, is 0.187. About 18.7 % variance in the success of CAS implementation is accounted for by sufficient documentation for computer staffs and users. There is no auto correlation as depicted by the Durbin-Watson Test statistics of 1.96, which is within the acceptable range of 1.5 to 2.5. There is no problem of multicollenearity since there is only one independent variable (note that: the Variance Inflation Factor (VIF) is 1, which does not exceed 10). The relationship can be represented by the following linear equation: -

Success of CAS Implementation = 2.593 (Constant) + 0.346 (Sufficient Documentation for Computer Staffs and Users)

Table 4.38: Linear Regression Analyses with Independent Variable

Independent Variable	Beta Coef.	Std Error Beta	T	Sig. T
Sufficient documentation for computer staffs and users	0.346	0.062	5.577	0.000
(constant)	2.593	0.204	12.684	0.000

Sig. F : 0.000; R^2 : 0.187

ix. Moderating Effect of Projects Size on Users' Roles

Multiple Regression using enter method was performed to determine the relationships between users' roles on the success of CAS implementation when the CAS projects size are larger. Table 4.39 summarizes the results of these regression analyses.

Table 4.39: **Multiple Regression Analyses Using Enter Method With Independent Variables and Moderating Variables.**

	Independent/ Moderating Variables	With Moderating Effect				Without Moderating Effect			
		Beta Coef.	Std Error Beta	T	Sig. T	Beta Coef.	Std Error Beta	T	Sig. T
1	Users' Involvement and Participation	0.310	0.098	3.162	0.002	0.368	0.089	4.127	0.000
2	Large Projects Size	-1.086×10^{-7}	7.707×10^{-8}	-1.409	0.163	-3.338×10^{-10}	$8.911 \times 10^{-}$	-0.037	0.970
3	Users' Involvement and Participation ** Large Projects Size	2.674×10^{-8}	1.891×10^{-8}	1.414	0.161				
		R^2 : 0.203 Sig. F : 0.001				R^2 : 0.183 Sig. F : 0.000			
1	Users' Commitment and Priority	0.313	0.087	3.617	0.001	0.286	0.079	3.632	0.001
2	Large Projects Size	3.133×10^{-8}	3.127×10^{-8}	1.002	0.320	8.510×10^{-9}	8.966×10^{-9}	0.949	0.346
3	Users' Commitment and Priority ** Large Projects Size	-6.697×10^{-9}	8.788×10^{-9}	-0.762	0.448				
		R^2 : 0.157 Sig. F : 0.004				R^2 : 0.151 Sig. F : 0.002			

x. Users' Involvement and Participation and the Success of CAS Implementation When The CAS Projects are Larger.

A very significant relationship is detected at 1 % significance level. However, the interaction term that represents the moderating effect of large projects size, is not significant at all at $p < 0.05$. The R^2 values does not change much, merely 0.02 (0.203-0.183). Thus, the hypothesis is rejected. Users' Involvement and Participation does not provide a significant positive relationship to the Success of CAS Implementation when the Projects Size is large.

xi. **Users' Commitment and Priority and the Success of CAS Implementation When The CAS Projects are Larger.**

A very significant relationship is detected at 1 % significance level. However, the interaction term that represents the moderating effect of large projects size, is not significant at all at $p < 0.05$. The R^2 values does not change much, merely 0.006 (0.157-0.151). Thus, the hypothesis is rejected. Users' Commitment and Priority do not provide a significant positive relationship to the Success of CAS Implementation when the Projects Size is large.

xii. **Management Role (Support) and the Success of CAS Implementation When CAS Projects are Larger.**

Multiple Regression using enter method was performed to determine the relationships between Management role (support) on the success of CAS implementation when the CAS projects size is larger. Table 4.40 summarizes the results of this multiple regression analyses.

Table 4.40: Multiple Regression Analyses Using Enter Method With Independent Variables and Moderating Variables.

	Independent/ Moderating Variables	With Moderating Effect				Without Moderating Effect			
		Beta Coef.	Std Error Beta	T.	Sig. T	Beta Coef.	Std Error Beta	T.	Sig. T
1	Manage-ment Support	0.378	0.072	5.243	0.002	0.388	0.068	5.690	0.000
2	Large Projects Size	-3.463×10^{-8}	7.036×10^{-8}	-0.492	0.624	-4.117×10^{-9}	8.341×10^{-9}	-0.494	0.623
3	Manage-ment Support ** Large Projects Size	7.152×10^{-9}	1.638×10^{-8}	0.437	0.664				
		R^2 : 0.297 Sig. F : 0.000				R^2 : 0.295 Sig. F : 0.000			

A very significant relationship is detected at 1 % significance level. However, the interaction term that represents the moderating effect of large projects size, is not significant at $p < 0.05$. The R^2 values does not change much, merely 0.002 (0.297-0.295). Thus, the hypothesis is rejected. Management Support does not provide a significant positive relationship to the Success of CAS Implementation when the Projects Size are large.

xiii. Moderating Effect of Large Projects Size on Developers' Roles

Multiple Regression using enter method was performed to determine the relationships between developers' roles on the success of CAS implementation when the CAS projects size is larger. Table 4.41 summarizes the results of these multiple regression analyses.

Table 4.41: Multiple Regression Analyses Using Enter Method With Independent Variables And Moderating Variables.

	Independent/ Moderating Variables	With Moderating Effect				Without Moderating Effect			
		Beta Coef.	Std Error Beta	T	Sig. T	Beta Coef.	Std Error Beta	T	Sig. T
1	Computer Department Staffs' Competence and Experience with Technology	0.120	0.076	1.588	0.116	0.156	0.071	2.216	0.030
2	Large Projects Size	-8.104×10^{-8}	6.680×10^{-8}	-1.213	0.229	2.139×10^{-9}	9.514×10^{-9}	0.225	0.823
3	Computer Department Staffs' Competence and Experience with Technology ** Large Projects Size	2.090×10^{-8}	1.662×10^{-8}	1.258	0.212				
		R^2 : 0.084 Sig. F : 0.080				R^2 : 0.065 Sig. F : 0.073			

	Independent/ Moderating Variables	With Moderating Effect				Without Moderating Effect			
		Beta Coef.	Std Error Beta	T	Sig. T	Beta Coef.	Std Error Beta	T	Sig. T
1	Computer Departments' Adequate in Strength	0.238	0.065	3.651	0.001	0.227	0.062	3.639	0.001
2	Large Projects Size	3.780×10^{-8}	6.487×10^{-8}	0.583	0.562	-1.006×10^{-9}	9.176×10^{-9}	-0.110	0.913
3	Computer Departments Adequate in Strength ** Large Projects Size	-9.885×10^{-9}	1.636×10^{-8}	-0.604	0.548				
		R^2 : 0.153 Sig. F : 0.005				R^2 : 0.149 Sig. F : 0.002			
1	Narrowing Down Users-Designers Communication Gap	0.408	0.093	4.395	0.000	0.436	0.086	5.089	0.000
2	Large Projects Size	-5.975×10^{-8}	7.765×10^{-8}	-0.770	0.444	1.548×10^{-9}	8.463×10^{-9}	0.183	0.855
3	Narrowing Down Users-Designers Communication Gap ** Large Projects Size	1.519×10^{-8}	1.912×10^{-8}	0.794	0.161				
		R^2 : 0.261 Sig. F : 0.000				R^2 : 0.255 Sig. F : 0.000			
1	Sufficient Documentation For Computer Staffs and Users	0.347	0.104	3.331	0.001	0.321	0.093	3.444	0.001
2	Large Projects Size	2.892×10^{-8}	4.331×10^{-8}	0.668	0.506	4.648×10^{-9}	9.063×10^{-9}	0.513	0.610
3	Sufficient Documentation For Computer Staffs and Users ** Large Projects Size	-7.529×10^{-9}	1.314×10^{-8}	-0.573	0.568				
		R^2 : 0.141 Sig. F : 0.008				R^2 : 0.138 Sig. F : 0.003			

Independent/ Moderating Variables		With Moderating Effect				Without Moderating Effect			
		Beta Coef.	Std Error Beta	T	Sig. T	Beta Coef.	Std Error Beta	T	Sig. T
1	Users' Education and Training	0.220	0.108	2.035	0.045	0.235	0.097	2.419	0.013
2	Large Projects Size	$-5.098\times10^{-}$	1.801×10^{-7}	-0.283	0.778	8.594×10^{-9}	1.083×10^{-8}	0.794	0.430
3	Users' Education and Training ** Large Project Size	1.528×10^{-8}	4.613×10^{-8}	0.331	0.741				
		R^2 : 0.088 Sig. F : 0.07				R^2 : 0.087 Sig. F : 0.03			

xiv. Computer Department Staffs' Competence And Experience and the Success of CAS Implementation When The CAS Projects are Larger.

There is no significant relationship is detected at 1 % significance level. In fact, the interaction term that represents the moderating effect of large projects size, is not significant at all at $p < 0.05$. The R^2 values does not change much, merely 0.011 (0.084-0.065). Thus, the hypothesis is rejected. Computer Department Staffs' Competence and Experience on Technology does not provide a significant positive relationship to the Success of CAS Implementation when the Projects Size is large.

xv. Computer Departments' Adequate In Strength and the Success of CAS Implementation When The CAS Projects are Larger.

A very significant relationship is detected at 1 % significance level. However, the interaction term that represents the moderating effect of large projects size, is not significant at all at $p < 0.05$. The R^2 values does not change much, merely 0.004 (0.153-0.149). Thus, the hypothesis is rejected. Computer Departments' Adequate in Strength does provide a significant positive relationship to the Success of CAS Implementation when the Projects Size is large.

vi. **Narrowing Down Users-Designers Communication Gap On The Success of CAS Implementation When The CAS Projects are Larger.**

A very significant relationship is detected at 1 % significance level. However, the interaction term that represents the moderating effect of large projects size, is not significant at all at $p < 0.05$. The R^2 values does not change much, merely 0.006 (0.261-0.255). Thus, the hypothesis is rejected. The Narrowing Down Users-Designers Communication Gap does not provide a significant positive relationship to the Success of CAS Implementation when the Projects Size is large.

xvii. **Sufficient Documentation For Computer Staffs And Users and the Success of CAS Implementation When The CAS Projects are Larger.**

A very significant relationship is detected at 1 % significance level. However, the interaction term that represents the moderating effect of large projects size, is not significant at all at $p < 0.05$. The R^2 values does not change much, merely 0.003 (0.141-0.138). Thus, the hypothesis is rejected. Sufficient Documentation for Computer Staffs and User does not provide a significant positive relationship to the Success of CAS Implementation when the Projects Size is large.

xviii. **Users' Education and Training on the Success of CAS Implementation When The CAS Projects are Larger.**

No significant relationship is detected at 1 % significance level. In addition, the interaction term that represents the moderating effect of large projects size, is not significant at all at $p < 0.05$. The R^2 values does not change much, merely 0.001 (0.088-0.087). Thus, the hypothesis is rejected. Users' Education and Training does not provide a significant positive relationship to the Success of CAS Implementation when the Projects Size is large.

ix. Moderating Effect of Projects' Structure on Users' Roles

Multiple Regression using enter method was performed to determine the relationships between users' roles on the success of CAS implementation when the CAS projects are more structured. Table 4.42 summarizes the results of these multiple regression analyses.

Table 4.42: **Multiple Regression Analyses Using Enter Method With Independent Variables And Moderating Variables**

	Independent/ Moderating Variables	With Moderating Effect				Without Moderating Effect			
		Beta Coef.	Std Error Beta	T	Sig. T	Beta Coef.	Std Error Beta	T	Sig. T
1	Users' Involvement and Participation	0.434	0.628	0.691	0.491	0.191	0.070	2.719	0.008
2	More Structured Projects	0.740	0.695	1.064	0.290	0.473	0.097	4.876	0.000
3	Users' Involvement and Participation ** More Structured Projects	-0.064	0.166	-0.389	0.699				
		R^2 : 0.317 Sig. F : 0.00				R^2 : 0.315 Sig. F : 0.00			
1	Users' Commitment and Participation	0.475	0.364	1.303	0.196	0.179	0.052	3.415	0.001
2	More Structured Projects	0.815	0.391	2.087	0.040	0.504	0.094	5.377	0.000
3	Users' Commitment and Participation ** More Structured Projects	-0.078	0.095	-0.821	0.414				
		R^2 : 0.340 Sig. F : 0.00				R^2 : 0.335 Sig. F : 0.00			

xx. Users' Involvement and Participation and Success of CAS Implementation When The CAS Projects are More Structured

A very significant relationship is detected at 1 % significance level. However, the interaction term that represents the moderating effect of more structured CAS projects, is not significant at all at $p < 0.05$. The R^2 values does not change much, merely 0.002 (0.317-0.315). Thus, the hypothesis is rejected. Users' Involvement and Participation does not provide a significant positive relationship to the Success of CAS Implementation when the Projects are more structured.

xxi. Users' Commitment and Priority and the Success of CAS Implementation When The CAS Projects are More Structured

A very significant relationship is detected at 1 % significance level. However, the interaction term that represents the moderating effect of more structured projects, is not significant at all at $p < 0.05$. The R^2 values does not change much, merely 0.005 (0.340-0.335). Thus, the hypothesis is rejected. Users' Commitment and Priority does not provide a significant positive relationship to the Success of CAS Implementation when the Projects are more structured.

xxii. Management Role (Support) and the Success of CAS Implementation When The CAS Projects are More Structured.

Multiple Regression using enter method was performed to determine the relationships between management role on the success of CAS implementation in the public sector when the CAS projects are more structured. Table 4.43 summarizes the result of this multiple regression analyses.

Table 4.43: **Multiple Regression Analyses Using Enter Method With Independent Variables And Moderating Variables**

	Independent/ Moderating Variables	With Moderating Effect				Without Moderating Effect			
		Beta Coef.	**Std Error Beta**	**T**	**Sig. T**	**Beta Coef.**	**Std Error Beta**	**T**	**Sig. T**
1	Management Support	0.907	0.392	2.316	0.023	0.254	0.052	4.886	0.000
2	More Structured Projects	1.112	0.428	2.605	0.011	0.410	0.091	4.531	0.000
3	Management Support ** More Structured Projects	-0.173	0.103	-1.682	0.096				
		R^2 : 0.432 Sig. F : 0.00				R^2 : 0.414 Sig. F : 0.00			

A very significant relationship is detected at 1 % significance level. However, the interaction term that represents the moderating effect of more structured projects, is not significant at all at $p < 0.05$. The R^2 values does not change much, merely 0.018 (0.432-0.414). Thus, the hypothesis is rejected. Management Support does not provide a significant positive relationship to the Success of CAS Implementation when the Projects are more structured.

xxiii. Moderating Effect of Projects' Structure on Developers' Roles

Multiple Regression using enter method was performed to determine the relationships between developers' roles on the success of CAS implementation when the CAS projects are more structured. Table 4.44 summarizes the results of these multiple regression analyses.

Table 4.44: Multiple Regression Analyses Using Enter Method With Independent Variables And Moderating Variables

	Independent/ Moderating Variables	With Moderating Effect				Without Moderating Effect			
		Beta Coef.	**Std Error Beta**	**T**	**Sig. T**	**Beta Coef.**	**Std Error Beta**	**T**	**Sig. T**
1	Computer Department Staffs' Competence and Experience with Technology	0.593	0.340	1.741	0.085	0.052	0.049	1.062	0.291
2	More Structured Projects	1.019	0.327	3.118	0.003	0.518	0.096	5.385	0.000
3	Computer Department Staffs' Competence and Experience with Technology ** More Structured Projects	-0.139	0.086	-1.604	0.112				
		R^2 : 0.284 Sig. F : 0.00				R^2 : 0.263 Sig. F : 0.00			
1	Computer Depart-ments' Adequate in Strength	0.698	0.334	2.093	0.039	0.068	0.051	1.315	0.192
2	More Structured Projects	1.107	0.323	3.432	0.001	0.519	0.098	5.293	0.485
3	Computer Depart-ments' Adequate in Strength ** More Structured Projects	-0.168	0.088	-1.912	0.059				
		R^2 : 0.302 Sig. F : 0.00				R^2 : 0.273 Sig. F : 0.00			

Independent/ Moderating Variables		With Moderating Effect				Without Moderating Effect			
		Beta Coef.	Std Error Beta	T	Sig. T	Beta Coef.	Std Error Beta	T	Sig. T
1	Narrowing Down Users-Designers Communi-cation Gap	0.852	0.607	1.403	0.164	0.316	0.078	4.073	0.000
2	More Structured Projects	0.933	0.681	1.371	0.174	0.334	0.103	3.232	0.002
3	Narrowing Down Users-Designers Communi-cation Gap ** More Structured Projects	-0.139	0.156	-0.890	0.376				
		R^2 : 0.382 Sig. F : 0.00				R^2 : 0.376 Sig. F : 0.00			
1	Sufficient Documen-tation For Computer Staffs and Users	0.907	0.440	2.063	0.042	0.150	0.076	1.957	0.054
2	More Structured Projects	1.125	0.407	2.766	0.007	0.439	0.110	4.010	0.000
3	Sufficient Documen-tation For Computer Staffs and Users ** More Structured Projects	-0.190	0.108	-1.749	0.084				
		R^2 : 0.313 Sig. F : 0.00				R^2 : 0.290 Sig. F : 0.00			
1	Users' Education and Training	0.662	0.604	1.097	0.276	0.200	0.093	2.152	0.034
2	More Structured Projects	0.920	0.655	1.405	0.164	0.419	0.110	3.798	0.000
3	Users' Education and Training ** More Structured Projects	-0.119	0.154	-0.775	0.440				
		R^2 : 0.297 Sig. F : 0.00				R^2 : 0.292 Sig. F : 0.00			

xxiv. **Computer Department Staffs' Competence and The Success Implementation of CAS When The CAS Projects are More Structured.**

A very significant relationship is detected at 1 % significance level. However, the interaction term that represents the moderating effect of more structured projects, is not significant at all at $p < 0.05$. The R^2 values does not change much, merely 0.021 (0.284-0.263). Thus, the hypothesis is rejected. Computer Department Staffs' Competence does not provide a significant positive relationship to the Success of CAS Implementation when the Projects are more structured.

xxv. **Computer Departments' Adequate In Strength and The Success of CAS Implementation When The CAS Projects are More Structured.**

A very significant relationship is detected at 1 % significance level. However, the interaction term that represents the moderating effect of more structured projects, is not significant at all at $p < 0.05$. The R^2 values does not change much, merely 0.029 (0.302-0.273). Thus, the hypothesis is rejected. Computer Departments' Adequate in Strength does not provide a significant positive relationship to the Success of CAS Implementation when the Projects are more structured.

xxvi. **Narrowing Down Users-Designers Communication Gap On The Success of CAS Implementation when The CAS Projects are More Structured.**

A very significant relationship is detected at 1 % significance level. However, the interaction term that represents the moderating effect of more structured projects, is not significant at all at $p < 0.05$. The R^2 values does not change much, merely 0.066 (0.382-0.376). Thus, the hypothesis is rejected. Narrowing Down Users-Designers Communication Gap does not provide a significant positive relationship to the Success of CAS Implementation when the Projects are more structured.

xxvii. **Sufficient Documentation For Computer Staffs And Users on the Success of CAS Implementation when The CAS Projecs are More Structured.**

A very significant relationship is detected at 1 % significance level. However, the interaction term that represents the moderating effect of more structured projects, is not significant at all at $p < 0.05$. The R^2 values does not change much, merely 0.023 (0.313-0.290). Thus, the hypothesis is rejected. Sufficient Documentation for Computer Staffs and Users does not provide a significant positive relationship to the Success of CAS Implementation when the Projects are more structured.

xxviii. **Users' Education and Training on the Success of CAS Implementation When The CAS Projects are More Structured.**

A very significant relationship is detected at 1 % significance level. However, the interaction term that represents the moderating effect of more structured projects, is not significant at all at $p < 0.05$. The R^2 values does not change much, merely 0.005 (0.297-0.292). Thus, the hypothesis is rejected. Users' Education and Training does not provide a significant positive relationship to the Success of CAS Implementation when the Projects are more structured.

xxix. **Moderating Effect of Sufficient Existing Documentation on Users' Roles**

Multiple Regression using enter method was performed to determine the relationships between users' roles on the success of CAS implementation when the existing system documentation (prior to CAS implementation) is sufficient. Table 4.45 summarizes the results of these multiple regression analyses.

Table 4.45: Multiple Regression Analyses Using Enter Method With Independent Variables And Moderating Variables

	Independent/ Moderating Variables	With Moderating Effect				Without Moderating Effect			
		Beta Coef.	Std Error Beta	T	Sig. T	Beta Coef.	Std Error Beta	T	Sig. T
1	Users' Involvement and Participation	-0.195	0.633	-0.307	0.759	0.224	0.088	2.538	0.013
2	Sufficient Existing Documentation	-0.213	0.653	-0.326	0.745	0.215	0.117	1.833	0.071
3	Users' Involvement and Participation ** Sufficient Existing Documentation	0.104	0.156	0.667	0.507				
		R^2 : 0.159 Sig. F : 0.006				R^2 : 0.154 Sig. F : 0.003			
1	Users' Commitment and Participation	0.492	0.546	0.901	0.371	0.237	0.063	3.760	0.000
2	Sufficient Existing Documentation	0.506	0.608	0.831	0.409	0.225	0.110	2.050	0.044
3	Users' Commitment and Participation ** Sufficient Existing Documentation	-0.067	0.142	-0.470	0.640				
		R^2 : 0.245 Sig. F : 0.00				R^2 : 0.243 Sig. F : 0.00			

xxx. Users' Involvement And Participation and The Success of CAS Implementation When The Existing System Documentation (Prior To CAS Implementation) Is Sufficient.

A very significant relationship is detected at 1 % significance level. However, the interaction term that represents the moderating effect of Sufficient Existing System Documentation (prior to CAS implementation), is not significant at all at $p < 0.05$. The R^2 values does not change much, merely 0.005 (0.159-0.154). Thus, the hypothesis is rejected. Users' Involvement and Participation does not provide a

ignificant positive relationship to the Success of CAS Implementation in the public ector when the Existing System Documentation (prior to CAS implementation) is Sufficient.

xxxi. Users' Commitment and Priority and Tthe Success of CAS Implementation When The Existing System Documentation (Prior To CAS Implementation) Is Sufficient.

A very significant relationship is detected at 1 % significance level. However, the interaction term that represents the moderating effect of Sufficient Existing System Documentation (prior to CAS implementation), is not significant at all at $p < 0.05$. The R^2 values does not change much, merely 0.002 (0.245-0.243). Thus, the hypothesis is rejected. Users' Commitment and Priority does not provide a significant positive relationship to the Success of CAS Implementation when the Existing System Documentation (prior to CAS implementation) is Sufficient.

xxxii. Management Role (Support) and The Success of CAS Implementation When The Existing System Documentation (Prior To CAS Implementation) Is Sufficient.

Multiple Regression using enter method was performed to determine the relationships between management role (support) on the success of CAS implementation when the existing documentation (prior to CAS implementation) is sufficient. Table 4.46 summarizes the result of this multiple regression analyses.

Table 4.46: Multiple Regression Analyses Using Enter Method With Independent Variables And Moderating Variables

	Independent/ Moderating Variables	With Moderating Effect				Without Moderating Effect			
		Beta Coef.	Std Error Beta	T	Sig. T	Beta Coef.	Std Error Beta	T	Sig. T
1	Management Support	0.160	0.544	0.294	0.770	0.315	0.066	4.790	0.000
2	Sufficient Existing Documentation	0.031	0.579	0.053	0.958	0.195	0.105	1.853	0.068
3	Management Support ** Sufficient Existing Documentation	0.040	0.137	0.288	0.774				
		R^2 : 0.302 Sig. F : 0.00				R^2 : 0.301 Sig. F : 0.00			

A very significant relationship is detected at 1 % significance level. However, the interaction term that represents the moderating effect of Sufficient Existing System Documentation (prior to CAS implementation), is not significant at all at $p < 0.05$. The R^2 values does not change much, merely 0.001 (0.302-0.301). Thus, the hypothesis is rejected. Management Support does not provide a significant positive relationship to the Success of CAS Implementation when the Existing System Documentation (prior to CAS implementation) is Sufficient.

xxxiii. Moderating Effect of Sufficient Existing System Documentation on Developers' Roles

Multiple Regression using enter method was performed to determine the relationships between developers' roles on the successof CAS implementation in the public sector when the existing system documentation (prior to CAS implementation) is sufficient. Table 4.47 summarizes the results of these multiple regression analyses.

Table 4.47: Multiple Regression Analyses Using Enter Method With Independent Variables And Moderating Variables

	Independent/ Moderating Variables	With Moderating Effect				Without Moderating Effect			
		Beta Coef.	Std Error Beta	T	Sig. T	Beta Coef.	Std Error Beta	T	Sig. T
1	Computer Department Staffs' Competence and Experience with Technology	0.252	0.367	0.685	0.496	0.125	0.058	2.141	0.036
2	Sufficient Existing Documentation	0.376	0.327	1.150	0.254	0.269	0.114	2.366	0.021
3	Computer Department Staffs' Competence and Experience with Technology ** Sufficient Existing Documentation	-0.031	0.088	-0.351	0.727				
		R^2 : 0.128 Sig. F : 0.022				R^2 : 0.127 Sig. F : 0.008			
1	Computer Departments' Adequate in Strength	0.455	0.403	1.129	0.263	0.133	0.062	2.145	0.035
2	Sufficient Existing Documentation	0.530	0.355	1.492	0.140	0.258	0.116	2.229	0.029
3	Computer Departments' Adequate in Strength ** Sufficient Existing Documentation	-0.079	0.098	-0.810	0.421				
		R^2 : 0.141 Sig. F : 0.012				R^2 : 0.133 Sig. F : 0.006			

	Independent/ Moderating Variables	With Moderating Effect				Without Moderating Effect			
		Beta Coef.	Std Error Beta	T	Sig. T	Beta Coef.	Std Error Beta	T	Sig. T
1	Narrowing Down Users -Designers Communi-cation Gap	0.485	0.650	0.746	0.458	0.405	0.085	4.786	0.000
2	Sufficient Existing Document-ation	0.185	0.700	0.265	0.792	0.099	0.111	0.894	0.374
3	Narrowing Down Users -Designers Communi-cation Gap ** Sufficient Existing Documen-tation	-0.020	0.163	-0.125	0.901				
		R^2 : 0.301 Sig. F : 0.00				R^2 : 0.301 Sig. F : 0.00			
1	Sufficient Documen-tation For Computer Staffs and Users	-0.030	0.555	-0.054	0.957	0.223	0.094	2.375	0.020
2	Sufficient Existing Documen-tation	-0.083	0.491	-0.168	0.867	0.136	0.132	1.030	0.306
3	Sufficient Documen-tation For Computer Staffs and Users ** Sufficient Existing Documen-tation	0.060	0.131	0.461	0.646				
		R^2 : 0.148 Sig. F : 0.010				R^2 : 0.145 Sig. F : 0.004			
1	Users' Education and Training	-0.245	0.676	-0.362	0.718	0.253	0.093	2.707	0.009
2	Sufficient Existing Documen-tation	-0.410	0.759	-0.540	0.591	0.146	0.124	1.180	0.242
3	Users' Education and Training ** Sufficient Existing Documen-tation	0.131	0.177	0.743	0.460				
		R^2 : 0.166 Sig. F : 0.005				R^2 : 0.160 Sig. F : 0.002			

xxxiv. **Computer Department Staffs' Competence and The Success of CAS Implementation When The Existing System Documentation (Prior To CAS Implementation) Is Sufficient.**

No significant relationship is detected at 1 % significance level. Also, the interaction term that represents the moderating effect of Sufficient Existing System Documentation (prior to CAS implementation) is not significant at all at $p < 0.05$. The R^2 values does not change much, merely 0.001 (0.128-0.127). Thus, the hypothesis is rejected. Computer Department Staffs' Competence does not provide a significant positive relationship to the Successful Implementation of CAS in the public sector when the Existing System Documentation (prior to CAS implementation) is Sufficient.

xxxv. ***Computer Departments' Adequate In Strength and The Success of CAS Implementation When The Existing System Documentation (Prior To CAS Implementation) Is Sufficient.***

No significant relationship is detected at 1 % significance level. However, the interaction term that represents the moderating effect of Sufficient Existing System Documentation (prior to CAS implementation), is not significant at all at $p < 0.05$. The R^2 values does not change much, merely 0.008 (0.141-0.133). Thus, the hypothesis is rejected. Computer Departments' Adequate in Strength does not provide a significant positive relationship to the Success of CAS Implementation when the Existing System Documentation (prior to CAS implementation) is Sufficient.

xxxvi. **Narrowing Down Users-Designers Communication Gap On The Success of CAS Implementation When The Existing System Documentation (Prior To CAS Implementation) Is Sufficient.**

A very significant relationship is detected at 1 % significance level. However, the interaction term that represents the moderating effect of Sufficient Existing System Documentation (prior to CAS implementation), is not significant at all at $p < 0.05$. The R^2 values does not change much, merely 0.00 (0.301-0.301). Thus, the hypothesis is rejected. Narrowing Down Users-Designers Communication Gap does not provide a significant positive relationship to the Successof CAS Implementation when the Existing System Documentation (prior to CAS implementation) is Sufficient.

xxxvii. **Sufficient Documentation For Computer Staffs And Users On The Success of CAS Implementation When The Existing System Documentation (Prior To CAS Implementation) Is Sufficient.**

A very significant relationship is detected at 1 % significance level. However, the interaction term that represents the moderating effect of Sufficient Existing System Documentation (prior to CAS implementation), is not significant at all at $p < 0.05$. The R^2 values does not change much, merely 0.003 (0.148-0.145). Thus, the hypothesis is rejected. Sufficient Documentation For Computer Staffs and Users does not provide a significant positive relationship to the Success of CAS Implementation when the Existing System Documentation (prior to CAS implementation) is Sufficient.

xxviii. **Users' Education And Training and The Success of CAS Implementation When The Existing System Documentation (Prior To CAS Implementation) Is Sufficient.**

A very significant relationship is detected at 1 % significance level. However, the interaction term that represents the moderating effect of Sufficient Existing System Documentation (prior to CAS implementation), is not significant at all at $p < 0.05$. The R^2 values does not change much, merely 0.006 (0.166-0.160). Thus, the hypothesis is rejected. Users' Education and Training does not provide a significant positive relationship to the Success of CAS Implementation when the Existing System Documentation (prior to CAS implementation) is Sufficient.

xxxix. ***Users' Roles, Management Role And Developers' Roles and The Succes of CAS Implementation.***

Multiple Regression using enter method was performed to determine the interaction between users' roles, management role and developers' roles on the success of CAS implementation. Table 4.48 summarizes the result of this multiple regression analyses.

Table 4.48: Multiple Regression Analyses Using Enter Method With Independent Variables

	Independent Variables	Beta Coef.	Std Error Beta	T	Sig. T
1	Users' Involvement and Participation (UIP)	0.126	0.071	1.770	0.079
2	Users' Commitment and Priority (UCP)	0.076	0.053	1.432	0.155
3	Management Support (MS)	0.200	0.061	3.251	0.002
4	Computer Department Staffs' Competence and Experience with Technology (CDC)	-0.053	0.042	-1.245	0.216
5	Computer Departments' Adequate in Strength (CDS)	0.070	0.045	1.561	0.121
6	Narrowing Down Users-Designers Communication Gap (NUDCG)	0.278	0.079	3.522	0.001
7	Sufficient Documentation For Computer Staffs and Users (SD)	0.056	0.060	0.932	0.353
8	Users' Education and Training (UET)	0.021	0.079	0.261	0.795

Sig. F : 0.000; R^2 : 0.579

very significant relationship is detected at 1 % significance level The R^2, is 0.579. wo independent variables; Management Support ($t = 3.252$; $p < 0.05$) and arrowing Down Users-Designers Communication Gap ($t = 3.522$; $p < 0.05$) have ontribute significantly to the Success of CAS Implementation in the public sector. he other independent variables; users' involvement and participation, users' ommitment and priority, computer department staffs' competence and experience ith the type of technology used for the CAS development, computer departments' dequate in strength, sufficient documentation for computer staffs and users, and sers' education and training were found to have no significant relationship with the uccess of CAS implementation at $p < 0.05$. There is no auto correlation as depicted y the Durbin-Watson Test statistic of 1.91, which is within the acceptable range of .5 to 2.5. There is no problem of multicollenearity since the VIF (Variance Inflation actor) for each of the independent variables does not exceed 10. Hence, it is oncluded that Hypothesis 13 can be supported, i.e. there is significant positive elationship (since Beta Coef. for the two independent variables; Management Support and Narrowing Down Users-Designers Communication Gap are positive) on the success of CAS implementation.

The relationship can be represented by the following linear equation :-

Success of CAS Implementation = + 0.964 (Constant) + 0.200 (Management Support) + 0.278 (Narrowing Down Users-Designers Communication Gap)

d. **Interaction Effect Between Users' Roles, Management Role And Developers' Roles and The Success of CAS Implementation When The Projects Size are Larger.**

Multiple Regression using enter method was performed to determine the interaction between users' roles, management role and developers' roles on the success of CAS implementation when the projects size is larger. Table 4.49 summarizes the result of this multiple regression analyses.

Table 4.49 : Multiple Regression Analyses Using Enter Method With Independent Variables And Moderating Variables

Independent Variables/ Moderating Variables		With Moderating Effect				Without Moderating Effect			
		Beta Coef.	Std Error Beta	T	Sig. T	Beta Coef.	Std Error Beta	T	Sig. T
1	Users' Involvement and Participation (UIP)	-0.012	0.146	-0.080	0.937	0.120	0.123	0.971	0.335
2	Users' Commitment and Priority (UCP)	0.128	0.113	1.131	0.262	0.085	0.096	0.886	0.379
3	Management Support (MS)	0.262	0.124	2.115	0.039	0.234	0.088	2.656	0.010
4	Computer Department Staffs' Competence and Experience with Technology (CDC)	-0.048	0.079	-0.616	0.540	-0.050	0.069	-0.713	0.479
5	Computer Departments' Adequate in Strength (CDS)	0.078	0.093	0.842	0.403	0.061	-0.074	0.901	0.371
6	Narrowing Down Users-Designers Communication Gap (NUDCG)	0.088	0.163	0.539	0.592	0.184	-0.060	1.507	0.136
7	Sufficient Documentation For Computer Staff and Users (SD)	0.090	0.127	0.712	0.479	0.029	-0.177	0.284	0.777
8	Users' Education and Training (UET)	0.120	0.153	0.787	0.435	0.071	-0.174	0.575	0.567
9	Large Projects Size (LP)	-1.125×10^{-8}	4.089×10^{-7}	-0.028	0.978	-2.360×10^{-9}	-2.204×10^{-8}	-0.239	0.812

	Independent Variables/ Moderating Variables	With Moderating Effect				Without Moderating Effect			
		Beta Coef.	Std Error Beta	T	Sig. T	Beta Coef.	Std Error Beta	T	Sig. T
10	UIP ** LP	1.353 x 10^{-7}	7.494x 10^{-8}	1.806	0.076				
11	UCP ** LP	-1.570 x 10^{-9}	4.505x 10^{-8}	-0.035	0.972				
12	MS ** LP	-5.197 x 10^{-8}	6.695x 10^{-8}	-0.776	0.441				
13	CDC ** LP	-3.980 x 10^{-8}	5.292x 10^{-8}	-0.752	0.455				
14	CDS ** LP	-1.328 x 10^{-8}	6.250x 10^{-8}	-0.212	0.833				
15	NUDCG ** LP	-4.651 x 10^{-8}	6.326x 10^{-8}	0.735	0.465				
16	SD ** LP	-2.073 x 10^{-8}	6.821x 10^{-8}	-0.304	0.762				
17	UET ** LP	-6.343 x 10^{-8}	9.483x 10^{-8}	-0.669	0.506				
		R^2 : 0.511 Sig. F : 0.000				R^2 : 0.459 Sig. F : 0.000			

A very significant relationship is detected at 1 % significance level. However, the interaction term that represents the moderating effect of large Projects size, is not significant at all at $p < 0.05$. The R^2 values does not change much, merely 0.052 (0.511-0.459). Thus, the hypothesis is rejected. Users' Roles, Management Role and Developers' Roles do not provide a significant positive relationship to the Success of CAS Implementation when the Projects Size is large.

xli. There Is An Interaction Effect Between Users' Roles, Management Role And Developers' Roles on The Success of CAS Implementation When The Projects are More Structured.

Multiple Regression using enter method was performed to determine the interaction between users' roles, management role and developers' roles on the success of CAS implementation when the projects are more structured. Table 4.50 summarizes the result of this multiple regression analyses.

Table 4.50: Multiple Regression Analyses Using Enter Method With Independent Variables And Moderating Variables.

Independent Variables/ Moderating Variables		With Moderating Effect				Without Moderating Effect			
		Beta Coef.	Std Error Beta	T	Sig. T	Beta Coef.	Std Error Beta	T	Sig. T
1	Users' Involvement and Participation (UIP)	-0.764	0.978	-0.781	0.437	-0.025	0.093	-0.264	0.792
2	Users' Commitment and Priority (UCP)	-0.244	0.501	-0.486	0.629	0.083	0.066	1.266	0.209
3	Managements Support (MSP)	1.392	0.711	1.958	0.054	0.209	0.067	3.115	0.003
4	Computer Department Staffs' Competence and Experience with Technology (CDC)	0.367	0.465	0.793	0.431	-0.003	0.051	-0.064	0.949
5	Computer Departments' Adequate in Strength (CDS)	-0.345	0.562	-0.631	0.530	-0.057	0.058	-0.987	0.327
6	Narrowing Down Users-Designers Communication Gap (NUDCG)	-0.099	1.273	-0.078	0.938	0.169	0.091	1.873	0.065
7	Sufficient Documentation For Computer Staffs and Users (SD)	0.091	0.673	0.134	0.893	0.058	0.081	0.712	0.479
8	Users' Education and Training (UET)	1.426	1.119	1.274	0.207	0.097	0.113	0.860	0.392
9	More Structure Projects (MS)	1.551	0.846	1.833	0.071	0.219	0.109	2.014	0.048
10	UIP ** MS	0.196	0.255	0.768	0.445				
11	UCP ** MS	0.079	0.132	0.595	0.554				
12	MSP ** MS	-0.307	0.184	-1.670	0.100				
13	CDC ** MS	-0.102	0.123	-0.829	0.410				
14	CDS ** MS	0.074	0.150	0.494	0.623				
15	NUDCG ** MS	0.084	0.335	0.250	0.803				
16	SD ** MS	-0.005	0.169	-0.030	0.976				
17	UET ** MS	-0.351	0.296	-1.185	0.240				
		R^2 : 0.462 Sig. F : 0.000				R^2 : 0.495 Sig. F : 0.000			

A very significant relationship is detected at 1 % significance level. However, the interaction term that represents the moderating effect of More Structured Projects, is not significant at all at $p < 0.05$. The R^2 values does not change much, merely 0.05 (0.545-0.495). Thus, the hypothesis is rejected. Users' Roles, Management Role and

velopers' Roles do not provide a significant positive relationship to the Success of AS Implementation when the Projects are More Structured.

i. There Is An Interaction Effect Between Users' Roles, Management Role and Developers' Roles On The Success of CAS Implementation When The Existing System Documentation (Prior To CAS Implementation) Is Sufficient.

Multiple Regression using enter method was performed to determine the interaction between users' roles, management role and developers' roles on the success of CAS implementation when the existing system documentation (prior to CAS implementation) is sufficient. Table 4.51 summarizes the result of this multiple regression analyses.

Table 4.51: Multiple Regression Analyses Using Enter Method With Independent Variables And Moderating Variables.

Independent Variables/ Moderating Variables		With Moderating Effect				Without Moderating Effect			
		Beta Coef.	Std Error Beta	T	Sig. T	Beta Coef.	Std Error Beta	T	Sig. T
1	Users' Involvement and Participation (UIP)	-0.913	0.905	-1.008	0.318	-0.110	0.107	-1.036	0.304
2	Users' Commitment and Priority (UCP)	1.432	0.822	1.743	0.087	0104	0.086	1.209	0.231
3	Management Support (MSP)	-1.206	1.062	-1.136	0.261	0.219	0.084	2.594	0.012
4	Computer Department Staffs' Competence and Experience with Technology (CDC)	-0.465	0.576	-0.808	0.423	0.059	0.059	0.999	0322
5	Computer Depart-ments' Adequate in Strength (CDS)	0.911	0.615	1.481	0.144	-0.017	0.065	-0.260	0.796

Independent Variables/ Moderating Variables		With Moderating Effect				Without Moderating Effect			
		Beta Coef.	Std Error Beta	T	Sig. T	Beta Coef.	Std Error Beta	T	Sig. T
6	Narrowing Down Users-Designers Communication Gap (NUDCG)	3.102	1.447	2.143	0.037	0.236	0.104	2.261	.0.027
7	Sufficient Documentation For Computer Staffs and Users (SD)	-0.563	0.826	-0.681	0.499	0.010	0.094	0.111	0.912
8	Users' Education and Training (UET)	-1.571	1.261	-1.246	0.218	0.119	0.119	1.002	0.320
9	Sufficient Existing Documentation (SED)	0.334	0.914	0.365	0.716	0.016	0.115	0.141	0.888
10	UIP ** SED	0.196	0.223	0.789	0.445				
11	UCP ** SED	-0.329	0.210	-1.568	0.123				
12	MSP ** SED	0.365	0.274	1.334	0.188				
13	CDC ** SED	0.137	0.147	0.930	0.357				
14	CDS ** SED	-0.243	0.155	-1.572	0.122				
15	NUDCG ** SED	-0.719	0.362	-1.986	0.052				
16	SD ** SED	0.132	0.211	0.626	0.534				
10	UET ** MS	0.427	0.325	1.317	0.193				
		R^2 : 0.536 Sig. F : 0.000				R^2 : 0.462 Sig. F : 0.000			

A very significant relationship is detected at 1 % significance level. However, the interaction term that represents the moderating effect of Sufficient Existing System Documentation (prior to CAS implementation), is not significant at $p < 0.05$. The R^2 values does not change much, merely 0.074 (0.536-0.462). Thus, the hypothesis is rejected. Users' Roles, Management Role and Developers' Roles do not provide a significant positive relationship to the Success of CAS Implementation when the Existing System Documentation (prior to CAS implementation) is Sufficient.

xliii. There Is An **Interaction Effect Between Users' Roles, Management Role And Developers' Roles On** The Success **of CAS Implementation When The Projects' Size is Larger And The Projects are More Structured.**

Multiple Regression using enter method was performed to determine the interaction between users' roles, management role and developers' roles on the success of CAS implementation when the projects size are larger and the projects are more structured. Table 4.52 summarizes the result of this multiple regression analyses.

Table 4.52: Multiple Regression Analyses Using Enter Method With Independent Variables And Moderating Variables.

Independent Variables/ Moderating Variables		With Moderating Effect				Without Moderating Effect			
		Beta Coef.	Std Error Beta	T	Sig. T	Beta Coef.	Std Error Beta	T	Sig. T
1	Users' Involvement and Participation (UIP)	-0.049	2.375	-0.021	0.984	0.188	0.152	1.237	0.223
2	Users' Commitment and Priority (UCP)	0.345	1.542	0.224	0.825	-0.010	0.109	-0.087	0.931
3	Management Support (MSP)	1.820	1.242	1.465	0.154	0.195	0.091	2.145	0.038
4	Computer Department Staffs' Competence and Experience with Technology (CDC)	-0.326	1.212	-0.269	0.790	0.026	0.080	0.320	0.751
5	Computer Departments' Adequate in Strength (CDS)	-1.830	1.489	-1.229	0.229	-0.189	0.092	-2.056	0.046
6	Narrowing Down Users-Designers Communication Gap (NUDCG)	-2.738	2.250	-1.217	0.234	0.053	0.132	0.406	0.687
7	Sufficient Documentation For Computer Staffs and Users (SD)	1.674	2.062	0.812	0.424	0.069	0.122	0.567	0.573
8	Users' Education and Training (UET)	2.756	2.075	1.328	0.195	0.099	0.159	0.620	0.539

	Independent Variables/ Moderating Variables	With Moderating Effect				Without Moderating Effect			
		Beta Coef.	**Std Error Beta**	**T**	**Sig. T**	**Beta Coef.**	**Std Error Beta**	**T**	**Sig. T**
9	Large Projects Size (LP)	-7.973 x 10^{-7}	-5.197x 10^{-7}	-1.534	0.136	-7.818 x 10^{-9}	9.896x 10^{-9}	-0.790	-0.434
10	More Structure Projects (MS)	1.648	1.631	1.010	0.321	0.269	0.167	1.617	0.113
11	UIP ** LPS	2.354 x 10^{-7}	1.246x 10^{-7}	1.889	0.069				
12	UCP ** LP	1.579 x 10^{-8}	5.402x 10^{-8}	0.292	0.772				
13	MSP ** LP	-4.531 x 10^{-9}	7.546x 10^{-8}	-0.060	0.953				
14	CDC ** LP	-1.347 x 10^{-7}	7.186x 10^{-8}	-1.875	0.071				
15	CDS ** LP	1.868 x 10^{-8}	6.881x 10^{-8}	0.272	0.788				
16	NUDCG ** LP	4.483 x 10^{-8}	7.377x 10^{-8}	0.608	0.548				
17	SD ** LP	-3.796 x 10^{-8}	7.655x 10^{-8}	-0.496	0.624				
18	UET ** LP	3.860 x 10^{-8}	1.098x 10^{-7}	0.351	0.728				
19	UIP ** MS	-0.008	0.624	-0.012	0.990				
20	UCP ** MS	-0.081	0.415	-0.195	0.847				
21	MSP ** MS	-0.454	0.320	-1.419	0.167				
22	CDC ** MS	0.112	0.325	0.346	0.732				
23	CDS ** MS	0.468	0.399	1.173	0.251				
24	NUDCG ** MS	0.745	0.590	1.261	0.217				
25	SD ** MS	-0.410	0.552	-0.743	0.464				
26	UET ** MS	-0.748	0.552	-1.356	0.186				
		R^2 : 0.630 Sig. F : 0.060				R^2 : 0.409 Sig. F : 0.005			

No significant relationship is detected at 1 % significance level. However, the interaction term that represents the moderating effects of Large Projects Size and More Structured Projects, are not significant at all at $p < 0.05$. However, the R^2 values does change a lot, 0.221 (0.630-0.409). Thus, the hypothesis is rejected. Users' Roles, Management Role and Developers' Roles do not provide a significant positive relationship to the Success of CAS Implementation when the Projects Size is Large and when the Projects are More Structured.

xliv. **There Is An Interaction Effect Between Users' Roles, Management Role And Developers' Roles On The Success of CAS Implementation When The Projects are More Structured And When The Existing System Documentation (Prior To CAS Implementation) Is Sufficient.**

Multiple Regression using enter method was performed to determine the interaction between users' roles, management role and developers' roles on the success of CAS implementation when the projects are more structured and the existing system documentation (prior to CAS implementation) is sufficient. Table 4.53 summarizes the result of this multiple regression analyses.

Table 4.53: Multiple Regression Analyses Using Enter Method With Independent Variables And Moderating Variables.

Independent Variables/ Moderating Variables		With Moderating Effect				Without Moderating Effect			
		Beta Coef.	Std Error Beta	T	Sig. T	Beta Coef.	Std Error Beta	T	Sig. T
1	Users' Involvement and Participation (UIP)	-1.960	1.550	-1.265	0.215	-0.390	0.128	-3.056	0.004
2	Users' Commitment and Priority (UCP)	2.155	1.207	1.785	0.084	0.268	0.093	2.898	0.006
3	Management Support (MSP)	-3.221	1.788	-1.802	0.081	0.178	0.077	2.296	0.026
4	Computer Department Staffs' Competence and Experience with Technology (CDC)	-0.039	0.779	-0.049	0.961	0.010	0.056	0.175	0.862
5	Computer Departments' Adequate in Strength (CDS)	0.616	0.745	0.827	0.414	-0.080	0.067	-1.194	0.238
6	Narrowing Down Users-Designers Communication Gap (NUDCG)	2.870	2.261	1.269	0.213	0.222	0.096	2.323	0.024
7	Sufficient Documentation For Computer Staffs and Users (SD)	-0.225	1.013	-0.222	0.825	-0.078	0.103	-0.759	0.452

Independent Variables/ Moderating Variables		With Moderating Effect				Without Moderating Effect			
		Beta Coef.	Std Error Beta	T	Sig. T	Beta Coef.	Std Error Beta	T	Sig. T
8	Users' Education and Training (UET)	-0.418	1.691	-0.247	0.806	0.095	0.127	0.749	0.458
9	More Structured Projects (MS)	0.642	2.070	0.310	0.759	0.237	0.125	1.899	0.064
10	Sufficient Existing Documentation (SED)	-0.773	1.595	-0.484	0.631	0.128	0.127	1.009	0.318
11	UIP ** MS	0.788	0.500	1.576	0.125				
12	UCP ** MS	-0.157	0.375	-0.419	0.678				
13	MSP ** MS	-0.223	0.282	-0.790	0.435				
14	CDC ** MS	-0.291	0.231	-1.258	0.217				
15	CDS ** MS	-3.036×10^{-4}	0.230	-0.001	0.999				
16	NUDCG ** MS	0.560	0.442	1.267	0.214				
17	SD ** MS	0.062	0.299	0.206	0.838				
18	UET ** MS	-0.931	0.367	-2.535	0.016				
19	UIP ** SED	-0.394	0.449	-0.876	0.387				
20	UCP ** SED	-0.301	0.363	-0.829	0.413				
21	MSP ** SED	1.064	0.370	2.876	0.007				
22	CDC ** SED	0.303	0.192	1.584	0.123				
23	CDS ** SED	-0.169	0.206	-0.822	0.417				
24	NUDCG ** SED	-1.189	0.417	-2.852	0.007				
25	SD ** SED	-0.034	0.291	-0.117	0.908				
26	UET ** SED	0.999	0.410	2.434	0.021				
		R^2 : 0.744 Sig. F : 0.000				R^2 : 0.542 Sig. F : 0.000			

Significant relationship is detected at 1 % significance level. Four the interaction terms that represents the moderating effects of More Structured Projects and Sufficient Existing Documentation (prior to CAS implementation) are significant at 0.05 level. In addition, the R^2 values change so much, 0.202 (0.744-0.542). There is no auto correlation as depicted by the Durbin-Watson Test statistic of 1.688, which is within the acceptable range of 1.5 to 2.5.

Note :

First equation (without moderating effect)

→ Success Implementation of CAS = f (all independent variables, all moderators)

Second equation (with moderating effect)

→ Success Implementation of CAS = f (all independent variables, all moderators, all interaction terms)

Applying the formula to both equations

:- $F = \{[(R_2^2-R_1^2)/(K_2-K_1)]/[(1-R_2^2)(N-K_2-1)]\}$

Where R_1 = R square of the first equation

R_2 = R square of the second equation

K_1 = Number of all independent variables & moderators in the first equation

K_2 = Number of all independent variables, moderators & interaction terms in the second equation

N = Number of respondents

$R_1 = 0.542$; $R_1^2 = 0.29$

$R_2 = 0.744$; $R_2^2 = 0.55$

$K_1 = 10$

$K_2 = 26$

$N = 138$

Therefore $F = \{[(0.55-0.29)/(26-10)]/[(1-0.55)/(138-26-1)]\} =$ **4.01**

Critical values of the F Distribution for alpha = 0.01, Numerator Degrees of Freedom (K_1) = 10 and Denominator Degrees of Freedom (K_2) = 26 is equal to **3.09**.

Since calculated F is greater than the critical f value ~ significant.

Therefore we accept the second equation (with moderating effect). Thus the 4 interaction terms users' education and training and more structured projects ($t = -2.535$; $p < 0.05$), management support and sufficient existing documentation ($t = -2.876$; $p < 0.05$), narrowing down users-designers communication gap and sufficient existing documentation ($t = -2.852$; $p < 0.05$), and users' education and training and sufficient existing documentation ($t = 2.434$, $p < 0.05$) have a significant interaction effect on the success of CAS implementation, thus, the hypothesis is accepted.

xlv. **There Is Interaction Between Users' Roles, Management Role And Developers' Roles On The Success of CAS Implementation When The Projects Size is Larger, The Projects are More Structured And The Existing System Documentation (Prior To CAS Implementation) Is Sufficient.**

Regression analysis was performed to determine the interaction between users' roles, management role and developers' roles on the success of CAS implementation when the projects size are larger and the projects are more structured and the existing system documentation (prior to CAS implementation) is sufficient. Table 4.54 summarizes the result of this multiple regression analyses.

Table 4.54: Multiple Regression Analyses Using Enter Method With Independent Variables And Moderating Variables.

	Independent Variables/ Moderating Variables	With Moderating Effect				Without Moderating Effect			
		Beta Coef.	Std Error Beta	T	Sig. T	Beta Coef.	Std Error Beta	T	Sig. T
1	Users' Involvement and Participation (UIP)	-6.228	5.334	-1.168	0.277	-0.374	0.250	-1.496	0.146
2	Users' Commitment and Priority (UCP)	4.804	5.202	0.924	0.383	0.232	0.210	1.103	0.280
3	Management Support (MSP)	-6.024	4.414	-1.365	0.210	0.170	0.128	1.333	0.194
4	Computer Department Staffs' Competence and Experience with Technology (CDC)	-2.403	1.497	-1.605	0.147	0.036	0.092	0.392	0.698
5	Computer Departments' Adequate in Strength (CDS)	4.484	2.526	1.775	0.114	-0.148	0.118	-1.257	0.220
6	Narrowing Down Users-Designers Communication Gap (NUDCG)	7.278	4.811	1.513	0.169	0.250	0.180	1.386	0.177
7	Sufficient Documentation For Computer Staffs and Users (SD)	-2.546	2.164	-1.177	0.273	-0.067	0.187	-0.357	0.724
8	Users' Education and Training (UET)	-4.231	4.583	-0.923	0.383	0.017	0.198	0.087	0.931
9	Large Projects Size (LP)	-5.248×10^{-7}	3.367×10^{-7}	-1.559	0.158	4.665×10^{-9}	1.404×10^{-8}	0.332	0.742
10	More Structured Projects (MS)	-2.204	2.824	-0.781	0.458	0.221	0.232	0.949	0.351
11	Sufficient Existing Documentation (SED)	-3.167	4.926	-0.643	0.5382	0.131	0.176	0.748	0.461
12	UIP ** LP	28.889	-	3.317	0.013				
13	UCP ** LP	16.200	-	1.269	0.245				
14	MSP ** LP	1.335×10^{-7}	1.198×10^{-7}	1.115	0.297				
15	CDC ** LP	-1.161×10^{-7}	1.292×10^{-7}	-0.899	0.395				
16	CDS ** LP	-4.949×10^{-8}	5.430×10^{-8}	-0.911	0.389				

Independent Variables/ Moderating Variables		With Moderating Effect				Without Moderating Effect			
		Beta Coef.	Std Error Beta	T	Sig. T	Beta Coef.	Std Error Beta	T	Sig. T
17	NUDCG ** LP	1.681 x 10^{-7}	1.244x 10^{-7}	1.352	0.214				
18	SD ** LP	6.342	-	0.532	0.611				
19	UET ** LP	-0.008	-	0.001	0.999				
20	UIP ** MS	2.272	-	2.633	0.030				
21	UCP ** MS	-1.975	0.731	-2.700	0.027				
22	MSP ** MS	0.597	0.517	1.156	0.281				
23	CDC ** MS	1.046	0.460	2.275	0.053				
24	CDS ** MS	-1.249	0.524	-2.381	0.044				
25	NUDCG ** MS	0.279	0.862	0.323	0.755				
26	SD ** MS	6.791	-	0.459	0.660				
27	UET ** MS	-0.554	0.712	-0.778	0.459				
29	UIP ** SED	-0.807	1.126	-0.716	0.494				
30	UCP ** SED	0.829	1.067	0.777	0.460				
31	MSP ** SED	0.923	0.793	1.164	0.278				
32	CDC ** SED	-0.394	0.345	-1.145	0.286				
33	CDS ** SED	0.035	0.537	0.065	0.950				
34	NUDCG ** SED	-2.066	0.601	-3.437	0.009				
35	SD ** SED	0.706	0.567	1.246	0.248				
36	UET ** SED	1.628	0.915	1.780	0.113				
		R^2 : 0.913 Sig. F :0.065				R^2 : 0.388 Sig. F : 0.170			

No significant relationship is detected at 1 % significance level, thus there is no model. Five interaction terms that represents the moderating effects of Large Projects Size, More Structured Projects and Sufficient Existing Documentation (prior to CAS implementation) are significant at 0.05 level. In addition, the R^2 values change so much, 0.525 (0.913-0.388). There is no auto correlation as depicted by the Durbin-Watson Test statistic of 2.218, which is within the acceptable range of 1.5 to 2.5. Thus, the hypothesis is rejected, i.e. Users' Roles, Management Role and Developers' Roles do not contribute a significant interaction effect on the Success of CAS Implementation in the public sector when the Projects Size are Large and when the Projects are More Structured and the Existing System Documentation (prior to CAS implementation) is Sufficient.

xlvi. **There Is A Interaction Effect Between Users' Roles, Management Role And Developers' Roles On The Success of CAS Implementation.**

Regression analysis was performed to determine the interaction between users' roles, management role and developers' roles on the success of CAS implementation. Table 4.55 summarizes the result of this multiple regression analyses.

Table 4.55: Multiple Regression Analyses Using Enter Method With Independent Variables

	Independent Variables	Beta Coef.	Std Error Beta	T	Sig. T
1	Users' Involvement and Participation (UIP)	0.808	0.699	1.155	0.251
2	Users' Commitment and Priority (UCP)	0.294	0.473	0.622	0.536
3	Management Support (MS)	-0.083	0.560	-0.149	0.882
4	Computer Department Staffs' Competence and Experience with Technology (CDC)	-0.515	0.369	-1.396	0.166
5	Computer Departments' Adequate in Strength (CDS)	0.966	0.388	2.489	0.015
6	Narrowing Down Users-Designers' Communication Gap (NUDCG)	-0.011	0.689	-0.015	0.988
7	Sufficient Documentation For Computer Staffs and Users (SD)	0.418	0.488	0.858	0.393
8	Users' Education and Training (UET)	-0.760	0.657	-1.156	0.251
9	UIP ** UCP	-0.306	-0.098	-3.139	0.002
10	UIP ** MS	0.141	0.141	1.001	0.319
11	UIP ** CDC	0.084	0.121	0.698	0.487
12	UIP ** CDS	0.004	0.098	0.036	0.971
13	UIP ** NUDCG	-0.078	0.154	-0.508	0.613
14	UIP ** SD	0.318	0.153	2.077	0.041
15	UIP ** UET	-0.252	0.176	-1.430	0.156
16	UCP ** MS	0.235	0.117	2.003	0.048
17	UCP ** CDC	-0.108	0.082	1.329	0.187
18	UCP ** CDS	-0.048	0.098	-0.496	0.621
19	UCP ** NUDCG	-0.174	0.143	-1.216	0.227
20	UCP ** SD	-0.087	0.110	-0.793	0.430
21	UCP ** UET	0.197	0.145	1.357	0.178
22	MS ** CDC	-0.014	0.086	-0.166	0.868
23	MS ** CDS	-.0.026	0.056	-0.457	0.649
24	MS ** NUDCG	-0.084	0.143	-0.585	0.560
25	MS ** SD	-0.326	0.164	-1.988	0.050
26	MS ** UET	0.094	0.133	0.712	0.478
28	CDC ** CDS	-0.022	0.056	-0.393	0.695
29	CDC ** NUDCG	-7.415×10^{-5}	0.120	-0.001	0.999
30	CDC ** SD	-0.134	0.086	-1.559	0.122
31	CDC ** UET	0.092	0.125	0.740	0.461
32	CDS ** NUDCG	-0.227	0.123	-1.849	0.068
33	CDS ** SD	0.078	0.088	0.893	0.374
33	CDS ** UET	0.008	0.117	0.071	0.944
34	NUDCG ** SD	0.330	0.148	2.235	0.028
35	NUDCG ** UET	0.327	0.112	2.920	0.004
36	SD ** UET	-0.295	0.128	-2.304	0.023

Sig. F : 0.000; R^2 : 0.738

A very significant relationship is detected at 1 % significance level The R^2, is 0.738. One independent variables; Computer Departments' Adequate in Strength ($t = 2.489$; $p < 0.05$) and seven interaction terms; Users' Involvement and Participation and Users' Commitment and Priority ($t = -3.139$; $p < 0.05$), Users' Involvement and Participation and Adequate System Documentation for Computer Staffs and Users ($t= 2.077$; $p < 0.05$), Users' Commitment and Priority and Management Support ($t = 2.003$; $p < 0.05$), Management Support and Adequate System Documentation for Computer Staffs and Users ($t=-1.988$; $p < 0.05$), Narrowing Down Users-Designers Communication Gap and Adequate Documentation for Computer Staffs And Users ($t=2.235$; $p < 0.05$), Narrowing Down Users-Designers Communication Gap and Users' Education and Training ($t = 2.920$; $p < 0.05$), And Adequate System Documentation for Computer Staffs and Users and Users' Education and Training ($t=-2.304$; $p <0.05$) have a significant interaction effect on the success of CAS implementation. The other variables was found to have no significant interaction effect on the success of CAS implementation at $p < 0.05$. There is no auto correlation as depicted by the Durbin-Watson Test statistic of 2.109, which is within the acceptable range of 1.5 to 2.5. Hence, it is concluded that Hypothesis 20 can be supported, i.e. there is an interaction effect between Users' Involvement and Participation with Users' Commitment and Priority, Users' Involvement and Participation with Adequate System Documentation for Computer Staffs and Users, Users' Commitment and Priority with Management Support, Management Support with Adequate System Documentation for Computer Staffs and Users, Narrowing Down Users-Designers Communication Gap with Adequate Documentation for Computer Staffs And Users, Narrowing Down Users-Designers Communication Gap with Users' Education and Training, And Adequate System Documentation for

Computer Staffs with Users and Users' Education and Training on the success of CAS implementation.

4.6 Summary of Findings

The results of regression analyses partially support the hypotheses formulated in Chapter 3.

(a) There Is A Significant Positive Relationship Between Users' Roles, Management Role And Developers' Roles On The Success of CAS Implementation (H13) is supported for a regression significant at 0.01 level and for $p < 0.05$.

From the study, Management Support and Narrowing Down Users-Designers Communication Gap have contribute significantly to the Success of CAS Implementation in the public sector.

(b) There Is An Interaction Effect Between Users' Roles, Management Role And Developers' Roles On The Success of CAS Implementation When The Projects Are More Structured And When The Existing System Documentation (Prior To CAS Implementation) Is Sufficient)(H18) is supported for a regression significant at 0.01 level and for $p < 0.05$.

Findings indicate that there are interactions between the following independent variables and moderating variables :-

- **Management Support with Sufficient Existing System Documentation (prior to the CAS implementation).**

  As depicted in Figure 4.1, the implementation success of CAS in the public sector is positively correlated to the level of management support. Furthermore, the higher the level of sufficient existing system documentation (prior to the CAS implementation), the higher the level of CAS implementation success. However,

the success of CAS implementation increases much slower if the existing system documentation is highly sufficient. Thus, both the independent variable, i.e. management support and the moderating variable, i.e. sufficient existing system documentation jointly influence the dependent variable, the success of CAS implementation in the public sector and the impact of these two variables on the dependent variable are dependent. That is to say, management support and sufficient existing system documentation have a significant interaction effect on the success of CAS implementation.

- **Narrowing Down Users-Designers Communication Gap with Sufficient Existing System Documentation (prior to the CAS implementation.**

As depicted in Figure 4.2, the success of CAS implementation in the public sector is positively correlated to the level of narrowing down users-designers communication gap. Furthermore, the higher the level of sufficient existing system documentation (prior to the CAS implementation), the higher the level of the success of CAS implementation. However, the success of CAS implementation increases much slower if the existing system documentation is highly sufficient. Thus, both the independent variable, i.e. narrowing down users-designers communication gap and the moderating variable, i.e. sufficient existing system documentation jointly influence the dependent variable, the success of CAS implementation in the public sector and the impact of these two variables on the dependent variable are dependent. Narrowing down users-designers communication gap and sufficient existing system documentation have a significant interaction effect on the success of CAS implementation.

- **Users' Education and Training with Sufficient Existing System Documentation (prior to the CAS implementation).**

  As depicted in Figure 4.3, the success of CAS implementation in the public sector is positively correlated to the level of users' education and training. Furthermore, the higher the level of sufficient existing system documentation (prior to the CAS implementation), the higher the level of the success of CAS implementation. However, the success of CAS implementation increases much slower if the existing system documentation is highly sufficient. Thus, both the independent variable, i.e. users' education and training and the moderating variable, i.e. sufficient existing system documentation jointly influence the dependent variable, the success of CAS implementation in the public sector and the impact of these two variables on the dependent variable are dependent. Users' education and training and sufficient existing system documentation are said to have a significant interaction effect on the success of CAS implementation.

- **Users' Education and Training with More Structured Projects.**

  As depicted in Figure 4.4, the success of CAS implementation in the public sector is positively correlated to the level of users' education and training. Furthermore, the higher the level of more structured projects, the higher the level of CAS implementation success. However, the success of CAS implementation increases much slower if the projects were more structured. Thus, both the independent variable, i.e. users' education and training and the moderating variable, i.e. more structured project jointly influence the dependent variable, the success of CAS implementation in the public sector and the impact of these two variables on the dependent variable are dependent. Users' education and more structured project have a significant interaction effect on the success of CAS implementation.

Figure 4.1 : Moderating Effect Of Sufficient Existing System Documentation Upon Management Support

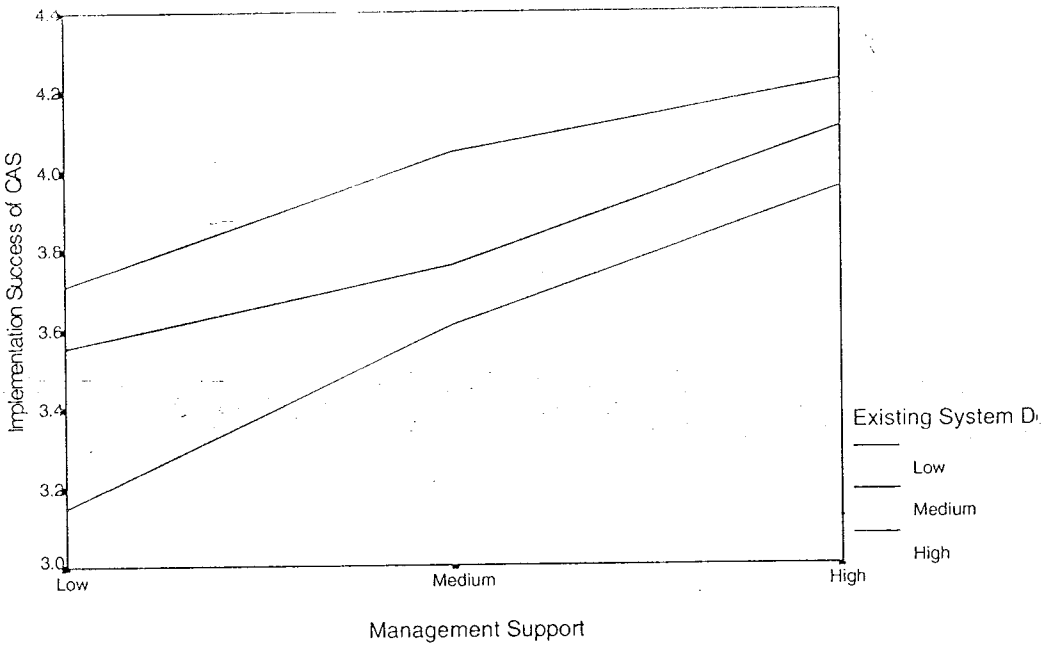


Figure 4.2: Moderating Effect Of Sufficient Existing System Doc. Upon Narrowing Down Users-Designers Communication Gap

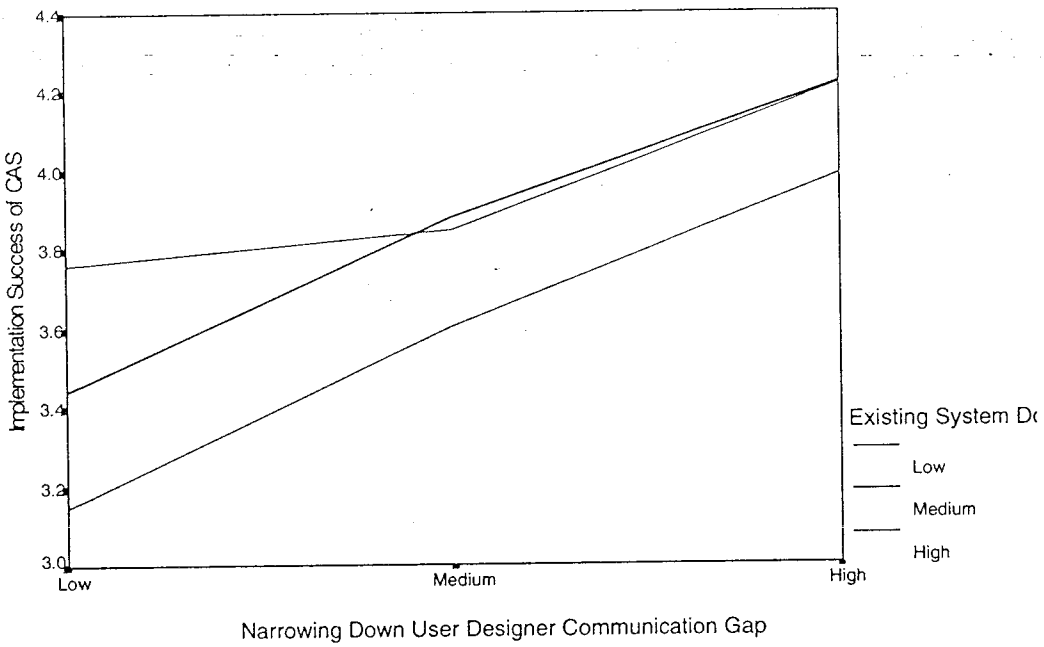


Figure 4.3 : Moderating Effect Of Sufficient Existing System Documentation Upon Users' Education And Training

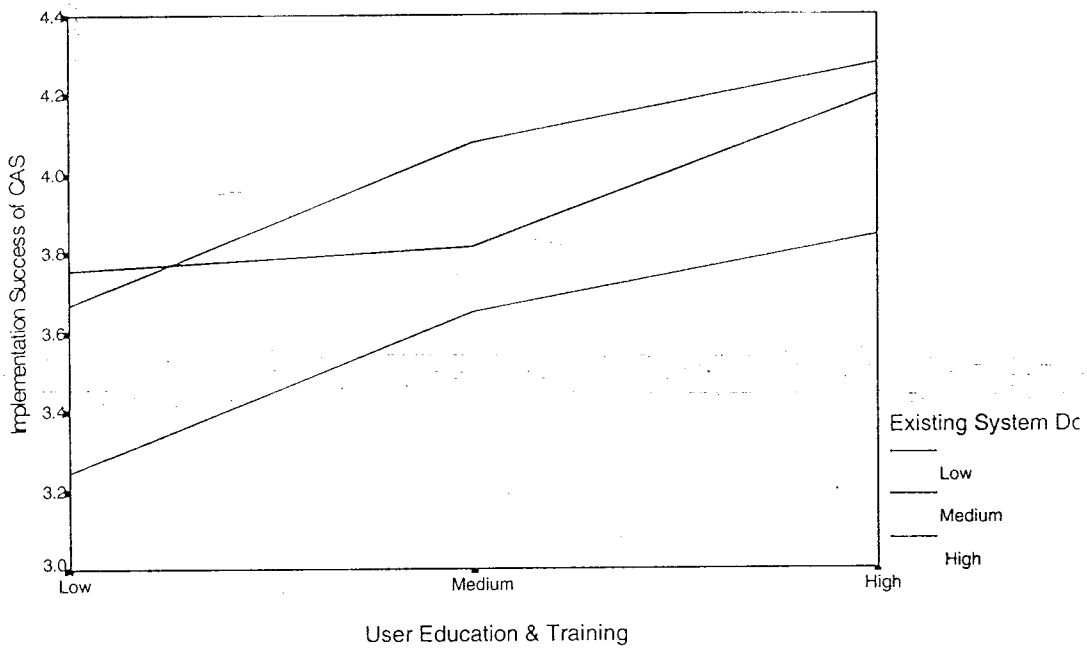
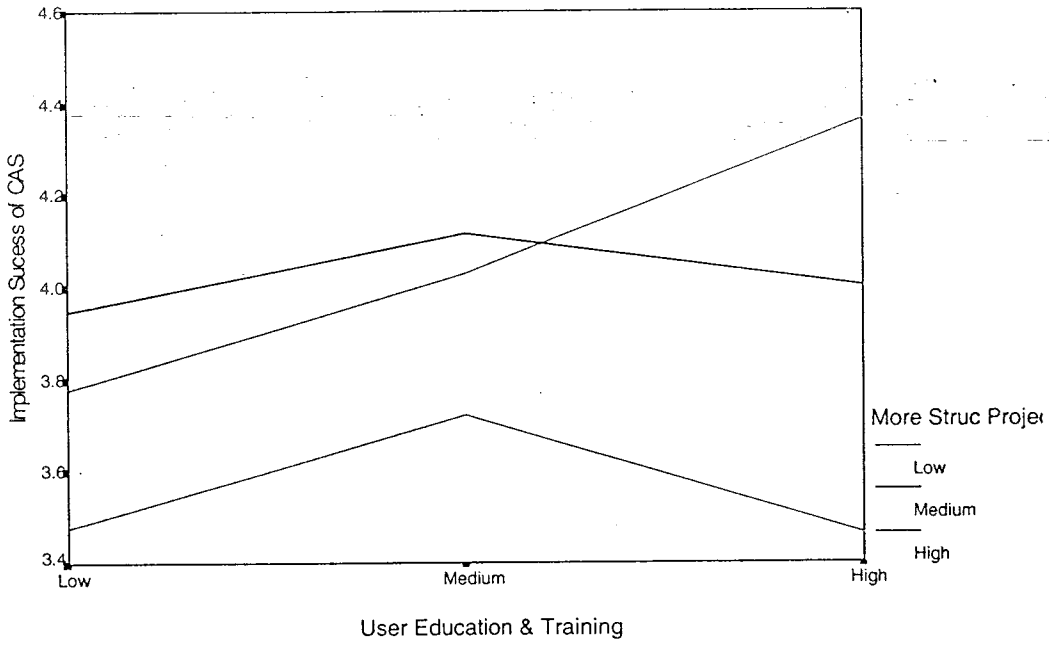


Figure 4.4 : Moderating Effect Of More Structured Projects Upon Users' Education And Training



(c) There Is An Interaction Effect Between Users' Roles, Management Role And Developers' Roles On The Success of CAS Implementation In The Public Sector(H20) is supported for a regression significant at 0.01 level and for $p < 0.05$. From the study, it is found that the following terms have a significant interaction terms on the success implementation of CAS :-

- Users' Involvement and Participation and Users' Commitment and Priority
- Users' Involvement and Participation and Adequate System Documentation for Computer Staffs and Users
- Users' Commitment and Priority and Management Support
- Management Support and Adequate System Documentation for Computer Staffs and Users
- Narrowing Down Users-Designers Communication Gap and Adequate Documentation for Computer Staffs And Users
- Narrowing Down Users-Designers Communication Gap and Users' Education and Training
- Adequate System Documentation for Computer Staffs and Users and Users' Education and Training.

Chapter 5

DISCUSSION AND CONCLUSION

5.0 Introduction

This chapter discusses and concludes the findings of the study. This chapter also evaluate all the independent and the moderating variables which support the hypotheses mentioned in Chapter 3 and the original theoretical framework is revised. Both the theoretical and practical contributions of the study and the limitations and future directions of the study are also been discussed here.

5.1 Discussion

The objective of the study is to investigate and to confirm whether users, management and developers roles could influence the success of CAS implementation in the public sector The research is meant to provide better understanding of why some CAS implementations in the public sector were successful whereas some of the CAS implementation were a complete failure. Thus, hopefully from the research's findings, government organizations will be able to understand what roles they should play when they are implementing CAS in their respective offices so as to minimize the risk of system failures.

A total of 138 sets of data (response rate of 98 %) were analyzed using the software SPSS For Windows Release 6.0. Table 5.1 shows the specific independent and the moderating variables, which supported hypothesis that there is a significant positive relationship between management support and narrowing down users-designers communication gap (H13). Meanwhile, the research has found that the 4 interaction

terms users' education and training and more structured projects, management support and sufficient existing documentation, narrowing down users-designers communication gap and sufficient existing documentation, and users' education and training and sufficient existing documentation have a significant interaction effect on the success of CAS implementation (H18). The study also found that one independent variables i.e. computer departments' adequate in strength and seven interaction terms users' involvement and participation and users' commitment and priority, users' involvement and participation and adequate system documentation for computer staffs and users, users' commitment and priority and management support, management support and adequate system documentation for computer staffs and users, narrowing down users-designers communication gap and adequate documentation for computer staffs and users, narrowing down users-designers communication gap and users' education and training, and adequate system documentation for computer staffs and users and users' education and training have a significant interaction effect on the success of CAS implementation in the public sector (H20).

In other words, independent variables; users' involvement and participation, users' commitment and priority, management support, computer departments' adequate in strength, narrowing down users-designers communication gap, and sufficient documentation for computer staffs and users and the moderating variables; projects structure and sufficient existing documentation prior to CAS implementation supported these hypotheses. Whereas, the independent variable; computer department staffs' competence and experience with the technology used for the CAS

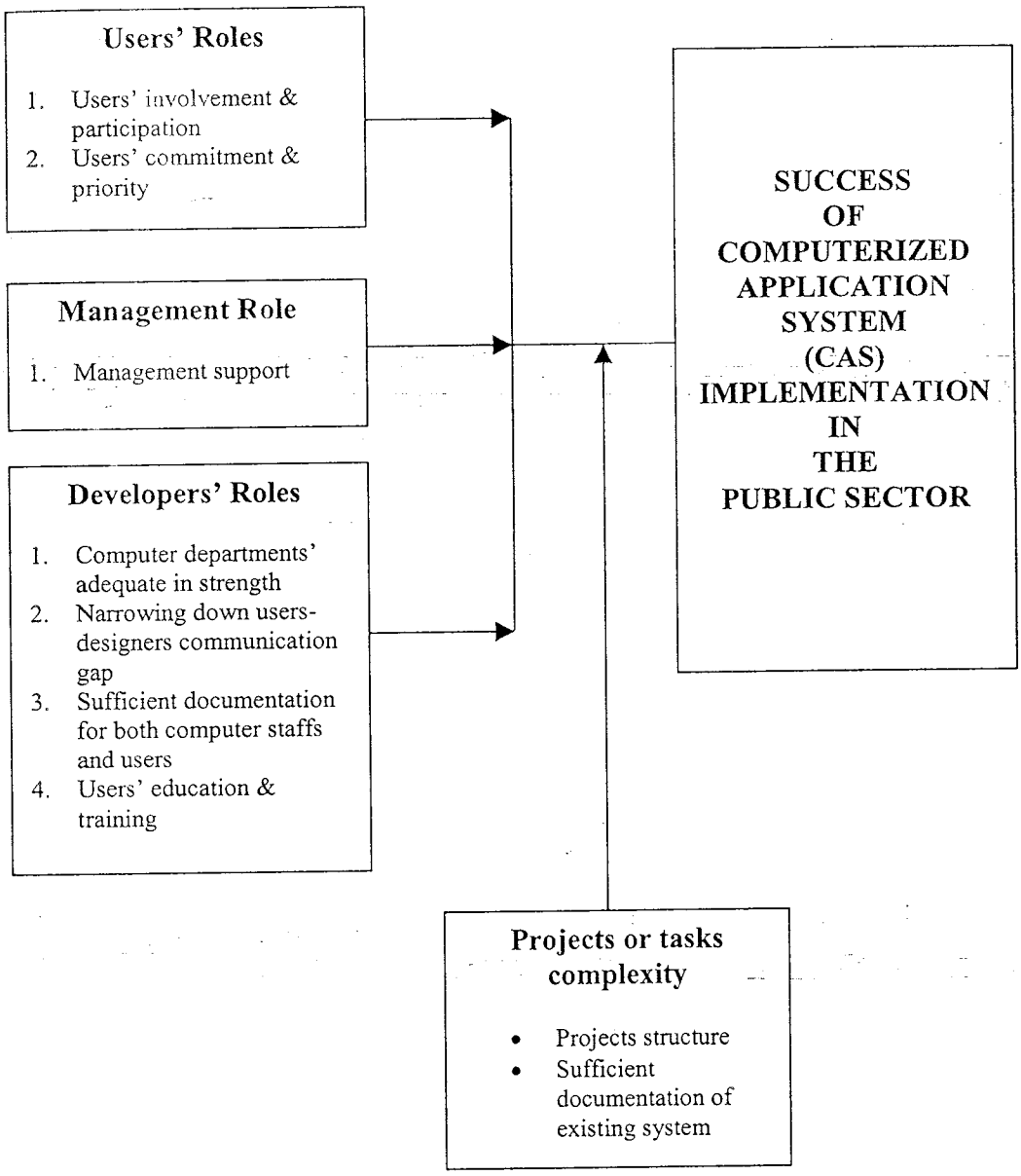
implementation and the moderating variable; projects size did not support these hypotheses.

Table 5.1: Independent Variables And Moderating Variables To Be Included In The Revised Version Of The Theoretical Framework

	Independent Variables/ Moderating Variables	Hypotheses Supported			Variables To Be Included In the Revised Version of the Theoretical Framework
		H13	H18	H20	
1	USERS' ROLES				
	• Users' Involvement and Participation			x	x
	• Users' Commitment and Priority			x	x
2	MANAGEMENT ROLE				
	• Management Support	x	x	x	x
3	DEVELOPERS' ROLES				
	• Computer Department Staffs' Competence and Experience with Technology				
	• Computer Departments' Adequate in Strength			x	x
	• Narrowing Down Users-Designers Communication Gap	x	x	x	x
	• Sufficient Documentation for Computer Staffs and Users			x	x
	• Users' Education and Training		x	x	x
4	MODERATING VARIABLES				
	• Projects Size				
	• Projects Structure		x		x
	• Sufficient Existing Documentation		x		x

Thus, the original theoretical framework in Figure 3.1, is modified slightly by excluding the independent variable; computer department staffs' competence and experience with technology and the moderating variable; project size. Figure 6 shows the revised theoretical framework after the study has been made.

Figure 5.1 : The Revised Theoretical Framework Of The Original Framework



5.2 Description Of The Findings

From the study, CAS implementation success was significantly influence by 3 categories of variables, namely;

a) The users' roles

b) The management role

c) The developers' roles

Thus the result agrees with that of Delong (1988).

i. The Users' Roles

This research has identified that users play important roles in ensuring that the application system is successfully implemented. Two variables were identified under the users roles.

(a) Users' involvement and participation

Users' involvement and participation in the design and operation of CAS has a significant influence on the success of CAS implementation suggest a consistency with the findings of Kappelman and McLean (1991), Barki et al., (1989), Tait et al., (1988), and Franz et al., (1984). From the study, it is found that 64.5 % of the CAS reported that users have put sufficient effort to enable the project team develop a realistic expectation of the CAS in their respective organizations. About 68.1 % of the CAS show that users have continuously involve and cooperate during the process of the CAS implementation in their respective organizations. About 63.1 % of the CAS indicate that users have put sufficient effort to activate the implementation of the CAS prototype in their organizations. About 71 % of the CAS show that users have a positive attitudes towards the CAS implementation and 55.8 % indicate that users have involved and participated actively during the CAS design phase. A mean of 3.73

and a standard deviation of 0.70 indicate that users have involved and participated actively during the CAS implementation.

(b) Users' commitment and priority

Users' commitment and giving top priority to the implementation is an important criteria for the success and it has a significant positive relationship to the success of CAS implementation and this agrees with Laudon and Laudon (1998), Newman et al., (1996), and White et al., (1986). The study revealed that 65.2 % of the CAS indicate a high effort users made to key-in data during the master-file set up, about half indicate that user has made high effort to run test data during the CAS testing phase, 58.7 % of the CAS mentioned that users have put sufficient effort to key in data during the parallel run phase and 60.1 % of the CAS show that users have spent sufficient time in helping the project team to provide the requisite information during the analysis stage. The mean value of 3.69 and a standard deviation of 0.84 represents the fact that users are committed and have put high priority towards the CAS implementation.

ii. The Management Role

The research also identified that management role as another important factor that has a significant positive relationship to the successful outcome of the CAS implementation and this finding agrees with Laudon and Laudon (1998), Thong et al., (1996), Garity (1994), Patricia (1993), Doll (1985), Doll (1985), Davis (1985), Ein-Dor and Segev (1978), and Lewin (1951). The research indicate that 65.2 % of the CAS show that their respective top management have put high effort to encourage user departments to use the CAS, 68.1 % show that their top management were highly concerned with the CAS performance, 65.9 % show that their top management have provided sufficient funding and resources for the CAS development and operation,

59.4 % show that their respective top management have taken active roles in deciding the priority of the CAS implementation project and 59.4 % of the CAS show that their top management have highly emphasized in effective management and control for the CAS development and operation in their respective organizations. About 54.4 % of the CAS show that their respective top management were highly concerned with the CAS usage rate. About 46.3 % of the CAS show that their respective top management participated actively in the planning process of the CAS development and operation in their organizations. About 26 % of the CAS show that their respective top management have taken sufficient effort to develop reward system to encourage the CAS usage in their organizations. About 46.3 % of the CAS show that their respective top management were highly concerned not to relocate any staff who were involved directly with the CAS development while the CAS were still under development stage. A mean of 3.66 represents the fact that the respondents were in the opinion that their management have provided high support for the CAS implementation with a low standard deviation of 0.78.

iii. The Developers' Roles

Last, this research has also identified that developers of the system too play important role in ensuring that the CAS is successfully implemented and this result show a consistency with the findings of Clement and Vanden Besselaar (1993) and Welsch (1981).

(a) Computer department staffs' competence and experience with technology used for CAS implementation

The result revealed that there was no significant difference whether or not, the computer department staffs' were competence and experience with the technology

used for CAS development and implementation. Thus, the result does not agree with Laudon and Laudon (1998), Patricia (1993), and McFarlan (1981). The study found that 45.6 % of the CAS show that their respective MIS officers have a proper training plan to encourage continuous learning process of their computer department staff to update and improve their skill and knowledge with regards to the CAS development. The mean of 3.38 indicate that slightly above average that such plan for continuous learning process exists in their respective organizations. The standard deviation is 0.89.

(b) Computer departments' adequate in strength

The result of a significant relationship between computer departments' adequate strength in terms of staffs and the success of CAS implementation. Thus, the result is consistence with that of Kraemer and Dedrick (1995), Starkey (1992), Drucker (1985), and Kingston (1971). The result from the study shows that 37 % of the CAS show highly that there were adequate provisions for CAS maintenance in their respective organizations. About 43.5 % show that there were moderate provisions for the CAS maintenance in their respective organizations. The mean value of 3.16 represents that slightly above moderate that the organizations provide provisions for the CAS maintenance with a standard deviation of 0.95.

(c) Narrowing down the users-designers communication gap

The study indicate that there is a significant relationship between narrowing down the users-designers communication gap and success of CAS implementation, thus the result is consistence with the findings of that from Laudon and Laudon (1998), Patricia (1993) and Robey (1983). The research shows that 65.9 % of the CAS show that their developers have made sufficient effort to ensure that there was effective

communication between users and developers in their respective organizations. About 70.3 % of the CAS show that their developers were highly concerned with whether the CAS could deliver the information needed by their respective users to perform their work. About 74.7 % of the CAS show that their respective developers were highly concerned with how quickly user could access the data. About 74.6 % of the CAS show that their respective developers were highly concerned with how easily could user retrieved data. About 52.2 % of the CAS show that their respective developers were highly concerned with how many clerical support would users needed to enter data into the system. About 63.1 % of the CAS show that their respective developers were highly concerned with how would the operation of the CAS fitted into users' daily business schedule. The mean value of 3.82 represents the fact that CAS developers were highly concerned with the narrowing down user-designer communication gap with a low standard deviation of 0.63.

(d) Sufficient documentation for IT Staffs and Users

The result from the study shows that a significant relationship exists between sufficient documentation for IT staffs and users and the success of CAS implementation thus the result also agrees with Mirel (1998), and Mark and Judy (1994). The study explained that 28.2 % of the CAS shows that the overall system documentation for the CAS implementation and operations were adequate. About 28.2 % of the CAS show that the overall program documentation for the CAS implementation and operations were adequate. About 34.7 % of the CAS show that the overall database documentation for the CAS implementation and operations were adequate. About 34.8 % of the CAS show that the overall system administration documentation were adequate. About 28.3 % of the CAS show that the disaster

contingency planning manuals were adequate. About 30.4 % of the CAS show that the users' manuals were complete and adequate. About 29 % of the CAS show that the operators' manuals were complete and adequate. A mean of 3.23 and a standard deviation of 0.70 indicate that adequate documentation for computer staff and users were slightly above moderate.

(e) **Users' education and training**

This study also revealed that a significant influence of users' education and training on the success of CAS implementation which is consistence with that of Cronan et al., (1990), Cronan and Douglas (1990), Bikson et al. (1985), Ein-Dor and Segev (1982), Fuerst and Cheney (1982), Zmud (1979), Lucas (1975), Brooks (1972), and Walker (1968). About 62.3 % of the CAS show that their respective developers had made sufficient effort to activate users' training process. About 65.9 % of the CAS show that their respective developers had made sufficient effort to encourage users' learning process of CAS use. About 71 % of the CAS show that the respective developers had taken sufficient effort to train users on how to enter data, update data and print reports. About 52.9 % of the CAS show that their respective developers had taken sufficient effort to train users on how to deal with errors when operating the system. The mean of users' education and training of 3.67 indicate that there were high users' education and training process for the CAS implementation. The standard deviation is low, 0.63.

5.3 Theoretical Contribution

The revised model (Figure 5.1) dictate the relationship between the independent variables; users' involvement and participation, users' commitment and priority, management support, computer departments' adequate in strength, narrowing down

users-designers communication gap, sufficient documentation for both computer staffs and users, users' education and training, and the independent variable; success of CAS implementation in the public sector. 2 moderating variables; projects structure and sufficient documentation of existing system moderate the relationship between independent and dependent variables. Projects structure and sufficient documentation of existing system prior to the CAS implementation can be used as moderating variables in order to explain the relationship between the independent and dependent variables.

Part of the questionnaire was adopted and modified from studies of Zarina (1998) and Leong (1997) in order to suit the government's environment. Leong's study was referring to the private sector while Zarina (1998) study was referring to the education sector. The dependent variable is CAS implementation success. There are 15 elements to measure success of CAS implementation and all questions related to the dependent variable were measured on a five-point Likert scale. For the dependent variables like users' involvement and participation, users' commitment and priority, management support, computer departments' adequate in strength, narrowing down users-designers communication gap, sufficient documentation for both computer staffs and users, and users' education and training, all questions related to them were also measured on a five-point Likert scale. Moderators like projects structure and sufficient documentation of existing system prior to the CAS implementation, all questions that were related to them were also measured on a five-point Likert scale. The questions in the questionnaire provide a criterion measurement to establish the relationships between the independent and the dependent variables and these relationships were moderated by the moderating variables.

The study has shown that management support and narrowing down users-designers communication gap has a significant positive relationship on the success of CAS implementation in the public sector. Furthermore, the study also reveals that 4 interaction terms users' education and training and more structured projects, management support and sufficient existing documentation, narrowing down users-designers communication gap and sufficient existing documentation, and users' education and training and sufficient existing documentation have a significant interaction effect on the success of CAS implementation.

In addition to that one independent variables i.e. computer departments adequate in strength and seven interaction terms users' involvement and participation and users' commitment and priority, users' involvement and participation and adequate system documentation for computer staffs and users, users' commitment and priority and management support, management support and adequate system documentation for computer staffs and users, narrowing down users-designers communication gap and adequate documentation for computer staffs and users, narrowing down users-designers communication gap and users' education and training, and adequate system documentation for computer staffs and users and users' education and training have a significant interaction effect on the success of CAS implementation in the public sector.

5.4 Practical Contribution

The study shows that the burden of realizing the CAS implementation success does not falls only on the shoulders of the developers. The other 2 parties identified in the study as the management and users, also are as importance as the developers.

From the study, the public sector is experiencing a fairly high success of CAS implementation, judging from the mean value for application system implementation success of 3.71 and with a low standard deviation of 0.56.

For the CAS to be successfully implemented, users must play their roles. From the study, it is found that for users' involvement and participation, a mean of 3.73 and a standard deviation of 0.70 indicate that users' involvement and participation during the CAS implementation in the public sector is in between high and medium scale. Thus, users could still improve their involvement and participation during system implementation. Sufficient effort must be put by users to enable the project team develop a realistic expectation of the CAS. Users are also recommended to continuously involve and cooperate with the development team during the process of the CAS implementation. Users to activate the implementation of the CAS prototype must put sufficient effort. Users are advised to have positive attitudes towards the CAS implementation. Active involvement and participation by users during the CAS design phase are also recommended. For users' commitment and priority, the study found that the mean value for users' commitment and priority is 3.69 and a standard deviation of 0.84 represents the fact that as far as users' commitment and priority is in between high and medium scale. Thus, users could still improve their commitment and priority during the CAS development and implementation. Users are advised to put sufficient effort to key-in data during the master-file set up. Users must are also recommended to provide sufficient effort to run test data during the CAS testing phase. Users should provide sufficient effort to key-in data during the parallel run phase and the requisite information during the analysis stage of the CAS.

Management too must play their roles in order to ensure that the CAS is successfully implemented. For management support, the mean value of 3.66 indicate that as far as management support is concerned, it is between medium and high scale and with a low standard deviation of 0.78. Thus, management too could also improve their support in order to ensure successful CAS implementation in their respective organizations. The top management of government organizations are recommended to provide sufficient effort to encourage users to use the CAS and to be concerned with the CAS performance evaluation. The top management of these organizations are required to provide sufficient funding and resources for the CAS development and operation and to take active roles in deciding the priority of the CAS implementation project. Top management should emphasize effective management control for the CAS development and operation. The top management should also must be concerned with the CAS usage rate. It is also recommended that the top management should participate actively in the planning process of the CAS development and operation and they should also provide sufficient effort to develop reward system to encourage the CAS usage. And, lastly, top management must be concerned not to relocate staff involved directly with the CAS development.

Lastly, the developers of the CAS must also play their active roles to ensure that the CAS is successfully implemented. Since the mean value for adequate provisions for the CAS maintenance is 3.16 which was just about medium, with a standard deviation of 0.95, developers are advised to improve their effort to provide adequate provisions for the CAS maintenance in their respective organizations. Developers could still improve their effort to narrow down user-designer communication gap since the mean value is 3.82 with a standard deviation of 0.63. Developers should provide sufficient

effort to ensure that effective communication between users and them and they should be concerned with whether or not the CAS could deliver the information needed by users. Developers are advised to be concerned with how quickly users could access the data required and how easily users could retrieve the data. Developers should also be concerned with how many clerical support will users needed to enter data into the system and how will the operations of the CAS fit into users daily business schedule. Developers are also advised to ensure that all the necessary manuals and documentation is sufficient, complete and is user friendly. Developers should also put sufficient effort to activate training process and to encourage users learning process of the CAS usage and to provide sufficient effort to train users on how to key-in data, update data, print reports and how users should deal with situations when they accouter with system errors.

Government organizations should pay special attention to the better understanding of the respective roles that influence the outcome of the CAS implementation. That is to say, all the 3 parties; users, management and developers must carry out their roles and responsibilities in order to accomplish one common goal of ensuring that the investment on CAS development and implementation is a fruitful one.

5.5 Limitations and Future Direction

There are some limitations in this study, which could be solved in future, study. The questions to the questionnaire touch on 3 general aspects that is, technical, management and users aspectse. This study request the technical staffs as the respondents to answer all the 3 general aspects of the questionnaire since technical staffs are assume could be users and be part of the management of the organization.

Thus, information provided for the management and users aspects may be a bit biased. However, the study chooses the computer personnels to be the respondents simply because they were computer experts and most of the questions in the questionnaire were of technical related issues at which a layman might find the questionnaire a bit difficult to answer.

The unit of analysis in the study was the computer application system (CAS) project in the government organizations. The respondents were asked to choose arbitrarily one typical computerized application system and answer the questionnaire with respect to the selected application system. However, generalization of CAS in this research could be a bit misleading as each type of CAS required different levels of users', management and developers' roles. For example, a homepage application and GIS application are two different types of CAS, obviously each requires different levels of users', management and developers' roles in order to be successfully implemented. Thus, future study should select only one type of CAS and respondents will be required to answer the questionnaire with respect to only one type of CAS only.

Last, although the findings of the study are valid for the population surveyed; that is the public sector, generalization to other kinds of organizations is not advisable.

5.6 Conclusion

Howard (1995) mentioned that implementing information system was so complex that people must work together to get substantive work done.

Users' involvement and participation, users' commitment and priority, management support, computer departments' adequate in strength, narrowing down users-designers communication gap, sufficient documentation for both computer staffs and users, users' education and training, all have a significant impact on the success of CAS implementation in the public sector. While projects structure and sufficient documentation of existing system prior to the CAS implementation have a moderating effect on the relationship between users' involvement and participation, users' commitment and priority, management support, computer departments' adequate in strength, narrowing down users-designers communication gap, sufficient documentation for both computer staffs and users, users' education and training and the success of CAS implementation in the public sector.

Thus, when implementing any CAS in a government organization, it is crucial for users, management and developers to understand each other's roles and responsibilities and to carry out their duties and obligations. This is to ensure that all government CAS projects will be successfully implemented to benefit all.

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APPENDICES

QUESTIONNAIRE
Kajiselidek

A. ABOUT YOUR ORGANIZATION (Berkenaan dengan organisasi anda)

(This section relates to the background of your organization. Please circle or fill in your best response).

(Bahagian ini adalah berkenaan dengan latarbelakang organisasi anda. Sila bulatkan atau isikan pilihan jawapan anda).

1. Which category does your organization falls into ?
   (Kategori organisasi anda ialah)
   - A. Ministry *(Kementerian)*
   - B. Federal Government Department *(Jabatan Kerajaan Persekutuan)*
   - C. State Government Department *(Jabatan Kerajaan Negeri)*
   - D. Federal Statutory Body *(Badan Berkanun Persekutuan)*
   - E. State Statutory Body *(Badan Berkanun Negeri)*
   - F. City Council/Local Authority *(Dewan Bandar Raya/Pihak Berkuasa Tempatan)*
   - G. Government Owned Corporation *(Syarikat Kepunyaan Kerajaan)*
   - H. Others, please specify : _____
     (Lain-lain, sila nyatakan:)

B. ABOUT YOURSELF (Berkenaan dengan diri anda)

(This section relates to the background of yourself in the organization. Please circle or fill in your best response).

(Bahagian ini adalah berkenaan dengan diri anda di dalam organisasi. Sila bulatkan atau isikan pilihan jawapan anda)

1. What is your current job status ?
   (Apakah status jawatan anda ?)
   - *A.* Computer Manager/Head *(Pengurus/Ketua Pusat/Jabatan/Bahagian/Unit Komputer)*
   - *B.* MIS Officer/System Analyst *(Pengawai Sistem Maklumat/Juruanalisa Sistem)*
   - *C.* Assistant MIS Officer/Programmer *(Penolong Pegawai Sistem Maklumat/Pengatur Rancangan Komputer)*
   - *D.* Data Entry Operator *(Operator Mesin Pemprosesan Data)*
   - E. Others, please specify : _____
     (Lain-lain, sila nyatakan :)

C. ABOUT THE COMPUTERIZED APPLICATION SYSTEM (CAS)
(Berkenaan dengan Sistem Aplikasi yang anda pilih)

(This section relates to the background of your selected CAS in your organization which you were directly involved during both its development and implementation stages. Please circle or fill in your best response).

(Bahagian ini adalah berkenaan dengan latar belakang satu sistem aplikasi yang anda pilih di dalam organisasi anda di mana anda telah terlibat secara langsung semasa ianya di peringkat pembangunan dan implementasi. Sila bulatkan atau isikan pilihan jawapan anda).

1. Please tick (one only) one major computerized application system project that was implemented in your organization which you were involved directly during both its development and its implementation stages.
(Sila tandakan (satu sahaja) satu projek sistem aplikasi yang penting yang telah dibangunkan di dalam organisasi anda yang mana anda telah terlibat secara langsung semasa ianya di peringkat pembangunan dan di peringkat implementasi).

☐	Accounting/Finance System *(Sistem Perakaunan/Kewangan)*
☐	Billing/Receipting System *(Sistem Bill/Kutipan Hasil)*
☐	Inventory/Stock Management System *(Sistem Pengurusan Stok/Inventori)*
☐	Fixed Assets System (Sistem Aset Tetap)
☐	Geographical Information System *(Sistem Maklumat Geografi/Pemetaan)*
☐	Payroll System *(Sistem Gaji)*
☐	Human Resource Management System*(Sistem Pengurusan Sumber Manusia)*
☐	Homepage *(Laman Web)*
☐	Housing Application System *(Sistem Permohonan Perumahan)*
☐	Others, Please Specify (Lain-lain, sila nyatakan) _____

2. What was the purpose of this computerized application system project ?
(Apakah tujuan projek sistem aplikasi ini ?)

_____

_____

D. ABOUT THE DEVELOPER
(Berkenaan dengan kakitangan yang membangunkan sistem aplikasi ini)

(This section relates to the background of your selected CAS developer in your organization. Please circle the appropriate selection).

(Bahagian ini adalah berkenaan dengan kakitangan yang membangunkan Sistem Aplikasi Komputer ini bagi organisasi anda. Sila bulatkan pilihan *yang berkenaan).*

1. Who developed the computerized application system ? (please circle only one)
(Siapakah yang membangunkan sistem aplikasi ini ?) (Sila bulatkan satu sahaja)
   A. Internal Computer (EDP) staff
   (Kakitangan komputer dalaman)
   B. External Developer, please specify : _____
   (Kakitangan komputer dari luar organisasi anda, sila nyatakan syarikat tersebut:)
   C. Others, please specify :_____
   (Lain-lain, sila nyatakan:)

E. ABOUT THE USERS
(Berkenaan dengan para pengguna Sistem Aplikasi Komputer ini)

(This section relates to the background of the users of the selected CAS in your organization. You may circle more than one box).

(Bahagian ini adalah berkenaan dengan latar belakang para pengguna Sistem Aplikasi Komputer yang anda pilih di Bahagian C. Anda boleh bulatkan pilihan jawapan anda lebih dari satu).

1. Who are the users of the selected CAS ?
(Siapakah para pengguna sistem aplikasi ini ?)
   A. Administration *(Bahagian Pentadbiran)*

B. Finance/Accounting *(Bahagian Akaun/Kewangan)*
C. EDP *(Bahagian Komputer)*
D. Human Resources *(Bahagian Sumber Manusia)*
E. Training *(Bahagian Latihan)*
F. Technical/Engineering *(Bahagian Kejuruteraan/Teknikal)*
G. Production *(Bahagian Pengeluaran)*
H. Quality *(Bahagian Kualiti)*
I. Others, please specify : _____
(Lain-lain, sila nyatakan:)

F. Application System Implementation Success
(Kejayaan implementasi sistem aplikasi ini)

(The following measure the success of the computerized application system project which you are involved during both its development and implementation stages as identified in Section C. Please circle your best response by using the following scales

1 = Very Low 2 = Low 3 = Medium 4 = High 5 = Very High)

(Berikut adalah pengukur kejayaan projek Sistem Aplikasi Komputer yang telah anda pilih di Bahagian C di mana anda telah terlibat secara lansung di peringkat pembangunan dan implementasi sistem ini. Sila bulatkan pilihan jawapan anda dengan menggunakan skel-*skel berikut.*

1 = Sangat Rendah 2 = Rendah 3 = Sederhana 4 = Tinggi 5 = Sangat Tinggi)

		Very Low *Sangat Rendah*	Low *Rendah*	Medium *Sederhana*	High *Tinggi*	Very High *Sangat Tinggi*
1	My organization depends upon the application system in performing its day-today activities. *(Organisasi saya bergantung kepada sistem aplikasi ini untuk menjalankan aktiviti harian).*	1	2	3	4	5
2	The CAS has increased users job Satisfaction in my organization. *(Sistem Aplikasi ini telah meningkatkan lagi kepuasan kerja para pengguna di dalam organisasi saya).*	1	2	3	4	5
3	The CAS is easy to use by users in my organization. *(Sistem Aplikasi ini adalah mudah digunakan oleh para pengguna di dalam organisasi saya).*	1	2	3	4	5
4	The CAS has enabled the tasks to be carried out easily and efficiently in my organization. *(Sistem Aplikasi ini telah membolehkan tugas-tugas dijalankan dengan mudah dan efisien di dalam organisasi saya).*	1	2	3	4	5
5	The CAS has provided accurate & reliable data to users and top management in my organization. *(Sistem Aplikasi ini telah dapat memberimaklumat yang tepat dan boleh dipercayai kepada para pengguna dan pihak pengurusan atasan di dalam organisasi saya).*	1	2	3	4	5

		Very Low *Sangat Rendah*	Low *Rendah*	Medium *Sederhana*	High *Tinggi*	Very High *Sangat Tinggi*
6	The CAS has contributed to achievement of organizational objectives and meets its specified goals in my organization. *(Sistem Aplikasi ini telah menyumbangkan kepada pencapaian objektif organisasi dan telah maklamat-matlamat yang ditentukan di dalam organisasi saya).*	1	2	3	4	5
7	The CAS can easily be modified (flexibility) to meet new conditions, demands and circumstances in my organization. *(Sistem aplikasi ini mudah diubah bagi memenuhi keperluan semasa di dalam organisasi saya).*	1	2	3	4	5
8	The CAS has provided sufficient information to users and top management in my organization. *(Sistem Aplikasi ini dapat memberi maklumat yang mencukupi kepada para pengguna dan pengurusan atasan di dalam organisasi saya).*	1	2	3	4	5
9	The CAS is widespread use by users in my organization. *(Sistem Aplikasi ini telah digunakan secara meluas oleh para pengguna di dalam organisasi saya).*	1	2	3	4	5
10	The CAS has run well that is free from system breakdown/job abort in my organization . *(Sistem Aplikasi ini dapat berjalan dengan lancar tanpa kerosakan dan gangguan sistem di dalam organisasi saya).*	1	2	3	4	5
11	The CAS needs no manual intervention to complete its tasks in my organization. *(Sistem Aplikasi ini tidak memerlukan campurtangan secara manual untuk menyempurnakan tugas-tugasnya di dalam organisasi anda).*	1	2	3	4	5
12	The CAS enhance better communication between departments in my organization. *(Sistem Aplikasi ini telah dapatmempertingkatkan lagi komunikasi antara bahagian di dalam organisasi saya).*	1	2	3	4	5
13	The CAS provides better control on resources in my organization. *(Sistem Aplikasi ini telah dapat mengawalsumbe - sumber di dalam organisasi saya dengan lebih baik).*	1	2	3	4	5

		Very Low *Sangat Rendah*	Low *Rendah*	Medium *Sederhana*	High *Tinggi*	Very High *Sangat Tinggi*
14	The CAS provides cost saving to my organization in the long run. *(Sistem Aplikasi ini telah dapat menjimatkan dari segi kos kepada organisasi saya dalam jangka panjang).*	1	2	3	4	5
15	The CAS provides shorter time taken in decision making in my organization. *(Sistem Aplikasi ini telah membolehkan keputusan dapat dibuat dengan cepatdi dalam organisasi saya).*	1	2	3	4	5

G. User Involvement & Participation *(Penglibatan para pengguna)*

(This section relates to the user involvement and participation in your organization with the computerized application system project identified in Section C. Please circle your best response by using the following scales.
1 = Very Low 2 = Low 3 = Medium 4 = High 5 = Very High)

(Bahagian ini adalah berkenaan dengan penglibatan para penggunadi dalam organisasi anda terhadap projek Sistem Aplikasi Komputer yang anda pilih di dalam Bahagian C dengan menggunakan skel-skel berikut.
1 = Sangat Rendah 2 = Rendah 3 = Sederhana 4 = Tinggi 5 = Sangat Tinggi)

		Very Low *Sangat Rendah*	Low *Rendah*	Medium *Sederhana*	High *Tinggi*	Very High Sangat Tinggi
1	User has put sufficient effort to enable the project team develop a realistic expectation of the CAS in my organization. *(Para pengguna telah pun berusaha bersungguh-sungguh untuk membolehkan pasukan projek untuk membangunkan harapan yang realistik bagi Sistem Aplikasi ini di dalam organisasi saya).*	1	2	3	4	5
2	User has continuously involve and cooperate during the process of the CAS implementation in my organization. *(Para pengguna telah berkerjasama dan melibatkan diri secara berterusan semasa proses implementasi Sistem Aplikasi ini di dalam organisasi saya).*	1	2	3	4	5
3	User has put sufficient effort to activate the implementation of the CAS prototype in my organization. *(Para pengguna telah pun berusaha dengan bersungguh-sungguh untuk menjayakan implementasi prototaip Sistem Aplikasi ini di dalam organisasi saya).*	1	2	3	4	5

	Very Low *Sangat Rendah*	Low *Rendah*	Medium *Sederhana*	High *Tinggi*	Very High Sangat Tinggi
User has a positive attitudes towards the CAS implementation in my organization. *(Para pengguna mempunyai sikap positif terhadap implementasi Sistem Aplikasi ini di dalam organisasi saya).*	1	2	3	4	5
User has involve and participate actively during the CAS design phase in my organization. *(Para pengguna telah melibatkan diri secara aktif semasa Sistem Aplikasi ini di peringkat rekabentuk di dalam organisasi saya).*	1	2	3	4	5

. User Commitment & Priority *(Kesungguhan dan keutamaan para pengguna)*

'his section relates to the user commitment and priority with the computerized application system project entified in Section C. Please circle your best response by using the following scales.

1 = Very Low 2 = Low 3 = Medium 4 = High 5 = Very High).

Bahagian ini adalah berkenaan dengan kesungguhan dan keutamaan para pengguna terhadap Sistem plikasi Komputer yang anda pilih di Bahagian C. Sila bulatkan jawapan anda dengan menggunakan el-skel berikut

1 = Sangat Rendah 2 = Rendah 3 = Sederhana 4 = Tinggi 5 = Sangat Tinggi)

	Very Low *Sangat Rendah*	Low *Rendah*	Medium *Sederhana*	High *Tinggi*	Very High *Sangat Tinggi*
User has put sufficient effort to key-in data during the master-file set up in my organization. *(Para pengguna telah berusaha dengan bersungguh-sungguh untuk memasukan data semasa fail-fail induk diujudkan di dalam organisasi saya).*	1	2	3	4	5
User has made sufficient effort to run test data during the CAS testing phase in my organization. *(Para pengguna telah berusaha denganbersungguh-sungguh untuk menguji sistem dengan data ujian semasa Sistem Aplikasi ini di dalam peringkat ujian di dalam organisasi saya).*	1	2	3	4	5
User has made sufficient effort to key-in data during the parallel run phase in my organization. *(Para pengguna telah berusaha denganbersungguh-sungguh untuk memasukan data semasa Sistem Aplikasi ini di peringkat larian selari di dalam organisasi saya).*	1	2	3	4	5
User has spend sufficient time in helping the project team to provide the requisite information during the analysis stage in my organization. *(Para pengguna telah meluangkan masa membantu pasukan projek untuk mendapatkan maklumat awal yang mencukupi semasa Sistem Aplikasi ini masih diperingkat analisis di dalam organisasi saya).*	1	2	3	4	5

I. Management Support (Sokongan pengurusan)

(This section relates to management support with of the computerized application system project in your organization identified in Section C. Please circle your best response by using the following scales.
1 = Very Low 2 = Low 3 = Medium 4 = High 5 = Very High)

(Bahagian ini adalah berkenaan dengan sokongan daripada pihak pengurusan organisasi anda terhadap projek Sistem Aplikasi Komputer yang anda pilih di Bahagian C. Sila bulatkan pilihan jawapan anda mengikut skel-skel berikut.
1 = Sangat Rendah 2 = Rendah 3 = Sederhana 4 = Tinggi 5 = Sangat Tinggi)

		Very Low *Sangat Rendah*	Low *Rendah*	Medium *Sederhana*	High *Tinggi*	Very High Sangat Tinggi
1	The top management has made sufficient effort to encourage user department to use the CAS in my organization. *(Pihak pengurusan telah berusaha dengan bersungguh-sungguh untuk menggalakkan para pengguna untuk menggunakan Sistem Aplikasi Komputer ini di dalam organisasi saya).*	1	2	3	4	5
2	The top management is concern with the CAS performance evaluation in my organization. *(Pihak pengurusan mengambil berat tentang penilaian pencapaian Sistem Aplikasi Komputer ini di dalam organisasi saya).*	1	2	3	4	5
3	The top management has provide sufficient funding and resources for the CAS development and operation in my organization. *(Pihak pengurusan telah menyediakan sumber-sumber dan kewangan yang mencukupi untuk pembangunan dan operasi Sistem Aplikasi Komputer ini).*	1	2	3	4	5
4	The top management has taken an active role in deciding the priority of the CAS implementation project in my organization. *(Pihak pengurusan mengambil peranan yang aktif dalam menentukan keutamaan dalam implementasi projek Sistem Aplikasi Komputer ini di dalam organisasi saya).*	1	2	3	4	5
5	The top man management emphasis in effective management and control for the CAS development and operation in my organization. *(Pihak pengurusan telah mengambil berat tentang kawalan dan pengurusan yang berkesan untuk operasi dan pembangunan Sistem Aplikasi Komputer ini di dalam organisasi saya).*	1	2	3	4	5

		Very Low *Sangat Rendah*	Low *Rendah*	Medium *Sederhana*	High *Tinggi*	Very High Sangat Tinggi
6	The top management is concerned with the CAS usage rate in my organization. *(Pihak pengurusan mengambil berat tentang kadar penggunaan Sistem Aplikasi Komputer ini di dalam organisasi saya).*	1	2	3	4	5
7	The top management participation actively in the planning process of the CAS development and operation in my organization. *(Pihak pengurusan telah mengambil bahagian secara aktif di dalam proses operasi dan perancangan Sistem Aplikasi Komputer ini di dalam organisasi saya).*	1	2	3	4	5
8	The top management has taken sufficient effort to develop reward system to encourage the CAS use in my organization. *(Pihak pengurusan telah berusaha dengan secukupnya untuk mengadakan satu sistem insentif bagi menggalakkan penggunaan Sistem Aplikasi Komputer ini di dalam organisasi saya).*	1	2	3	4	5
9	The top management is concern not to relocate/ transfer any staff involved directly with the CAS development while the it is still in the middle of development stage implementation in my organization. *(Pihak pengurusan telah mengambil berat supaya tidak menukarkan mana-mana kakitangan yang terlibat secara langsung dengan pembagunan Sistem Aplikasi ini semasa sistem ini masih di peringkat implementasi di dalam organisasi saya).*	1	2	3	4	5

J. Computer Department Competence & Experience With Technology
(Pengalaman dan kebolehan kakitangan Bahagian Komputer dengan teknologi)

(This section relates to computer department competence and experience with technology associated with the computerized application system project identified in Section C).

(Bahagian ini adalah berkenaan dengan pengalaman dan kebolehan kakitangan Bahagian Komputer organisasi anda dengan teknologi yang digunakan untuk membangunkan Sistem Aplikasi Komputer yang anda pilih di Bahagian C).

1. What is the educational background of the head of the development project team ?
   (Apakah latar belakang kelulusan ketua pasukan projek pembangunan Sistem Aplikasi Komputer ini?)
   A. University level (computer related)
      (Peringkat Universiti (bidang komputer))
   B. University level (non-computer related)
      (Peringkat Universiti (bukan dalam bidang komputer))
   C. High School
      (Sekolah Tinggi)

D. Others, please specify : _____
(Lain-lain, sila nyatakan).

2. Please specify the types of software and hardware used for the CAS development :-
(Sila nyatakan jenis perisian dan perkakasan yang digunakan untuk pembangunan Sistem Aplikasi Komputer ini).

2.1 Programming language : Please tick (one only) in the appropriate box.
(Bahasa Aturcara yang digunakan untuk sistem ini. Sila tandakan (/) satu sahaja pada kotak yang berkenaan).

- ☐ Oracle
- ☐ Informix
- ☐ PowerBuilder
- ☐ System Builder
- ☐ C++
- ☐ Visual Basic
- ☐ Lotus Notes
- ☐ COBOL
- ☐ JAVA
- ☐ WinGis
- ☐ MAPInfo
- ☐ ARCInfo
- ☐ Others, Please specify :_____
  (Lain-lain, sila nyatakan:)

2.2 Operating system :
(Sistem pengoperasian)

- ☐ Unix
- ☐ Windows NT
- ☐ Novel
- ☐ Netware
- ☐ Others, Please specify :_____
  (Lain-lain, sila nyatakan :)

2.3 Database system :_____
(Sistem Pengkalan Data:)

- ☐ Sybase
- ☐ Informix
- ☐ Ingress
- ☐ SQLBase
- ☐ Others, Please specify :_____
  (Lain-lain, sila nyatakan)

2.4 Servers: Please tick (one only) in the appropriate box.
(Jenis server yang digunakan untuk sistem ini. Sila tandakan (/) satu sahaja pada kotak yang berkenaan).

- ☐ IBM
- ☐ Hewlett Packard
- ☐ SUN
- ☐ ACER
- ☐ DELL
- ☐ COMPAQ
- ☐ Packard Bell
- ☐ NEC
- ☐ Others, Please specify :_____
  (Lain-lain, sila nyatakan:)

3. How many years experience does the developer has working with the types of hardware and software mentioned above ?
(Berapa tahun pengalaman kakitangan yang membangunkan Sistem Aplikasi Komputer ini dengan teknologi perkakasan dan perisian yang dinyatakan di atas ?)

_____ years.
(tahun).

4. How many application systems has the developer developed using hardware & software mentioned above ?
(Berapakah jumlah sistem aplikasi komputer yang telah dibangunkan oleh pembangun (developer) sistem ini ?)

_____

(For question 5, please circle your best response by using the following scales.
1 = Very Low 2 = Low 3 = Medium 4 = High 5 = Very High)

(Untuk soalan nombor 5 berikut, sila bulatkan jawapan anda dengan menggunakan skel- skel berikut.
1 = Sangat Rendah 2 = Rendah 3 = Sederhana 4 = Tinggi 5 = Sangat Tinggi)

		Very Low *Sangat Rendah*	Low *Rendah*	Medium *Sederhana*	High *Tinggi*	Very *High Sangat Tinggi*
5	The MIS Officer has a proper training plan to encourage continuous learning process of the computer department staff to update and improve skill and knowledge with regards to CAS development in my organization. *(Pegawai Sistem Maklumat telah mempunyai satu perancangan latihan yang teratur untuk menggalakkan pembelajaran yang berterusan bagi kakitangan Bahagian Komputer bagi mempertingkatkan dan mengemaskini kemahiran dan pengetahuan berkenaan dengan Sistem Aplikasi Komputer yang dibangunkan di dalam organisasi saya).*	1	2	3	4	5

K. Computer Department Adequate In Strength *(Kekuatan Bahagian Komputer)*

(This section relates to computer department adequate in strength to handle with the computerized application system project identified in Section C).

(Bahagian ini adalah berkenaan dengan kekuatan Bahagian Komputer dalam mengendalikan projek Sistem Aplikasi Komputer yang anda pilih di dalam Bahagian C).

1 How many computer staff were involved in the application development project full-time ? : _____ persons

(Berapa bilangan kakitangan Bahagian Komputer yang terlibat dalam pembangunan pembangunan Sistem Aplikasi Komputer ini secara sepenuh masa ?)

For the following group of computer staff , please indicate **how many** are involved in the project team.
(Untuk setiap kumpulan kakitangan Bahagian Komputer, sila nyatakan bilangan mereka yang terlibat dalam pasukan projek ini)

2.1 System Analyst : _____ persons
(Juruanalisa Sistem/Pegawai Sistem Maklumat :)
2.2 Analyst Programmer/Programmer Analyst/Programmer : _____ persons
(Pengatur Rancangan Komputer/Penolong Pegawai Sistem Maklumat)
2.3 Others, please specify : _____
(Lain-lain, sila nyatakan :)

For question 3, please circle your best response by using the following scales
= Very Low 2 = Low 3 = Medium 4 = High 5 = Very High)
Untuk soalan 3 berikutnya, sila bulatkan jawapan anda dengan menggunakan skel-skel berikut.
1 = Sangat Rendah 2 = Rendah 3 = Sederhana 4 = Tinggi 5 = Sangat Tinggi)

		Very Low *Sangat Rendah*	Low *Rendah*	Medium *Sederhana*	High *Tinggi*	Very High *Sangat Tinggi*
3	There is adequate provisions for CAS maintenance in my organization. (For example, sufficient computer department staff are trained to support the system and to make maintenance changes in my organization). *(Terdapat peruntukan yang mencukupi bagi menyelenggarakan Sistem Aplikasi Komputerini. Jumlah kakitangan Bahagian Komputer yang mencukupi telah dilatih untuk memberi sokongan terhadap sistem ini di dalam organisasi saya).*	1	2	3	4	5

L. User-Designer Gap
(Jurang antara pembangun Sistem (developer) dengan para pengguna).

(This section relates to user designer gap with respect to the implementation of the computerized application system project in your organization identified in Section C. Please circle your best response by using the following scales.
1 = Very Low 2 = Low 3 = Medium 4 = High 5 = Very High)

(Bahagian ini adalah berkenaan dengan jurang yang wujud antara kakitangan Bahagian Komputer dengan para pengguna terhadap implementasi Sistem Aplikasi Komputer di dalam organisasi anda yang anda pilih di Bahagian C. Sila bulatkan jawapan anda dengan menggunakan skel-skel berikut.
1 = Sangat Rendah 2 = Rendah 3 = Sederhana 4 = Tinggi 5 = Sangat Tinggi)

		Very Low *Sangat Rendah*	Low *Rendah*	Medium *Sederhana*	High *Tinggi*	Very High *Sangat Tinggi*
1	The developer has made sufficient effort to ensure that there is effective ommunication between users and developer in my organization. *(Pembangun (developer) Sistem Aplikasi Komputer ini telah berusaha bersungguh-sungguh bagi memastikan keberkesanan komunikasi antara para pengguna dengan pembangun sistem di dalam organisasi saya).*	1	2	3	4	5

		Very Low *Sangat Rendah*	Low *Rendah*	Medium *Sederhana*	High *Tinggi*	Very High *Sangat Tinggi*
2	The developer is concern whether the CAS can deliver the information needed by the user to perform their work in my organization. *(Pembangun sistem telah mengambil berat sama ada Sistem Aplikasi Komputer ini boleh menyampaikan maklumat yang diperlukan oleh para pengguna untuk membolehkan para pengguna menjalankan kerja mereka di dalam organisasi saya).*	1	2	3	4	5
3	The developer is concern with how quickly user can access the data in my organization. *(Pembangun sistem telah mengambil berat tentang secepat mana para pengguna boleh mencapai data di dalam organisasi saya).*	1	2	3	4	5
4	The developer is concern with how easily can user retrieve the data in my organization. *(Pembangun sistem telah mengambil berat semudah manakah para pengguna boleh mendapat data di dalam organisasi saya).*	1	2	3	4	5
5	The developer is concern with how many clerical support will user need to enter data into the system in my organization *(Pembangun sistem telah mengambil berat tentang jumlah kakitangan perkeranian yang diperlukan oleh para pengguna untuk memasukkan data ke dalam sistem di dalam organisasi saya).*	1	2	3	4	5
6	The developer is concern with on how will the operation of the CAS fit into user's daily business schedule in my organization. *(Pembangun sistem telah mengambil berat tentang bagaimana operasi Sistem AplikasiKomputer ini dapat dijalankan bersama-sama dengan jadual kerja harian para pengguna di dalam organisasi saya).*	1	2	3	4	5

Adequate Documentation For Computer Department Staff And User

(Dokumentasi yang mencukupi untuk kakitangan Bahagian Komputer dan para pengguna).

is section relates to adequate documentation for computer department staff and user department with ject to the computerized application system project identified in Section C. Please circle your best onse by using the following scales.
Very Low 2 = Low 3 = Medium 4 = High 5 = Very High)

hagian ini adalah berkenaan dengan dokumentasi yang mencukupi untuk kakitangan Bahagian nputer dan juga untuk para pengguna berhubung dengan projek Sistem Aplikasi Komputer yand anda h di Bahagian C. Sila bulatkan pilihan jawapan anda dengan menggunakan skel-skel berikut.
1 = Sangat Rendah 2 = Rendah 3 = Sederhana 4 = Tinggi 5 = Sangat Tinggi)

	Very Low *Sangat Rendah*	Low *Rendah*	Medium *Sederhana*	High *Tinggi*	Very High *Sangat Tinggi*
In my organization, the overall system documentation for the CAS implementation and operation is adequate. *(Di dalam organisasi saya, keseluruhan dokumentasi sistem bagioperasi dan implementasi Sistem AplikasiKomputer adalah mencukupi).*	1	2	3	4	5
In my organization, the overall program documentation for the CAS implementation and operation is adequate. *(Di dalam organisasi saya, keseluruhan dokumentasi aturcara untuk Operasi dan implementasi Sistem Aplikasi Komputer adalah mencukupi).*	1	2	3	4	5
In my organization, the overall database/files/tables documentation for the CAS mplementation and operation is adequate. *(Di dalam organisasi saya, keseluruhan dokumentasi pangkalan data bagi operasi dan implementasi Sistem AplikasiKomputer ini adalah mencukupi).*	1	2	3	4	5
In my organization, the overall system administration documentation for the CAS implementation and operation is adequate. *(Di dalam organisasi saya, keseluruhan dokumentasi pentadbiran sistem untuk operasi dan implementasiSistem Aplikasi Komputer ini adalah mencukupi).*	1	2	3	4	5
In my organization, the disaster contingency planning manual for the CAS is adequate. *(Di dalam organisasi saya, manual perancangan/ persediaan sistem bagi menghadapi bencana adalah mencukupi).*	1	2	3	4	5

		Very Low *Sangat Rendah*	Low *Rendah*	Medium *Sederhana*	High *Tinggi*	Very High *Sangat Tinggi*
	In my organization, the user manual for the CAS implementation and operation is adequate. *(Di dalam organisasi saya, manual pengguna untuk operasi dan implementasi Sistem AplikasiKomputer ini adalah mencukupi).*	1	2	3	4	5
	In my organization, the operator manual for the CAS implementation and operation is adequate. *(Di dalam organisasi saya, manual operator untuk operasi dan implementasi Sistem Aplikasi Komputer ini adalah mencukupi).*	1	2	3	4	5
	In my organization, the user manual for the CAS implementation and operation is complete and adequate. *(Di dalam organisasi saya, manual pengguna untuk operasi dan implementasi Sistem AplikasiKomputer ini adalah mencukupi).*	1	2	3	4	5
)	In my organization, the operator manual for the CAS implementation and operation is complete and adequate. *(Di dalam organisasi saya, manual operator untuk operasi dan implementasi Sistem Aplikasi Komputeradalah mencukupi).*	1	2	3	4	5
10	In my organization, the user manual is easy to understand by user. *(Di dalam organisasi saya, manual pengguna adalah mudah difahami oleh para pengguna).*	1	2	3	4	5
11	In my organization, the operator manual is easy to understand by operator. *(Di dalam organisasi saya, manual operator adalah mudah difahami oleh operator).*	1	2	3	4	5

N. User Education & Training (Latihan dan pendidikan para pengguna).

(This section relates to the user education and training with the computerized application system project identified in Section C. Please circle your best response by using the following scales.
1 = Very Low 2 = Low 3 = Medium 4 = High 5 = Very High)

(Bahagian ini adalah berkenaan dengan latihan dan pendidikan para pengguna bagiSistem Aplikasi Komputer yang anda pilih di Bahagian C. Sila bulatkan pilihan jawapan dengan menggunakan skel-skel berikut.
1 = Sangat Rendah 2 = Rendah 3 = Sederhana 4 = Tinggi 5 = Sangat Tinggi)

		Very Low *Sangat Rendah*	Low *Rendah*	Medium *Sederhana*	High *Tinggi*	Very High Sangat Tinggi
1	In my organization, the developer has made sufficient effort to activate the training process for users. *(Di dalam organisasi saya, pembangun sistem telah berusaha dengan secukupnya untuk memulakan proses latihan para pengguna).*	1	2	3	4	5
2	In my organization, the developer has made sufficient effort to encourage user's learning process of CAS use. *(Di dalam organisasi saya, pembangun sistem telah berusaha dengan secukupnya untuk menggalakkan proses pembelajaran para pengguna tentang penggunaan Sistem Aplikasi Komputer ini).*	1	2	3	4	5
3	In my organization, the developer has taken sufficient effort to train user on how to key-in data, update data and print report. *(Di dalam organisasi saya, pembangun sistem telah berusaha dengan secukupnya untuk melatih para pengguna tentang cara-cara memasukkan data, kemaskini data dan mencetak laporan).*	1	2	3	4	5
4	In my organization, the developer has taken sufficient effort to train user on how to deal with errors when operating the CAS. *(Di dalam organisasi saya, pembangun sistem telah berusaha dengan secukupnya untuk melatih para pengguna tentang tindakan-tindakan yang perlu diambil bagi menghadapi ralat-ralat semasa Sistem Aplikasi Konputer beroperasi).*	1	2	3	4	5

O. **Project Size** (Saiz projek).

(This section relates to project size with respect to the computerized application system project identified in Section C).
(Bahagian ini adalah berkenaan dengan saiz projek Sistem Aplikasi yang anda pilih di Bahagian C).

1. Cost spent for this project ? : RM_____
   (Kos projek ?:)

2. Time taken to implement the application system ? : _____ months.
   (Masa (bulan) yang diambil untuk implementasi Sistem Aplikasi ini ?)

3. Size of implementation staff ? : _____ persons.
   (Bilangan kakitangan yang terlibat dalam implementasi Sistem Aplikasi ini ?)

4. Number of user departments affected ? : _____ units.
   (Jumlah bahagian/jabatan pengguna yang terlibat ?)

P. **Project Structure** (Struktur Projek)

(This section relates to project structure with respect to the implementation of the computerized application system project identified in Section C. Please circle your best response by using the following scales.
1 = Very Low 2 = Low 3 = Medium 4 = High 5 = Very High)

(Bahagian ini adalah berkenaan dengan struktur projek implementasi Sistem AplikasiKomputer yang anda pilih di Bahagian C. Sila bulatkan pilihan anda dengan menggunakan skel-skel berikut.
1 = Sangat Rendah 2 = Rendah 3 = Sederhana 4 = Tinggi 5 = Sangat Tinggi)

		Very Low *Sangat Rendah*	Low *Rendah*	Medium *Sederhana*	High *Tinggi*	Very High *Sangat Tinggi*
1	The task procedure has changed as the CAS is implemented in my organization. *(Prosedur kerja telah berubah apabila Sistem Aplikasi Komputer ini diimplementasi di dalam organisasi saya).*	1	2	3	4	5
2	The contents and methods of tasks has changed as the CAS is implemented in my organization. *(Kaedah dan kandungan kerja-kerja juga telah berubah apabila Sistem Aplikasi Komputer ini diimplementasikan di dalam organisasi saya).*	1	2	3	4	5
3	The organizational structure has changed as the CAS is implemented in my organization. *(Struktur organisasi telah berubah apabila Sistem Aplikasi Komputer inidiimplementasikan di dalam organisasi saya).*	1	2	3	4	5
4	The tasks has been standardized as the CAS is implemented in my organization. Kerja-kerja telah diseragamkan apabila *(Sistem Aplikasi Komputer ini diimplementasikan di dalam organisasisaya).*	1	2	3	4	5

	Very Low *Sangat Rendah*	Low *Rendah*	Medium *Sederhana*	High *Tinggi*	Very High *Sangat Tinggi*
In my organization, the task procedure is documented in the job manual. *(Di dalam organisasi saya, prosedur kerja telah direkodkan ke dalam manual kerja).*	1	2	3	4	5
The task objectives and ranges are specified for the CAS to be implemented in my organization. *(Objektif kerja telah ditetapkanuntuk implementasi Sistem Aplikasi Komputer di dalam organisasi saya).*	1	2	3	4	5
The tasks has become routinely performed as the CAS is implemented in my organization. *(Kerja-kerja telah menjadi rutin apabila Sistem Aplikasi Komputer ini diimplementasikan di dalam organisasi saya).*	1	2	3	4	5
In my organization, the tasks can easily be performed with the CAS implementation. *(Di dalam organisasi saya, kerja-kerja mudah dijalankan dengan implementasi Sistem Aplikasi Komputer ini).*	1	2	3	4	5
The relationships between organizational members has changed as the CAS is implemented in my organization. *(Perhubungan antara kakitangan di dalam organisasi saya telah berubah apabila Sistem Aplikasi Komputer ini diimplementasikan).*	1	2	3	4	5

Adequate Documentation Of Existing System

(Dokumentasi sistem lama sebelum Sistem Aplikasi Komputer ini diimplementasikan)

his section relates to adequate documentation of existing system before the computerized application stem project identified in Section C is implemented. Please circle your best response by using the llowing scales.

= Very Low 2 = Low 3 = Medium 4 = High 5 = Very High)

ahagian ini adalah berkenaan dengan sama ada dokumentasi sistem lama sebelum Sistem Aplikasi mputer yang anda pilih di Bahagian C diimplementasikan. Sila Bulatkan pilihan jawapan anda dengan nggunakan skel-skel berikut.

1 = Sangat Rendah 2 = Rendah 3 = Sederhana 4 = Tinggi 5 = Sangat Tinggi)

	Very Low *Sangat Rendah*	Low *Rendah*	Medium *Sederhana*	High *Tinggi*	Very High Sangat Tinggi
In my organization, the system requirement for the CAS is derived from adequate documentation of existing system.	1	2	3	4	5

		Very Low *Sangat Rendah*	Low *Rendah*	Medium *Sederhana*	High *Tinggi*	Very High Sangat Tinggi
	(Di dalam organisasi saya, keperluan sistem untuk Sistem AplikasiKomputer ini boleh didapati engan secukupnya daripada dokumentasi sistem sedia ada).					
	Users are able to give sufficient information to project team during feasibility and design stage of the CAS in my organization. *(Para pengguna dapat memberi maklumat dengan secukupnya kepada pasukan projek semasa di peringkat kajian awal dan rekabentuk Sistem Aplikasi Komputer ini di dalam organisasi saya).*	1	2	3	4	5

(OPTIONAL)

1) Do you wish to get a copy of the findings from this study ? Please tick (/) one only the appropriate ox.
(Adakah anda berminat untuk dapatkan salinan hasil kajian ini kelak ? Sila tandakan (/) pada kotak yang berkenaan).

	Yes (Ya)
	No (Tidak)

2) If you wish to get a copy of the research findings, please write down your e-mail address or attached
your business card.
(Sekiranya anda ingin mendapatkan salinan hasil kajian kelak, sila tuliskan alamat e-mail anda atau sertakan kad nama/jawatan/alamat anda).

e-mail address :
(alamat e-mail) _____

Appendix B

6 Disember, 1999
Ahmad Suhaimi Bin Baharudin,
Ketua Seksyen Komputer,
Lembaga Kemajuan Wilayah Pulau Pinang (PERDA),
No 1, Lorong Kampung Gajah 2, Jalan Kampung Gajah,
12200 Butterworth, Pulau Pinang.

{[Ketua Setiauasaha Kementerian/
Setiauasaha Kerajaan Negeri/
Ketua Pengarah/
Yang Di Pertua/
Pengurus Besar],
[Alamat]}

Assalamualaikum wrt,
Y. Bhg. Tan Sri/Dato'/Tuan/Puan,

Kajian Mengenai Apakah Faktor-faktor Yang Menyebabkan Kejayaan Implementasi Sistem Aplikasi Komputer Di Sektor Awam
(*The Factors Affecting The Successful Implementation of Computerized Application System In The Public Sector*).
Saya dengan hormatnya merujuk kepada perkara di atas.

2. Saya yang bernama serta beralamatkan seperti di atas adalah Pegawai Sistem Maklumat (Gred F3) di Seksyen Komputer, Lembaga Kemajuan Wilayah Pulau Pinang (PERDA), No 1, Lorong Kampung Gajah 2, Jalan Kampung Gajah, 12200 Butterworth, Pulau Pinang (Tel : 04-3103155, Fax: 04-3321676, E-Mail : suhaimi@perda.gov.my atau pun suhaimi2020@hotmail.com).

3. Untuk makluman Tan Sri/Dato'/tuan/puan saya juga adalah pelajar separuh masa (tahun akhir) bagi kursus Sarjana Pentadbiran Perniagaan (MBA) di Universiti Sains Malaysia (USM), dan sekarang ini saya sedang menjalankan kajian mengenai apakah faktor-faktor yang boleh menyebabkan implementasi sesuatu Sistem Aplikasi Komputer boleh berjaya ataupun gagal di sektor awam. Penyelidikan ini adalah untuk memenuhi syarat-syarat kursus MBA ini.

4. Di sebabkan fokus kajian saya adalah sektor awam, maka kesemua Kementerian, Jabatan Persekutuan, Kerajaan Negeri, Badan Berkanun dan Syarikat Kepunyaan Kerajaan adalah termasuk di dalam penyelidikan ini. Organisisasi Tan Sri /Dato' /tuan /puan juga adalah dipilih untuk tujuan kajian ini. "Respondents" bagi kesemua soalan-soalan yang terdapat di dalam "questionnaire" ini ialah Pengurus-pengurus atau Ketua-ketua Bahagian Komputer, Pegawai-pegawai Sistem Maklumat dan Penolong-penolong Pegawai Sistem Maklumat di organisasi Tan Sri/Dato'/tuan/puan. Oleh yang demikian, saya amatlah berbesar hati sekiranya Tan Sri/Dato'/tuan/puan dapat mengemukakan satu (1) set "questionnaire" ini kepada Pengurus ataupun Ketua Bahagian Komputer di organisasi Tan Sri/Dato'/tuan/puan untuk dijawab.

5. Di harap agar Pengurus ataupun Ketua Bahagian Komputer di organisasi Tan Sri/Dato/tuan/puan dapat meluangkan sedikit masa untuk menjawap kesemua soalan-soalan yang terdapat di dalam "questionnaire" ini. Bagi menjawap soalan-soalan di dalam "questionnaire" ini, beliau adalah diminta supaya memilih satu Sistem Aplikasi Komputer sahaja yang pada pendapat beliau ianya adalah penting di dalam organisasi Tan Sri/Dato'/tuan/puan dan juga beliau telah terlibat secara langsung semasa sistem tersebut di peringkat implementasi lagi.

6. Segala jawapan yang akan diberikan oleh beliau bagi soalan-soalan di dalam "questionnaire" ini hendaklah merujuk kepada Sistem Aplikasi Komputer yang dipilih oleh beliau sahaja.

7. Untuk pengetahuan Tan Sri/Dato'/tuan/puan, tiada jawapan yang betul atau pun salah bagi soalan-soalan di dalam "questionnaire" ini; hanya komen dan pendapat yang ikhlas dari beliau sahaja adalah berkaitan di dalam kajian ini.

8. Segala komen beliau adalah dirahsiakan; memandangkan data yang akan dipersembahkan di dalam analisis dan rumusan kajian ini nanti adalah di dalam bentuk "aggregate" sahaja di mana adalah mustahil untuk menjejak "respondents".

9. Sekiranya pihak Tan Sri/Dato'/tuan/puan ada apa-apa kemusykilan, pihak Tan Sri/Dato'/tuan/puan bolehlah menghubungi Professor Madya Muhamad Jantan di nombor telefon 04-6577888 ext 3343 atau ext 2398 atau e-mail (mjantan@usm.my) untuk keterangan lanjut.

10. Bersama-sama ini saya sertakan satu (1) set soalan-soalan kajiselidik (questionnaire) untuk di jawap oleh Pengurus ataupun Ketua Bahagian Komputer di organisasi Tan Sri/Dato'/tuan/puan. Juga disertakan salinan surat pengesahan daripada koordinator program MBA USM untuk rujukan Tan Sri/Dato'/tuan/puan.

11. Saya amatlah berharap agar pihak Tan Sri/Dato'/tuan/puan dapat mengembalikan kepada saya "questionnaire" yang telah di sempurnakan oleh Bahagian Komputer dengan menggunakan sampul surat bersetem yang telah disediakan sebelum 20 Disember, 1999 ini bagi membolehkan saya menjalankan analisis ke atas data yang diperolehi.

12. Kerjasama pihak Tan Sri/Dato'/tuan/puan amatlah dihargai dan diharapkan bagi menjayakan kajian ini.

Sekian, terima kasih.

Yang benar,

[AHMAD SUHAIMI BIN BAHARUDIN]

UNIVERSITI SAINS MALAYSIA

PUSAT PENGAJIAN PENGURUSAN • SCHOOL OF MANAGEMENT
11800 PULAU PINANG • MALAYSIA
TEL: 604-6577888 EXT. 3367, 3370, 3363, • TELEX: MA40254 USMLIB
FAX: 604 - 6577448

epada Sesiapa Yang Berkenaan

engan hormatnya dimaklumkan bahawa pelajar Ahmad Suhaimi Baharudin
o.k/p:590810075403 adalah pelajar Sarjana Pentadbiran Perniagaan (MBA) di
sat Pengajian Pengurusan, Universiti Sains Malaysia.

erjasama tuan/puan untuk membantu pelajar ini dalam apa jua kemudahan yang
perlukan dalam membantu beliau menjalankan penyelidikan berkaitan dengan
ngajiannya amatlah dihargai.

kian, terima kasih.

ERKHIDMAT UNTUK NEGARA"
intailah Bahasa Kita'

ROF. MADYA MUHAMAD JANTAN)
ngerusi
ncarigan Ijazah Tinggi.

FILE NAME : CORELATE.LST

- - Correlation Coefficients - -

	SUCCES_M	U_INV_M	U_COM_M	M_SUP_M	IT_EXP04	IT_STR02
SUCCES_M	1.0000	.5297	.4768	.6091	.2185	.4051
	(138)	(138)	(135)	(138)	(137)	(138)
	P= .	P= .000	P= .000	P= .000	P= .010	P= .000
U_INV_M	.5297	1.0000	.6478	.4959	.3601	.1799
	(138)	(138)	(135)	(138)	(137)	(138)
	P= .000	P= .	P= .000	P= .000	P= .000	P= .035
U_COM_M	.4768	.6478	1.0000	.3956	.3401	.1824
	(135)	(135)	(135)	(135)	(134)	(135)
	P= .000	P= .000	P= .	P= .000	P= .000	P= .034
M_SUP_M	.6091	.4959	.3956	1.0000	.2456	.5348
	(138)	(138)	(135)	(138)	(137)	(138)
	P= .000	P= .000	P= .000	P= .	P= .004	P= .000
IT_EXP04	.2185	.3601	.3401	.2456	1.0000	.3516
	(137)	(137)	(134)	(137)	(137)	(137)
	P= .010	P= .000	P= .000	P= .004	P= .	P= .000
IT_STR02	.4051	.1799	.1824	.5348	.3516	1.0000
	(138)	(138)	(135)	(138)	(137)	(138)
	P= .000	P= .035	P= .034	P= .000	P= .000	P= .
UD_GAP_M	.6234	.5029	.4244	.4549	.2139	.2684
	(137)	(137)	(135)	(137)	(136)	(137)
	P= .000	P= .000	P= .000	P= .000	P= .012	P= .002

```
DOC_IT_M        .4327       .3799       .3928       .3031       .2765
.3468
               ( 137)      ( 137)      ( 134)      ( 137)      ( 136)      (
137)
               P= .000     P= .000     P= .000     P= .000     P= .001     P=
.000

U_ED_M          .4135       .4311       .3449       .1872       .2285
.1250
               ( 136)      ( 136)      ( 134)      ( 136)      ( 135)      (
136)
               P= .000     P= .000     P= .000     P= .029     P= .008     P=
.147

LARGEPRO        .0803       .1965      -.0429       .2320       .2099
.2366
               (  82)      (  82)      (  81)      (  82)      (  81)      (
82)
               P= .474     P= .077     P= .704     P= .036     P= .060     P=
.032

MORESTRU        .5090       .2719       .0799       .3032       .1121
.1972
               (  93)      (  93)      (  90)      (  93)      (  92)      (
93)
               P= .000     P= .008     P= .454     P= .003     P= .287     P=
.058

(Coefficient / (Cases) / 2-tailed Significance)

" . " is printed if a coefficient cannot be computed

                        - -  Correlation Coefficients  - -

                SUCCES_M    U_INV_M     U_COM_M     M_SUP_M     IT_EXP04
IT_STR02

SUFFXDOC        .2793       .2583       .2172       .1937       .0100
.1367
               (  75)      (  75)      (  74)      (  75)      (  74)      (
75)
               P= .015     P= .025     P= .063     P= .096     P= .932     P=
.242

(Coefficient / (Cases) / 2-tailed Significance)

" . " is printed if a coefficient cannot be computed

                UD_GAP_M    DOC_IT_M    U_ED_M      LARGEPRO    MORESTRU
SUFFXDOC

SUCCES_M        .6234       .4327       .4135       .0803       .5090
.2793
               ( 137)      ( 137)      ( 136)      (  82)      (  93)      (
75)
               P= .000     P= .000     P= .000     P= .474     P= .000     P=
.015
```

U_INV_M	.5029	.3799	.4311	.1965	.2719	.2583
	(137)	(137)	(136)	(82)	(93)	(75)
	P= .000	P= .000	P= .000	P= .077	P= .008	P= .025
U_COM_M	.4244	.3928	.3449	-.0429	.0799	.2172
	(135)	(134)	(134)	(81)	(90)	(74)
	P= .000	P= .000	P= .000	P= .704	P= .454	P= .063
M_SUP_M	.4549	.3031	.1872	.2320	.3032	.1937
	(137)	(137)	(136)	(82)	(93)	(75)
	P= .000	P= .000	P= .029	P= .036	P= .003	P= .096
IT_EXP04	.2139	.2765	.2285	.2099	.1121	.0100
	(136)	(136)	(135)	(81)	(92)	(74)
	P= .012	P= .001	P= .008	P= .060	P= .287	P= .932
IT_STR02	.2684	.3468	.1250	.2366	.1972	.1367
	(137)	(137)	(136)	(82)	(93)	(75)
	P= .002	P= .000	P= .147	P= .032	P= .058	P= .242
UD_GAP_M	1.0000	.4577	.6684	.1292	.5006	.3645
	(137)	(136)	(136)	(81)	(92)	(75)
	P= .	P= .000	P= .000	P= .250	P= .000	P= .001
DOC_IT_M	.4577	1.0000	.5306	.0762	.4893	.5005
	(136)	(137)	(135)	(81)	(92)	(75)
	P= .000	P= .	P= .000	P= .499	P= .000	P= .000

(Coefficient / (Cases) / 2-tailed Significance)

" . " is printed if a coefficient cannot be computed

- - Correlation Coefficients - -

	UD_GAP_M	DOC_IT_M	U_ED_M	LARGEPRO	MORESTRU	SUFFXDOC
U_ED_M	.6684	.5306	1.0000	.1672	.5007	.4032

	(136)	(135)	(136)	(80)	(91)	(
4)						
	P= .000	P= .000	P= .	P= .138	P= .000	P=
000						
ARGEPRO	.1292	.0762	.1672	1.0000	.1797	
2073						
	(81)	(81)	(80)	(82)	(59)	(
7)						
	P= .250	P= .499	P= .138	P= .	P= .173	P=
162						
ORESTRU	.5006	.4893	.5007	.1797	1.0000	
4697						
	(92)	(92)	(91)	(59)	(93)	(
3)						
	P= .000	P= .000	P= .000	P= .173	P= .	P=
000						
UFFXDOC	.3645	.5005	.4032	.2073	.4697	
.0000						
	(75)	(75)	(74)	(47)	(63)	(
75)						
	P= .001	P= .000	P= .000	P= .162	P= .000	P=

(Coefficient / (Cases) / 2-tailed Significance)

" . " is printed if a coefficient cannot be computed

FILE NAME : H1(a).LST
* * * * M U L T I P L E R E G R E S S I O N * * * *

Listwise Deletion of Missing Data

Equation Number 1 Dependent Variable.. SUCCES_M

Block Number 1. Method: Enter U_INV_M

Variable(s) Entered on Step Number
1.. U_INV_M

Multiple R	.52966
R Square	.28054
Adjusted R Square	.27524
Standard Error	.47702

Analysis of Variance

	DF	Sum of Squares	Mean Square
Regression	1	12.06675	12.06675
Residual	136	30.94658	.22755

F = 53.02937 Signif F = .0000

---------- Variables in the Equation ----------

Variable	B	SE B	95% Confdnce Intrvl B		Beta
U_INV_M	.426799	.058609	.310896	.542702	.529656
(Constant)	2.116758	.222314	1.677119	2.556396	

---------- Variables in the Equation ----------

Variable	Tolerance	VIF	T	Sig T
U_INV_M	1.000000	1.000	7.282	.0000
(Constant)			9.521	.0000

End Block Number 1 All requested variables entered.

Residuals Statistics:

	Min	Max	Mean	Std Dev	N
*PRED	2.7996	4.2508	3.7084	.2968	138
*RESID	-1.4815	1.1923	.0000	.4753	138
*ZPRED	-3.0622	1.8273	.0000	1.0000	138
*ZRESID	-3.1058	2.4994	.0000	.9963	138

Total Cases = 138

Durbin-Watson Test = 1.72219

FILE NAME : H1(b).LST
* * * * M U L T I P L E R E G R E S S I O N * * * *

Listwise Deletion of Missing Data

Equation Number 1 Dependent Variable.. SUCCES_M

Descriptive Statistics are printed on Page 4

Block Number 1. Method: Enter U_COM_M

Variable(s) Entered on Step Number
1.. U_COM_M

Multiple R	.47682
R Square	.22736
Adjusted R Square	.22155
Standard Error	.49389

Analysis of Variance

	DF	Sum of Squares	Mean Square
Regression	1	9.54659	9.54659
Residual	133	32.44211	.24393

F = 39.13729 Signif F = .0000

---------- Variables in the Equation ----------

Variable	B	SE B	95% Confdnce Intrvl B		Beta
U_COM_M	.319548	.051079	.218516	.420579	.476824
(Constant)	2.520025	.193343	2.137599	2.902451	

---------- Variables in the Equation ----------

Variable	Tolerance	VIF	T	Sig T
U_COM_M	1.000000	1.000	6.256	.0000
(Constant)			13.034	.0000

End Block Number 1 All requested variables entered.

Residuals Statistics:

	Min	Max	Mean	Std Dev	N
*PRED	2.8396	4.1178	3.7000	.2669	135
*RESID	-1.2649	1.1742	.0000	.4920	135
*ZPRED	-3.2236	1.5652	.0000	1.0000	135
*ZRESID	-2.5611	2.3775	.0000	.9963	135

Total Cases = 138

Durbin-Watson Test = 2.02372

```
FILE NAME : H1(c).LST
          * * * *   M U L T I P L E   R E G R E S S I O N   * * * *
Listwise Deletion of Missing Data
Equation Number 1    Dependent Variable..   SUCCES_M
Block Number  1.  Method:  Enter      U_ED_M

Variable(s) Entered on Step Number
   1..     U_ED_M

Multiple R              .41349
R Square                .17098
Adjusted R Square       .16479
Standard Error          .51478

Analysis of Variance
                 DF        Sum of Squares      Mean Square
Regression        1             7.32353           7.32353
Residual        134            35.50965            .26500

F =      27.63623       Signif F =  .0000

---------------------- Variables in the Equation --------------------

Variable                B         SE B     95% Confdnce Intrvl B
Beta

U_ED_M           .369123      .070215      .230249      .507996
.413495
(Constant)      2.355112      .261213     1.838478     2.871745

----------- Variables in the Equation -----------

Variable    Tolerance        VIF         T  Sig T

U_ED_M       1.000000      1.000     5.257  .0000
(Constant)                           9.016  .0000

End Block Number   1   All requested variables entered.

Residuals Statistics:
             Min      Max      Mean  Std Dev    N

*PRED      3.0934   4.2007   3.7086    .2329  136
*RESID    -1.2007   1.3733    .0000    .5129  136
*ZPRED    -2.6414   2.1131    .0000   1.0000  136
*ZRESID   -2.3325   2.6678    .0000    .9963  136

Total Cases =      138


Durbin-Watson Test =   1.92024
```

FILE NAME : H2.LST
* * * * M U L T I P L E R E G R E S S I O N * * * *

Listwise Deletion of Missing Data

Equation Number 1 Dependent Variable.. SUCCES_M

Block Number 1. Method: Enter M_SUP_M

Variable(s) Entered on Step Number
1.. M_SUP_M

Multiple R	.60912
R Square	.37102
Adjusted R Square	.36640
Standard Error	.44601

Analysis of Variance

	DF	Sum of Squares	Mean Square
Regression	1	15.95896	15.95896
Residual	136	27.05436	.19893

F = 80.22432 Signif F = .0000

---------- Variables in the Equation ----------

Variable	B	SE B	95% Confdnce Intrvl B		Beta
M_SUP_M	.440228	.049150	.343031	.537425	.609117
(Constant)	2.097573	.183812	1.734073	2.461072	

---------- Variables in the Equation ----------

Variable	Tolerance	VIF	T	Sig T
M_SUP_M	1.000000	1.000	8.957	.0000
(Constant)			11.412	.0000

06 Jan 00 SPSS for MS WINDOWS Release 6.0
Page 12

End Block Number 1 All requested variables entered.

Residuals Statistics:

	Min	Max	Mean	Std Dev	N
*PRED	2.9230	4.2987	3.7084	.3413	138
*RESID	-1.1993	1.2770	.0000	.4444	138
*ZPRED	-2.3013	1.7295	.0000	1.0000	138
*ZRESID	-2.6889	2.8631	.0000	.9963	138

Total Cases = 138
Durbin-Watson Test = 2.14695

FILE NAME : H3(a).LST

* * * * M U L T I P L E R E G R E S S I O N * * * *

Listwise Deletion of Missing Data

Equation Number 1 Dependent Variable.. SUCCES_M

Block Number 1. Method: Enter IT_EXP04

Variable(s) Entered on Step Number
1.. IT_EXP04 Computer Department Compency & Experienc

Multiple R	.21854
R Square	.04776
Adjusted R Square	.04071
Standard Error	.54757

Analysis of Variance

	DF	Sum of Squares	Mean Square
Regression	1	2.03024	2.03024
Residual	135	40.47753	.29983

F = 6.77124 Signif F = .0103

---------- Variables in the Equation ----------

Variable	B	SE B	95% Confdnce Intrvl B		Beta
IT_EXP04	.136941	.052626	.032863	.241019	.218545
(Constant)	3.250807	.183903	2.887104	3.614510	

---------- Variables in the Equation ----------

Variable	Tolerance	VIF	T	Sig T
IT_EXP04	1.000000	1.000	2.602	.0103
(Constant)			17.677	.0000

End Block Number 1 All requested variables entered.

Residuals Statistics:

	Min	Max	Mean	Std Dev	N
*PRED	3.3877	3.9355	3.7136	.1222	137
*RESID	-1.3319	1.2086	.0000	.5456	137
*ZPRED	-2.6670	1.8162	.0000	1.0000	137
*ZRESID	-2.4324	2.2073	.0000	.9963	137

Total Cases = 138

Durbin-Watson Test = 1.90471

```
FILE NAME : H3(b).LST
* * * *   M U L T I P L E   R E G R E S S I O N   * * * *

Listwise Deletion of Missing Data

Equation Number 1    Dependent Variable..   SUCCES_M

Block Number  1.  Method:  Enter      IT_STR02

Variable(s) Entered on Step Number
   1..     IT_STR02  Computer Department Adequate In Strength

Multiple R            .40507
R Square              .16408
Adjusted R Square     .15793
Standard Error        .51418

Analysis of Variance
                    DF        Sum of Squares      Mean Square
Regression           1              7.05768          7.05768
Residual           136             35.95564           .26438

F =       26.69526       Signif F =  .0000

---------------------- Variables in the Equation --------------------

Variable              B         SE B     95% Confdnce Intrvl B
Beta

IT_STR02         .240036      .046458       .148163       .331909
.405070
(Constant)      2.950064      .153167      2.647168      3.252961

----------- Variables in the Equation -----------

Variable    Tolerance        VIF         T  Sig T

IT_STR02     1.000000      1.000     5.167  .0000
(Constant)                           19.260  .0000

End Block Number   1   All requested variables entered.

Residuals Statistics:

              Min       Max      Mean  Std Dev    N

*PRED      3.1901    4.1502    3.7084    .2270  138
*RESID    -1.4435    1.3032     .0000    .5123  138
*ZPRED    -2.2837    1.9465     .0000   1.0000  138
*ZRESID   -2.8075    2.5345     .0000    .9963  138

Total Cases =      138

Durbin-Watson Test =   2.03595
```

FILE NAME : H3(c).LST

* * * * M U L T I P L E R E G R E S S I O N * * * *

Listwise Deletion of Missing Data

Equation Number 1 Dependent Variable.. SUCCES_M

Block Number 1. Method: Enter UD_GAP_M

Variable(s) Entered on Step Number
1.. UD_GAP_M

Multiple R	.62341
R Square	.38864
Adjusted R Square	.38411
Standard Error	.44091

Analysis of Variance

	DF	Sum of Squares	Mean Square
Regression	1	16.68330	16.68330
Residual	135	26.24439	.19440

F = 85.81820 Signif F = .0000

---------- Variables in the Equation ----------

Variable	B	SE B	95% Confdnce Intrvl B		Beta
UD_GAP_M	.555884	.060006	.437211	.674558	.623408
(Constant)	1.584550	.232115	1.125498	2.043601	

---------- Variables in the Equation ----------

Variable	Tolerance	VIF	T	Sig T
UD_GAP_M	1.000000	1.000	9.264	.0000
(Constant)			6.827	.0000

End Block Number 1 All requested variables entered.

Residuals Statistics:

	Min	Max	Mean	Std Dev	N
*PRED	2.6963	4.3640	3.7063	.3502	137
*RESID	-1.5947	1.1218	.0000	.4393	137
*ZPRED	-2.8837	1.8777	.0000	1.0000	137
*ZRESID	-3.6169	2.5443	.0000	.9963	137

Total Cases = 138

Durbin-Watson Test = 1.83943

FILE NAME : H3(d).LST
* * * * M U L T I P L E R E G R E S S I O N * * * *

Listwise Deletion of Missing Data

Equation Number 1 Dependent Variable.. SUCCES_M

Block Number 1. Method: Enter DOC_IT_M

Variable(s) Entered on Step Number
1.. DOC_IT_M

Multiple R	.43275
R Square	.18727
Adjusted R Square	.18125
Standard Error	.50872

Analysis of Variance

	DF	Sum of Squares	Mean Square
Regression	1	8.05042	8.05042
Residual	135	34.93768	.25880

F = 31.10701 Signif F = .0000

---------- Variables in the Equation ----------

Variable	B	SE B	95% Confdnce Intrvl B		Beta
DOC_IT_M	.345471	.061942	.222970	.467973	.432748
(Constant)	2.593122	.204438	2.188805	2.997438	

---------- Variables in the Equation ----------

Variable	Tolerance	VIF	T	Sig T
DOC_IT_M	1.000000	1.000	5.577	.0000
(Constant)			12.684	.0000

End Block Number 1 All requested variables entered.

Residuals Statistics:

	Min	Max	Mean	Std Dev	N
*PRED	2.9386	4.5969	3.7073	.2433	137
*RESID	-1.3302	1.2217	.0000	.5068	137
*ZPRED	-3.1595	3.6563	.0000	1.0000	137
*ZRESID	-2.6148	2.4015	.0000	.9963	137

Total Cases = 138

Durbin-Watson Test = 1.95975

```
FILE NAME : YH4(a).LST
* * * *   M U L T I P L E   R E G R E S S I O N   * * * *

Listwise Deletion of Missing Data

Equation Number 1    Dependent Variable..   SUCCES_M

Block Number  1.  Method:  Enter      U_INV_M  LARGEPRO

Variable(s) Entered on Step Number
   1..     LARGEPRO
   2..     U_INV_M

Multiple R            .42737
R Square              .18265
Adjusted R Square     .16195
Standard Error        .49363

Analysis of Variance
                 DF        Sum of Squares        Mean Square
Regression        2              4.30163             2.15081
Residual         79             19.25013              .24367

F =       8.82666       Signif F =  .0003

---------------------- Variables in the Equation -------------------

Variable              B         SE B     95% Confdnce Intrvl B
Beta

U_INV_M          .368095      .089195       .190556       .545634
.428117
LARGEPRO   -3.33759E-10  8.9111E-09 -1.80708E-08  1.74033E-08   -
.003886
(Constant)     2.342384      .335703      1.674185      3.010583

---------- Variables in the Equation ----------

Variable    Tolerance        VIF         T  Sig T

U_INV_M        .961372       1.040     4.127  .0001
LARGEPRO       .961372       1.040     -.037  .9702
(Constant)                             6.978  .0000

End Block Number   1   All requested variables entered.

Min       Max      Mean  Std Dev   N

*PRED      3.2254   4.1828   3.7243    .2304  82
*RESID    -1.4136    .8180    .0000    .4875  82
*ZPRED    -2.1651   1.9896    .0000   1.0000  82
*ZRESID   -2.8637   1.6572    .0000    .9876  82

Total Cases =      138

Durbin-Watson Test =   1.62773
```

* * * * M U L T I P L E R E G R E S S I O N * * * *

Listwise Deletion of Missing Data

Equation Number 1 Dependent Variable.. SUCCES_M

Block Number 1. Method: Enter U_INV_M LARGEPRO LPINV

Variable(s) Entered on Step Number
1.. LPINV
2.. U_INV_M
3.. LARGEPRO

Multiple R	.45065
R Square	.20309
Adjusted R Square	.17244
Standard Error	.49053

Analysis of Variance

	DF	Sum of Squares	Mean Square
Regression	3	4.78304	1.59435
Residual	78	18.76871	.24062

F = 6.62587 Signif F = .0005

---------- Variables in the Equation ----------

Variable	B	SE B	95% Confdnce Intrvl B		Beta
U_INV_M	.309452	.097853	.114642	.504263	.359913
LARGEPRO	-1.08617E-07	7.7065E-08	-2.62043E-07	4.48080E-08	-1.264486
LPINV	2.67414E-08	1.8906E-08	-1.08971E-08	6.43800E-08	1.283745
(Constant)	2.563002	.368259	1.829855	3.296149	

---------- Variables in the Equation ----------

Variable	Tolerance	VIF	T	Sig T
U_INV_M	.788792	1.268	3.162	.0022
LARGEPRO	.012693	78.783	-1.409	.1627
LPINV	.012403	80.624	1.414	.1612
(Constant)			6.960	.0000

End Block Number 1 All requested variables entered.

Residuals Statistics:

	Min	Max	Mean	Std Dev	N
*PRED	3.1954	4.4432	3.7243	.2430	82
*RESID	-1.3428	.8220	.0000	.4814	82
*ZPRED	-2.1765	2.9583	.0000	1.0000	82
*ZRESID	-2.7374	1.6757	.0000	.9813	82

Total Cases = 138

Durbin-Watson Test = 1.59963

FILE NAME : YH4(b).LST

* * * * M U L T I P L E R E G R E S S I O N * * * *

Listwise Deletion of Missing Data

Equation Number 1 Dependent Variable.. SUCCES_M

Block Number 1. Method: Enter U_COM_M LARGEPRO

Variable(s) Entered on Step Number
1.. LARGEPRO
2.. U_COM_M

Multiple R	.38799
R Square	.15053
Adjusted R Square	.12875
Standard Error	.50562

Analysis of Variance

	DF	Sum of Squares	Mean Square
Regression	2	3.53375	1.76688
Residual	78	19.94107	.25565

F = 6.91118 Signif F = .0017

---------- Variables in the Equation ----------

Variable	B	SE B	95% Confdnce Intrvl B		Beta
U_COM_M	.285890	.078713	.129185	.442595	.379385
LARGEPRO	8.50970E-09	8.9657E-09	-9.33955E-09	2.63590E-08	.099142
(Constant)	2.611011	.306487	2.000843	3.221179	

---------- Variables in the Equation ----------

Variable	Tolerance	VIF	T	Sig T
U_COM_M	.998158	1.002	3.632	.0005
LARGEPRO	.998158	1.002	.949	.3455
(Constant)			8.519	.0000

End Block Number 1 All requested variables entered.

Residuals Statistics:

	Min	Max	Mean	Std Dev	N
*PRED	3.1832	4.1511	3.7209	.2102	81
*RESID	-1.2219	.9366	.0000	.4993	81
*ZPRED	-2.5584	2.0467	.0000	1.0000	81
*ZRESID	-2.4165	1.8523	.0000	.9874	81

Total Cases = 138

Durbin-Watson Test = 1.79759

```
* * * *   M U L T I P L E   R E G R E S S I O N   * * * *
Listwise Deletion of Missing Data
Equation Number 1     Dependent Variable..    SUCCES_M
Block Number  1.  Method:  Enter       U_COM_M  LARGEPRO LPUCOM
Variable(s) Entered on Step Number
   1..     LPUCOM
   2..     U_COM_M
   3..     LARGEPRO

Multiple R            .39610
R Square              .15689
Adjusted R Square     .12404
Standard Error        .50699

Analysis of Variance
                 DF        Sum of Squares        Mean Square
Regression        3              3.68303             1.22768
Residual         77             19.79178              .25704

F =       4.77628       Signif F =  .0042

* * * *   M U L T I P L E   R E G R E S S I O N   * * * *

Equation Number 1     Dependent Variable..    SUCCES_M

---------------------- Variables in the Equation --------------------
--
Variable               B         SE B      95% Confdnce Intrvl B
Beta
U_COM_M          .312851      .086491       .140625       .485077
.415163
LARGEPRO    3.13325E-08  3.1268E-08 -3.09299E-08  9.35949E-08
.365038
LPUCOM     -6.69686E-09  8.7875E-09 -2.41951E-08  1.08014E-08   -
.278430
(Constant)     2.514289      .332490      1.852217      3.176361
---------- Variables in the Equation -----------
Variable    Tolerance        VIF         T  Sig T
U_COM_M       .831157       1.203     3.617  .0005
LARGEPRO      .082510      12.120     1.002  .3195
LPUCOM        .082029      12.191     -.762  .4483
(Constant)                              7.562  .0000

End Block Number   1   All requested variables entered.
Equation Number 1     Dependent Variable..    SUCCES_M
Residuals Statistics:

             Min       Max      Mean    Std Dev   N

*PRED      3.1409    4.0784    3.7209     .2146  81
*RESID    -1.2327     .9273     .0000     .4974  81
*ZPRED    -2.7033    1.6662     .0000    1.0000  81
*ZRESID   -2.4314    1.8290     .0000     .9811  81

Total Cases =      138


Durbin-Watson Test =   1.71998
```

```
FILE NAME : YX5.LST
* * * *   M U L T I P L E   R E G R E S S I O N   * * * *
Listwise Deletion of Missing Data
Equation Number 1     Dependent Variable..    SUCCES_M
Block Number  1.  Method:  Enter       M_SUP_M   LARGEPRO
Variable(s) Entered on Step Number
   1..     LARGEPRO
   2..     M_SUP_M

Multiple R              .54337
R Square                .29525
Adjusted R Square       .27741
Standard Error          .45837

Analysis of Variance
                    DF        Sum of Squares        Mean Square
Regression           2             6.95376             3.47688
Residual            79            16.59799              .21010

F =       16.54861        Signif F =  .0000
---------------------- Variables in the Equation --------------------
Variable                B         SE B      95% Confdnce Intrvl B
Beta
M_SUP_M          .388036      .068197       .252293       .523779
.552489
LARGEPRO    -4.11689E-09  8.3407E-09 -2.07187E-08  1.24849E-08    -
.047928
(Constant)      2.314586      .250656      1.815668      2.813504
----------- Variables in the Equation -----------
Variable    Tolerance        VIF          T  Sig T
M_SUP_M       .946170      1.057      5.690  .0000
LARGEPRO      .946170      1.057      -.494  .6230
(Constant)                            9.234  .0000

Equation Number 1     Dependent Variable..    SUCCES_M
End Block Number   1   All requested variables entered.
Residuals Statistics:

             Min        Max       Mean    Std Dev     N
*PRED      3.0372     4.2437     3.7243      .2930    82
*RESID    -1.1942     1.1628      .0000      .4527    82
*ZPRED    -2.3451     1.7725      .0000     1.0000    82
*ZRESID   -2.6054     2.5368      .0000      .9876    82

Total Cases =      138


Durbin-Watson Test =    2.17657
```

* * * * M U L T I P L E R E G R E S S I O N * * * *

Equation Number 1 Dependent Variable.. SUCCES_M

Block Number 1. Method: Enter M_SUP_M LARGEPRO LPMSUP

Variable(s) Entered on Step Number
1.. LPMSUP
2.. M_SUP_M
3.. LARGEPRO

Multiple R	.54495
R Square	.29697
Adjusted R Square	.26993
Standard Error	.46073

Analysis of Variance

	DF	Sum of Squares	Mean Square
Regression	3	6.99425	2.33142
Residual	78	16.55751	.21228

F = 10.98296 Signif F = .0000

---------- Variables in the Equation ----------

--Variable	B	SE B	95% Confdnce Intrvl B		Beta
M_SUP_M	.378219	.072141	.234597	.521841	.538511
LARGEPRO	-3.46266E-08	7.0364E-08	-1.74710E-07	1.05456E-07	-.403111
LPMSUP	7.15234E-09	1.6378E-08	-2.54532E-08	3.97578E-08	.361073
(Constant)	2.354099	.267704	1.821143	2.887056	

---------- Variables in the Equation ----------

Variable	Tolerance	VIF	T	Sig T
M_SUP_M	.854292	1.171	5.243	.0000
LARGEPRO	.013432	74.447	-.492	.6240
LPMSUP	.013185	75.844	.437	.6635
(Constant)			8.794	.0000

End Block Number 1 All requested variables entered.

Equation Number 1 Dependent Variable.. SUCCES_M

Residuals Statistics:

	Min	Max	Mean	Std Dev	N
*PRED	3.0378	4.2483	3.7243	.2939	82
*RESID	-1.1920	1.1622	.0000	.4521	82
*ZPRED	-2.3363	1.7830	.0000	1.0000	82
*ZRESID	-2.5872	2.5225	.0000	.9813	82

Total Cases = 138

Durbin-Watson Test = 2.15361

```
LE NAME : YH6(a).LST
* * *   M U L T I P L E   R E G R E S S I O N   * * * *
stwise Deletion of Missing Data

uation Number 1     Dependent Variable..    SUCCES_M

ock Number  1.  Method:  Enter       IT_EXP04 LARGEPRO

riable(s) Entered on Step Number
 1..     LARGEPRO
 2..     IT_EXP04   Computer Department Compency & Experienc

ltiple R            .25465
Square              .06485
justed R Square     .04087
andard Error        .52536

alysis of Variance
                  DF        Sum of Squares      Mean Square
gression           2             1.49278            .74639
sidual            78            21.52786            .27600

=       2.70432        Signif F =  .0732
---------- Variables in the Equation ----------

riable                B         SE B      95% Confdnce Intrvl B
eta

_EXP04          .156214      .070494       .015871       .296558
248168
ARGEPRO     2.13936E-09  9.5138E-09 -1.68012E-08  2.10800E-08
025183
Constant)      3.187551      .246649      2.696512      3.678591

---------- Variables in the Equation -----------

ariable     Tolerance        VIF         T    Sig T

_EXP04        .955942       1.046     2.216    .0296
ARGEPRO       .955942       1.046      .225    .8227
Constant)                             12.923    .0000

quation Number 1     Dependent Variable..    SUCCES_M
nd Block Number   1   All requested variables entered.
esiduals Statistics:

              Min        Max       Mean    Std Dev    N

PRED       3.3439     4.0114     3.7333      .1366   81
RESID     -1.3485     1.1818      .0000      .5187   81
ZPRED     -2.8506     2.0362      .0000     1.0000   81
ZRESID    -2.5669     2.2496      .0000      .9874   81

otal Cases =       138

urbin-Watson Test =    1.97811
```

* * * M U L T I P L E R E G R E S S I O N * * * *

Listwise Deletion of Missing Data
Equation Number 1 Dependent Variable.. SUCCES_M

Block Number 1. Method: Enter IT_EXP04 LARGEPRO LPITEX

Variable(s) Entered on Step Number
1.. LPITEX
2.. IT_EXP04 Computer Department Compency & Experienc
3.. LARGEPRO

Multiple R	.28927
R Square	.08368
Adjusted R Square	.04797
Standard Error	.52341

Analysis of Variance

	DF	Sum of Squares	Mean Square
Regression	3	1.92626	.64209
Residual	77	21.09437	.27395

F = 2.34379 Signif F = .0795

---------- Variables in the Equation ----------

Variable	B	SE B	95% Confdnce Intrvl B		Beta
IT_EXP04	.120357	.075797	-.030574	.271288	.191204
LARGEPRO	-8.10434E-08	6.6804E-08	-2.14066E-07	5.19794E-08	-.953983
LPITEX	2.09009E-08	1.6616E-08	-1.21849E-08	5.39866E-08	1.002126
(Constant)	3.317385	.266529	2.786658	3.848112	

---------- Variables in the Equation ----------

Variable	Tolerance	VIF	T	Sig T
IT_EXP04	.820741	1.218	1.588	.1164
LARGEPRO	.019245	51.962	-1.213	.2288
LPITEX	.018751	53.332	1.258	.2122
(Constant)			12.447	.0000

End Block Number 1 All requested variables entered.

Equation Number 1 Dependent Variable.. SUCCES_M

Residuals Statistics:

	Min	Max	Mean	Std Dev	N
*PRED	3.3116	4.3884	3.7333	.1552	81
*RESID	-1.3355	1.1943	.0000	.5135	81
*ZPRED	-2.7172	4.2219	.0000	1.0000	81
*ZRESID	-2.5515	2.2817	.0000	.9811	81

Total Cases = 138

Durbin-Watson Test = 1.92763

FILE NAME : YH6(b).LST
* * * * M U L T I P L E R E G R E S S I O N * * * *
Listwise Deletion of Missing Data

Equation Number 1 Dependent Variable.. SUCCES_M

Block Number 1. Method: Enter IT_STR02 LARGEPRO

Variable(s) Entered on Step Number
1.. LARGEPRO
2.. IT_STR02 Computer Department Adequate In Strength

Multiple R	.38606
R Square	.14904
Adjusted R Square	.12750
Standard Error	.50368

Analysis of Variance

	DF	Sum of Squares	Mean Square
Regression	2	3.51023	1.75511
Residual	79	20.04152	.25369

F = 6.91834 Signif F = .0017

---------- Variables in the Equation ----------

Variable	B	SE B	95% Confdnce Intrvl B		Beta
IT_STR02	.226871	.062353	.102761	.350980	.388664
LARGEPRO	-1.00578E-09	9.1756E-09	-1.92694E-08	1.72579E-08	-.011709
(Constant)	2.991046	.205592	2.581826	3.400265	

---------- Variables in the Equation ----------

Variable	Tolerance	VIF	T	Sig T
IT_STR02	.944011	1.059	3.639	.0005
LARGEPRO	.944011	1.059	-.110	.9130
(Constant)			14.548	.0000

Equation Number 1 Dependent Variable.. SUCCES_M
End Block Number 1 All requested variables entered.

Residuals Statistics:

	Min	Max	Mean	Std Dev	N
*PRED	3.2178	4.1253	3.7243	.2082	82
*RESID	-1.4306	1.1042	.0000	.4974	82
*ZPRED	-2.4333	1.9262	.0000	1.0000	82
*ZRESID	-2.8402	2.1923	.0000	.9876	82

Total Cases = 138

Durbin-Watson Test = 2.34551

```
* * * *  M U L T I P L E  R E G R E S S I O N  * * * *

Listwise Deletion of Missing Data
Equation Number 1     Dependent Variable..    SUCCES_M
Block Number  1.  Method:  Enter       IT_STR02 LARGEPRO LPITSTR
Variable(s) Entered on Step Number
   1..     LPITSTR
   2..     IT_STR02  Computer Department Adequate In Strength
   3..     LARGEPRO

Multiple R              .39116
R Square                .15301
Adjusted R Square       .12043
Standard Error          .50571

Analysis of Variance
                 DF        Sum of Squares        Mean Square
Regression        3              3.60360             1.20120
Residual         78             19.94816              .25575

F =       4.69685       Signif F =  .0046

Equation Number 1     Dependent Variable..    SUCCES_M

---------------------- Variables in the Equation -------------------
--

Variable                B         SE B      95% Confdnce Intrvl B
Beta

IT_STR02          .237639      .065092       .108050       .367227
.407112
LARGEPRO     3.77947E-08  6.4873E-08 -9.13580E-08  1.66947E-07
.439993
LPITSTR     -9.88533E-09  1.6360E-08 -4.24565E-08  2.26859E-08   -
.460741
(Constant)       2.951651      .216475      2.520684      3.382619

----------- Variables in the Equation -----------

Variable    Tolerance        VIF          T  Sig T

IT_STR02        .873247      1.145      3.651  .0005
LARGEPRO        .019038     52.526       .583  .5618
LPITSTR         .018675     53.548      -.604  .5475
(Constant)                             13.635  .0000

End Block Number   1   All requested variables entered.
Equation Number 1     Dependent Variable..    SUCCES_M
Residuals Statistics:

              Min       Max      Mean   Std Dev    N
*PRED      3.1907    4.1389    3.7243     .2109   82
*RESID    -1.4333    1.1025     .0000     .4963   82
*ZPRED    -2.5300    1.9654     .0000    1.0000   82
*ZRESID   -2.8342    2.1801     .0000     .9813   82
Total Cases =      138


Durbin-Watson Test =    2.35617
```

FILE NAME : YH6(c).LST

* * * * M U L T I P L E R E G R E S S I O N * * * *

Listwise Deletion of Missing Data

Equation Number 1 Dependent Variable.. SUCCES_M

Block Number 1. Method: Enter UD_GAP_M LARGEPRO

Variable(s) Entered on Step Number

1.. LARGEPRO

2.. UD_GAP_M

Multiple R	.50443
R Square	.25445
Adjusted R Square	.23533
Standard Error	.47369

Analysis of Variance

	DF	Sum of Squares	Mean Square
Regression	2	5.97319	2.98660
Residual	78	17.50163	.22438

F = 13.31045 Signif F = .0000

---------- Variables in the Equation ----------

Variable	B	SE B	95% Confdnce Intrvl B		Beta
UD_GAP_M	.436336	.085733	.265654	.607018	.501784
LARGEPRO	1.54801E-09	8.4626E-09	-1.52996E-08	1.83957E-08	.018035
(Constant)	2.053482	.328897	1.398698	2.708267	

---------- Variables in the Equation ----------

Variable	Tolerance	VIF	T	Sig T
UD_GAP_M	.983310	1.017	5.089	.0000
LARGEPRO	.983310	1.017	.183	.8553
(Constant)			6.244	.0000

Equation Number 1 Dependent Variable.. SUCCES_M

End Block Number 1 All requested variables entered.

Residuals Statistics:

	Min	Max	Mean	Std Dev	N
*PRED	3.1444	4.2393	3.7209	.2732	81
*RESID	-1.4660	1.0313	.0000	.4677	81
*ZPRED	-2.1099	1.8973	.0000	1.0000	81
*ZRESID	-3.0950	2.1771	.0000	.9874	81

Total Cases = 138

Durbin-Watson Test = 1.86668

```
* * * *  M U L T I P L E  R E G R E S S I O N  * * * *
Listwise Deletion of Missing Data
Equation Number 1    Dependent Variable..    SUCCES_M
Block Number  1.  Method:  Enter      UD_GAP_M LARGEPRO LPUDGAP
Variable(s) Entered on Step Number
   1..     LPUDGAP
   2..     UD_GAP_M
   3..     LARGEPRO

Multiple R              .51040
R Square                .26051
Adjusted R Square       .23170
Standard Error          .47481

Analysis of Variance
                    DF        Sum of Squares        Mean Square
Regression           3              6.11541             2.03847
Residual            77             17.35941              .22545

F =        9.04190       Signif F =  .0000

Equation Number 1    Dependent Variable..    SUCCES_M

---------------------- Variables in the Equation --------------------
--

Variable                B         SE B     95% Confdnce Intrvl B
Beta

UD_GAP_M          .408292      .092908       .223287       .593296
.469533
LARGEPRO    -5.97516E-08  7.7645E-08 -2.14363E-07  9.48595E-08    -
.696136
LPUDGAP      1.51850E-08  1.9119E-08 -2.28857E-08  5.32558E-08
.723249
(Constant)       2.161929      .356835      1.451379      2.872479

----------- Variables in the Equation -----------

Variable    Tolerance        VIF         T  Sig T

UD_GAP_M         .841281      1.189     4.395  .0000
LARGEPRO         .011736     85.207     -.770  .4439
LPUDGAP          .011582     86.344      .794  .4295
(Constant)                              6.059  .0000
End Block Number   1   All requested variables entered.

Equation Number 1    Dependent Variable..    SUCCES_M
Residuals Statistics:

              Min       Max      Mean   Std Dev   N
*PRED      3.1816    4.2471    3.7209     .2765  81
*RESID    -1.4353    1.0131     .0000     .4658  81
*ZPRED    -1.9508    1.9030     .0000    1.0000  81
*ZRESID   -3.0229    2.1337     .0000     .9811  81
Total Cases =      138

Durbin-Watson Test =   1.84221
```

FILE NAME : YH6(d).LST
* * * * M U L T I P L E R E G R E S S I O N * * * *
Listwise Deletion of Missing Data

Equation Number 1 Dependent Variable.. SUCCES_M
Block Number 1. Method: Enter DOC_IT_M LARGEPRO
Variable(s) Entered on Step Number
1.. LARGEPRO
2.. DOC_IT_M

Multiple R	.37118
R Square	.13777
Adjusted R Square	.11567
Standard Error	.51002

Analysis of Variance

	DF	Sum of Squares	Mean Square
Regression	2	3.24201	1.62101
Residual	78	20.28923	.26012

F = 6.23180 Signif F = .0031

---------- Variables in the Equation ----------

Variable	B	SE B	95% Confdnce Intrvl B		Beta
DOC_IT_M	.320941	.093196	.135401	.506481	.363123
LARGEPRO	4.64764E-09	9.0634E-09	-1.33961E-08	2.26914E-08	.054072
(Constant)	2.664475	.308008	2.051279	3.277671	

---------- Variables in the Equation ----------

Variable	Tolerance	VIF	T	Sig T
DOC_IT_M	.994192	1.006	3.444	.0009
LARGEPRO	.994192	1.006	.513	.6095
(Constant)			8.651	.0000

Equation Number 1 Dependent Variable.. SUCCES_M
End Block Number 1 All requested variables entered.
Residuals Statistics:

	Min	Max	Mean	Std Dev	N
*PRED	3.3066	4.3330	3.7226	.2013	81
*RESID	-1.1818	1.0976	.0000	.5036	81
*ZPRED	-2.0664	3.0321	.0000	1.0000	81
*ZRESID	-2.3172	2.1520	.0000	.9874	81

Total Cases = 138

Durbin-Watson Test = 2.07160

```
* * * *   M U L T I P L E   R E G R E S S I O N   * * * *
Listwise Deletion of Missing Data
* * * *   M U L T I P L E   R E G R E S S I O N   * * * *
Equation Number 1    Dependent Variable..    SUCCES_M

Block Number  1.  Method:  Enter      DOC_IT_M LARGEPRO LPITDOC
Variable(s) Entered on Step Number
   1..     LPITDOC
   2..     DOC_IT_M
   3..     LARGEPRO

Multiple R              .37608
R Square                .14144
Adjusted R Square       .10799
Standard Error          .51223

Analysis of Variance
                    DF        Sum of Squares        Mean Square
Regression           3              3.32822             1.10941
Residual            77             20.20302              .26238

F =       4.22830        Signif F =  .0080

Equation Number 1    Dependent Variable..    SUCCES_M

---------------------- Variables in the Equation --------------------
--

Variable                B         SE B      95% Confdnce Intrvl B
Beta
DOC_IT_M          .347254      .104250       .139665       .554843
.392894
LARGEPRO     2.89184E-08  4.3308E-08 -5.73188E-08  1.15156E-07
.336445
LPITDOC     -7.52937E-09  1.3135E-08 -3.36846E-08  1.86258E-08   -
.292517
(Constant)     2.581639      .341430      1.901765      3.261514

------------ Variables in the Equation -----------
Variable    Tolerance        VIF          T  Sig T
DOC_IT_M      .801438       1.248      3.331  .0013
LARGEPRO      .043920      22.768       .668  .5063
LPITDOC       .042819      23.354      -.573  .5682
(Constant)                              7.561  .0000

End Block Number   1   All requested variables entered.
Equation Number 1    Dependent Variable..    SUCCES_M

Residuals Statistics:

              Min       Max       Mean    Std Dev    N
*PRED      3.2768    4.3135    3.7226      .2040   81
*RESID    -1.1851    1.0920     .0000      .5025   81
*ZPRED    -2.1853    2.8974     .0000     1.0000   81
*ZRESID   -2.3136    2.1319     .0000      .9811   81

Total Cases =      138

Durbin-Watson Test =    2.05021
```

```
FILE NAME : YH6(e).LST
* * * *   M U L T I P L E   R E G R E S S I O N   * * * *
Listwise Deletion of Missing Data
LARGEPRO        .132        .167       1.000

Equation Number 1    Dependent Variable..    SUCCES_M

Block Number  1.  Method:  Enter       U_ED_M    LARGEPRO
Variable(s) Entered on Step Number
   1..     LARGEPRO
   2..     U_ED_M

Multiple R              .29478
R Square                .08689
Adjusted R Square       .06318
Standard Error          .52644

Analysis of Variance
                    DF        Sum of Squares        Mean Square
Regression           2              2.03075             1.01537
Residual            77             21.33979              .27714

F =        3.66376        Signif F =  .0302

---------------------- Variables in the Equation --------------------
--

Variable                B         SE B      95% Confdnce Intrvl B
Beta

U_ED_M           .235350      .097297       .041607       .429093
.267170
LARGEPRO     8.59440E-09  1.0830E-08 -1.29715E-08  3.01603E-08
.087649
(Constant)      2.838680      .359566      2.122691      3.554668

----------- Variables in the Equation -----------

Variable    Tolerance        VIF         T  Sig T

U_ED_M         .972041       1.029     2.419  .0179
LARGEPRO       .972041       1.029      .794  .4299
(Constant)                              7.895  .0000

Equation Number 1    Dependent Variable..    SUCCES_M
End Block Number   1   All requested variables entered.

Residuals Statistics:

              Min       Max      Mean   Std Dev    N
*PRED      3.3103    4.0537    3.7249     .1603   80
*RESID    -1.1452    1.1967     .0000     .5197   80
*ZPRED    -2.5860    2.0506     .0000    1.0000   80
*ZRESID   -2.1753    2.2732     .0000     .9873   80
Total Cases =      138


Durbin-Watson Test =    2.08443
```

```
* * *  M U L T I P L E   R E G R E S S I O N  * * * *
stwise Deletion of Missing Data
uation Number 1     Dependent Variable..    SUCCES_M

lock Number  1.  Method:  Enter       U_ED_M    LARGEPRO LPUED
ariable(s) Entered on Step Number
  1..     LPUED
  2..     U_ED_M
  3..     LARGEPRO

ultiple R            .29700
 Square              .08821
djusted R Square     .05222
tandard Error        .52951

nalysis of Variance
                DF        Sum of Squares        Mean Square
egression        3              2.06152              .68717
esidual         76             21.30902              .28038

 =      2.45085        Signif F =  .0699

quation Number 1     Dependent Variable..    SUCCES_M

---------------------- Variables in the Equation --------------------
-

ariable                B         SE B      95% Confdnce Intrvl B
eta

_ED_M            .220091      .108161       .004670       .435512
 249848
ARGEPRO    -5.09770E-08  1.8014E-07 -4.09756E-07  3.07802E-07   -
 519885
PUED        1.52830E-08  4.6130E-08 -7.65930E-08  1.07159E-07
 611747
(Constant)     2.893979      .398323      2.100650      3.687308

----------- Variables in the Equation -----------
ariable    Tolerance        VIF         T  Sig T

_ED_M         .795783      1.257     2.035  .0454
ARGEPRO       .003555    281.321     -.283  .7780
PUED          .003519    284.193      .331  .7413
(Constant)                           7.265  .0000

nd Block Number   1   All requested variables entered.
quation Number 1    Dependent Variable..    SUCCES_M
esiduals Statistics:

              Min        Max       Mean     Std Dev    N
*PRED      3.3138     4.1837     3.7249      .1615    80
*RESID    -1.1540     1.1982      .0000      .5194    80
*ZPRED    -2.5454     2.8399      .0000     1.0000    80
*ZRESID   -2.1794     2.2629      .0000      .9808    80
Total Cases =      138


Durbin-Watson Test =    2.08932
```

```
FILE NAME : YH7(a).LST
* * * *  M U L T I P L E  R E G R E S S I O N  * * * *
Equation Number 1    Dependent Variable..    SUCCES_M

Block Number  1.  Method:  Enter      U_INV_M   MORESTRU
Variable(s) Entered on Step Number
   1..     MORESTRU
   2..     U_INV_M

Multiple R              .56152
R Square                .31531
Adjusted R Square       .30009
Standard Error          .39154

Analysis of Variance
                 DF        Sum of Squares      Mean Square
Regression        2              6.35380           3.17690
Residual         90             13.79722            .15330
F =      20.72307       Signif F =  .0000

---------------------- Variables in the Equation --------------------
--Variable              B         SE B      95% Confdnce Intrvl B
Beta

U_INV_M          .191400      .070390       .051558       .331242
.246456
MORESTRU         .472466      .096894       .279969       .664964
.441959
(Constant)      1.375735      .397003       .587019      2.164452

----------- Variables in the Equation -----------

Variable    Tolerance        VIF          T  Sig T

U_INV_M       .926051      1.080      2.719  .0079
MORESTRU      .926051      1.080      4.876  .0000
(Constant)                            3.465  .0008

Equation Number 1    Dependent Variable..    SUCCES_M
End Block Number   1   All requested variables entered.

Residuals Statistics:

             Min        Max       Mean     Std Dev    N
*PRED      3.3875     4.6951     3.9172      .2628   93
*RESID    -1.2171      .7473      .0000      .3873   93
*ZPRED    -2.0156     2.9600      .0000     1.0000   93
*ZRESID   -3.1086     1.9087      .0000      .9891   93

Total Cases =      138


Durbin-Watson Test =   1.59627
```

```
* * *  M U L T I P L E   R E G R E S S I O N  * * * *
istwise Deletion of Missing Data
quation Number 1     Dependent Variable..    SUCCES_M
lock Number  1.  Method:  Enter       U_INV_M   MORESTRU MSUINV

ariable(s) Entered on Step Number
  1..     MSUINV
  2..     MORESTRU
  3..     U_INV_M

ultiple R              .56256
 Square                .31647
djusted R Square       .29343
tandard Error          .39340

nalysis of Variance
                 DF        Sum of Squares        Mean Square
egression         3              6.37717             2.12572
esidual          89             13.77385              .15476

 =      13.73539        Signif F =  .0000

          * * * *  M U L T I P L E   R E G R E S S I O N  * * * *

quation Number 1     Dependent Variable..    SUCCES_M

---------------------- Variables in the Equation --------------------
-

ariable                B         SE B      95% Confdnce Intrvl B
eta
_INV_M          .433896      .628012      -.813951      1.681742
558705
ORESTRU         .739953      .695177      -.641350      2.121256
692174
SUINV          -.064299      .165462      -.393068       .264470   -
451397
(Constant)      .371274     2.615390     -4.825451      5.567999

---------- Variables in the Equation -----------

ariable     Tolerance        VIF         T  Sig T
_INV_M        .011745      85.146      .691  .4914
ORESTRU       .018162      55.061     1.064  .2900
SUINV         .005692     175.685     -.389  .6985
(Constant)                             .142  .8874

End Block Number   1   All requested variables entered.
Equation Number 1    Dependent Variable..    SUCCES_M
Residuals Statistics:
             Min        Max       Mean    Std Dev    N
*PRED      3.3369     4.6330     3.9172      .2633   93
*RESID    -1.2361      .7420      .0000      .3869   93
*ZPRED    -2.2042     2.7190      .0000     1.0000   93
*ZRESID   -3.1422     1.8862      .0000      .9836   93

Total Cases =      138

Durbin-Watson Test =   1.58551
```

LE NAME :YH7(b).LST
* * * * M U L T I P L E R E G R E S S I O N * * * *

stwise Deletion of Missing Data

quation Number 1 Dependent Variable.. SUCCES_M

lock Number 1. Method: Enter U_COM_M MORESTRU

ariable(s) Entered on Step Number
1.. MORESTRU
2.. U_COM_M

ultiple R .57860
Square .33477
djusted R Square .31948
tandard Error .38593

nalysis of Variance

	DF	Sum of Squares	Mean Square
egression	2	6.52102	3.26051
esidual	87	12.95786	.14894

= 21.89131 Signif F = .0000

---------- Variables in the Equation ----------

Variable	B	SE B	95% Confdnce Intrvl B	
eta				
U_COM_M	.178632	.052306	.074668	.282595
.299587				
MORESTRU	.503852	.093713	.317587	.690117
.471647				
(Constant)	1.304196	.397395	.514331	2.094061

---------- Variables in the Equation ----------

Variable	Tolerance	VIF	T	Sig T
U_COM_M	.993621	1.006	3.415	.0010
MORESTRU	.993621	1.006	5.377	.0000
(Constant)			3.282	.0015

Equation Number 1 Dependent Variable.. SUCCES_M

End Block Number 1 All requested variables entered.

Residuals Statistics:

	Min	Max	Mean	Std Dev	N
*PRED	3.0664	4.7166	3.9115	.2707	90
*RESID	-1.1183	.7284	.0000	.3816	90
*ZPRED	-3.1221	2.9745	.0000	1.0000	90
*ZRESID	-2.8976	1.8875	.0000	.9887	90

Total Cases = 138

Durbin-Watson Test = 1.85994

```
* * * *  M U L T I P L E  R E G R E S S I O N  * * * *
Listwise Deletion of Missing Data
Equation Number 1    Dependent Variable..    SUCCES_M

Block Number  1.  Method:  Enter       U_COM_M  MORESTRU MSUCOM

Variable(s) Entered on Step Number
   1..     MSUCOM
   2..     MORESTRU
   3..     U_COM_M

Multiple R              .58305
R Square                .33994
Adjusted R Square       .31692
Standard Error          .38665

Analysis of Variance
                    DF        Sum of Squares        Mean Square
Regression           3              6.62173             2.20724
Residual            86             12.85715              .14950

F =      14.76399        Signif F =  .0000

Equation Number 1    Dependent Variable..    SUCCES_M

---------------------- Variables in the Equation --------------------
--

Variable                B         SE B      95% Confdnce Intrvl B
Beta
U_COM_M          .474527      .364313      -.249704      1.198758
.795839
MORESTRU         .815007      .390571       .038578      1.591437
.762914
MSUCOM          -.077898      .094912      -.266577       .110782   -
.599468
(Constant)       .124453     1.491542     -2.840634      3.089541

----------- Variables in the Equation -----------

Variable -  Tolerance        VIF          T  Sig T
U_COM_M         .020559     48.640      1.303  .1962
MORESTRU        .057419     17.416      2.087  .0399
MSUCOM          .014387     69.509      -.821  .4141
(Constant)                               .083  .9337

End Block Number   1   All requested variables entered.
Equation Number 1    Dependent Variable..    SUCCES_M

Residuals Statistics:
Min        Max        Mean     Std Dev    N
*PRED       2.9156    4.6247     3.9115     .2728   90
*RESID     -1.1162     .7172      .0000     .3801   90
*ZPRED     -3.6509    2.6148      .0000    1.0000   90
*ZRESID    -2.8869    1.8548      .0000     .9830   90

Total Cases =      138

Durbin-Watson Test =    1.82037
```

```
FILE NAME : YH8.LST
* * * *   M U L T I P L E   R E G R E S S I O N   * * * *
Listwise Deletion of Missing Data
Equation Number 1    Dependent Variable..    SUCCES_M
Block Number  1.  Method:  Enter      M_SUP_M  MORESTRU

Variable(s) Entered on Step Number
   1..     MORESTRU
   2..     M_SUP_M

Multiple R            .64374
R Square              .41440
Adjusted R Square     .40139
Standard Error        .36210

Analysis of Variance
                    DF        Sum of Squares      Mean Square
Regression           2             8.35066           4.17533
Residual            90            11.80036            .13112

F =       31.84478       Signif F =  .0000

---------------------- Variables in the Equation --------------------
--Variable              B        SE B     95% Confdnce Intrvl B
Beta
M_SUP_M          .253964     .051976      .150704      .357223
.413613
MORESTRU         .410029     .090493      .230249      .589808
.383553
(Constant)      1.391574     .342223      .711688     2.071459

----------- Variables in the Equation -----------

Variable    Tolerance        VIF         T  Sig T
M_SUP_M       .908042      1.101     4.886  .0000
MORESTRU      .908042      1.101     4.531  .0000
(Constant)                           4.066  .0001

Equation Number 1    Dependent Variable..    SUCCES_M
End Block Number   1   All requested variables entered.

Residuals Statistics:

             Min       Max       Mean    Std Dev    N
*PRED      3.1564    4.6798    3.9172     .3013   93
*RESID    -1.1368     .8093     .0000     .3581   93
*ZPRED    -2.5251    2.5313     .0000    1.0000   93
*ZRESID   -3.1394    2.2350     .0000     .9891   93

Total Cases =      138


Durbin-Watson Test =   1.87504
```

```
* * * *  M U L T I P L E  R E G R E S S I O N  * * * *
Listwise Deletion of Missing Data
Equation Number 1    Dependent Variable..   SUCCES_M

Block Number  1.  Method:  Enter      M_SUP_M  MORESTRU MSMSUP

Variable(s) Entered on Step Number
   1..     MSMSUP
   2..     MORESTRU
   3..     M_SUP_M

Multiple R            .65760
R Square              .43244
Adjusted R Square     .41331
Standard Error        .35847

Analysis of Variance
                    DF        Sum of Squares        Mean Square
Regression           3              8.71419             2.90473
Residual            89             11.43683              .12850

F =       22.60426       Signif F =  .0000

Equation Number 1    Dependent Variable..   SUCCES_M

---------------------- Variables in the Equation --------------------
--

Variable                B         SE B      95% Confdnce Intrvl B
Beta
M_SUP_M          .907036      .391678       .128780      1.685293
1.477228
MORESTRU        1.111742      .426713       .263872      1.959611
1.039955
MSMSUP          -.173241      .103000      -.377900       .031418  -
1.415489
(Constant)     -1.237026     1.599133     -4.414468      1.940417

------------ Variables in the Equation -----------
Variable    Tolerance          VIF          T  Sig T
M_SUP_M       .015672       63.810      2.316  .0229
MORESTRU      .040024       24.985      2.605  .0108
MSMSUP        .009004      111.063     -1.682  .0961
(Constant)                              -.774  .4412

End Block Number   1   All requested variables entered.

Equation Number 1    Dependent Variable..   SUCCES_M
Residuals Statistics:
Min       Max       Mean    Std Dev    N
*PRED      2.9368    4.5207    3.9172     .3078   93
*RESID    -1.1628     .8135     .0000     .3526   93
*ZPRED    -3.1854    1.9611     .0000    1.0000   93
*ZRESID   -3.2437    2.2694     .0000     .9836   93

Total Cases =      138


Durbin-Watson Test =   1.83614
```

```
FILE NAME : YH9(a).LST
* * * *   M U L T I P L E   R E G R E S S I O N   * * * *
Listwise Deletion of Missing Data
Equation Number 1     Dependent Variable..    SUCCES_M

Block Number  1.  Method:  Enter       IT_EXP04 MORESTRU

Variable(s) Entered on Step Number
   1..     MORESTRU
   2..     IT_EXP04  Computer Department Compency & Experienc

Multiple R            .51309
R Square              .26326
Adjusted R Square     .24671
Standard Error        .39971

Analysis of Variance
                 DF        Sum of Squares        Mean Square
Regression        2              5.08116             2.54058
Residual         89             14.21949              .15977

F =       15.90154       Signif F =  .0000

---------------------- Variables in the Equation -------------------
--
Variable                B         SE B      95% Confdnce Intrvl B
Beta
IT_EXP04          .052200      .049142      -.045444       .149845
.097257
MORESTRU          .517711      .096148       .326667       .708755
.493008
(Constant)       1.781757      .387467      1.011867      2.551646

----------- Variables in the Equation -----------
Variable    Tolerance        VIF          T  Sig T
IT_EXP04      .987438      1.013      1.062  .2910
MORESTRU      .987438      1.013      5.385  .0000
(Constant)                            4.598  .0000

Equation Number 1     Dependent Variable..    SUCCES_M
End Block Number   1   All requested variables entered.

Residuals Statistics:

             Min        Max       Mean    Std Dev    N

*PRED      3.5132     4.6313     3.9272      .2363   92
*RESID    -1.2249      .7981      .0000      .3953   92
*ZPRED    -1.7516     2.9800      .0000     1.0000   92
*ZRESID   -3.0646     1.9967      .0000      .9889   92

Total Cases =      138


Durbin-Watson Test =   1.64156
```

```
* * * *  M U L T I P L E   R E G R E S S I O N  * * * *
Listwise Deletion of Missing Data
Equation Number 1     Dependent Variable..    SUCCES_M

Block Number  1.  Method:  Enter       IT_EXP04 MORESTRU MSITX
Variable(s) Entered on Step Number
   1..     MSITX
   2..     MORESTRU
   3..     IT_EXP04   Computer Department Compency & Experienc

Multiple R              .53310
R Square                .28420
Adjusted R Square       .25980
Standard Error          .39622

Analysis of Variance
                    DF        Sum of Squares        Mean Square
Regression           3              5.48520             1.82840
Residual            88             13.81545              .15699

F =       11.64633       Signif F =  .0000

Equation Number 1     Dependent Variable..    SUCCES_M

---------------------- Variables in the Equation --------------------
--

Variable                B         SE B      95% Confdnce Intrvl B
Beta
IT_EXP04          .592572      .340343      -.083788      1.268932
1.104060
MORESTRU         1.019399      .326927       .369702      1.669097
.970757
MSITX            -.138632      .086416      -.310365       .033101  -
1.170747
(Constant)       -.166222     1.273563     -2.697161      2.364716

------------ Variables in the Equation -----------

Variable    Tolerance        VIF         T  Sig T
IT_EXP04      .020229     49.434     1.741  .0852
MORESTRU      .083922     11.916     3.118  .0025
MSITX         .015273     65.475    -1.604  .1122
(Constant)                          -.131  .8965

End Block Number   1   All requested variables entered.
Equation Number 1     Dependent Variable..    SUCCES_M

Residuals Statistics:

             Min        Max       Mean    Std Dev    N
*PRED      3.3513     4.7296     3.9272      .2455   92
*RESID    -1.2648      .7940      .0000      .3896   92
*ZPRED    -2.3453     3.2684      .0000     1.0000   92
*ZRESID   -3.1922     2.0040      .0000      .9834   92

Total Cases =      138

Durbin-Watson Test =   1.65534
```

```
FILE NAME : YH9(b).LST
* * * *   M U L T I P L E   R E G R E S S I O N   * * * *
Listwise Deletion of Missing Data
Equation Number 1    Dependent Variable..   SUCCES_M

Block Number  1.  Method:  Enter      IT_STR02 MORESTRU

Variable(s) Entered on Step Number
   1..     MORESTRU
   2..     IT_STR02  Computer Department Adequate In Strength


Multiple R            .52252
R Square              .27303
Adjusted R Square     .25688
Standard Error        .40345

Analysis of Variance
                    DF       Sum of Squares      Mean Square
Regression           2             5.50187          2.75094
Residual            90            14.64915           .16277

F =       16.90094       Signif F =  .0000

---------------------- Variables in the Equation --------------------
--Variable               B        SE B     95% Confdnce Intrvl B
Beta
IT_STR02         .067621     .051415     -.034523      .169766
.120571
MORESTRU         .518697     .098003      .323998      .713396
.485204
(Constant)      1.723733     .379925      .968946     2.478520

----------- Variables in the Equation -----------
Variable    Tolerance        VIF         T  Sig T
IT_STR02      .961117      1.040     1.315  .1918
MORESTRU      .961117      1.040     5.293  .0000
(Constant)                           4.537  .0000

Equation Number 1    Dependent Variable..   SUCCES_M

End Block Number   1   All requested variables entered.

Residuals Statistics:

             Min       Max      Mean   Std Dev   N

*PRED       3.4215    4.6553    3.9172     .2445  93
*RESID     -1.2318     .8060     .0000     .3990  93
*ZPRED     -2.0268    3.0184     .0000    1.0000  93
*ZRESID    -3.0533    1.9979     .0000     .9891  93

Total Cases =      138


Durbin-Watson Test =   1.67473

* * * *   M U L T I P L E   R E G R E S S I O N   * * * *
Listwise Deletion of Missing Data

Equation Number 1    Dependent Variable..   SUCCES_M
```

```
Block Number  1.  Method:  Enter      IT_STR02 MORESTRU MSITSTR

Variable(s) Entered on Step Number
   1..     MSITSTR
   2..     MORESTRU
   3..     IT_STR02  Computer Department Adequate In Strength


Multiple R            .54929
R Square              .30172
Adjusted R Square     .27818
Standard Error        .39762

Analysis of Variance
                    DF       Sum of Squares      Mean Square
Regression           3             6.07991           2.02664
Residual            89            14.07111            .15810

F =       12.81850       Signif F =  .0000

* * * *  M U L T I P L E  R E G R E S S I O N  * * * *
Equation Number 1     Dependent Variable..   SUCCES_M

---------------------- Variables in the Equation --------------------
--Variable              B        SE B     95% Confdnce Intrvl B
Beta
IT_STR02         .698256     .333685      .035230     1.361282
1.245015
MORESTRU        1.107332     .322647      .466240     1.748425
1.035831
MSITSTR         -.168163     .087947     -.342912      .006587  -
1.356624
(Constant)      -.472457    1.208078    -2.872883     1.927969

----------- Variables in the Equation -----------
Variable    Tolerance        VIF          T  Sig T
IT_STR02      .022164     45.118      2.093  .0392
MORESTRU      .086132     11.610      3.432  .0009
MSITSTR       .015586     64.160     -1.912  .0591
(Constant)                           -.391  .6967
End Block Number   1   All requested variables entered.

Equation Number 1     Dependent Variable..   SUCCES_M
Residuals Statistics:
Min       Max       Mean   Std Dev    N
*PRED      3.1775    4.7791    3.9172     .2571  93
*RESID    -1.2821     .7858     .0000     .3911  93
*ZPRED    -2.8774    3.3528     .0000    1.0000  93
*ZRESID   -3.2245    1.9762     .0000     .9836  93
Total Cases =      138

Durbin-Watson Test =    1.62804
FILE NAME : YH9(c).LST
* * * *  M U L T I P L E  R E G R E S S I O N  * * * *
Listwise Deletion of Missing Data
Equation Number 1     Dependent Variable..   SUCCES_M

Block Number  1.  Method:  Enter      UD_GAP_M MORESTRU
```

Variable(s) Entered on Step Number
1.. MORESTRU
2.. UD_GAP_M

Multiple R .61335
R Square .37620
Adjusted R Square .36218
Standard Error .37575

Analysis of Variance

	DF	Sum of Squares	Mean Square
Regression	2	7.57813	3.78906
Residual	89	12.56596	.14119

F = 26.83651 Signif F = .0000

---------- Variables in the Equation ----------

Variable	B	SE B	95% Confdnce Intrvl B		Beta
UD_GAP_M	.315884	.077552	.161789	.469979	.393929
MORESTRU	.334255	.103414	.128773	.539737	.312596
(Constant)	1.375541	.360811	.658618	2.092465	

---------- Variables in the Equation ----------

Variable	Tolerance	VIF	T	Sig T
UD_GAP_M	.749354	1.334	4.073	.0001
MORESTRU	.749354	1.334	3.232	.0017
(Constant)			3.812	.0003

Equation Number 1 Dependent Variable.. SUCCES_M
End Block Number 1 All requested variables entered.
Residuals Statistics:

	Min	Max	Mean	Std Dev	N
*PRED	3.3737	4.6262	3.9163	.2886	92
*RESID	-1.3556	.7578	.0000	.3716	92
*ZPRED	-1.8802	2.4602	.0000	1.0000	92
*ZRESID	-3.6078	2.0167	.0000	.9889	92

Total Cases = 138

Durbin-Watson Test = 1.79274

```
* * * *  M U L T I P L E  R E G R E S S I O N  * * * *
Listwise Deletion of Missing Data
Equation Number 1    Dependent Variable..    SUCCES_M
Block Number  1.  Method:  Enter       UD_GAP_M MORESTRU MSUDGAP

Variable(s) Entered on Step Number
   1..     MSUDGAP
   2..     MORESTRU
   3..     UD_GAP_M

Multiple R              .61787
R Square                .38176
Adjusted R Square       .36069
Standard Error          .37619

Analysis of Variance
                    DF        Sum of Squares        Mean Square
Regression           3              7.69024             2.56341
Residual            88             12.45384              .14152

F =       18.11332       Signif F =  .0000

Equation Number 1    Dependent Variable..    SUCCES_M

---------------------- Variables in the Equation --------------------
--
Variable                B         SE B      95% Confdnce Intrvl B
Beta
UD_GAP_M          .851722      .607004      -.354571      2.058014
1.062155
MORESTRU          .933284      .680931      -.419923      2.286490
.872807
MSUDGAP          -.138753      .155890      -.448551       .171046  -
1.068063
(Constant)       -.917180     2.601097     -6.086315      4.251954

----------- Variables in the Equation -----------
Variable    Tolerance          VIF          T  Sig T
UD_GAP_M       .012261       81.562      1.403  .1641
MORESTRU       .017324       57.722      1.371  .1740
MSUDGAP        .004879      204.962      -.890  .3759
(Constant)                                -.353  .7252

End Block Number   1   All requested variables entered.

Equation Number 1    Dependent Variable..    SUCCES_M
Residuals Statistics:

             Min        Max       Mean    Std Dev    N
*PRED     3.2629     4.5390     3.9163      .2907   92
*RESID   -1.4105      .7575      .0000      .3699   92
*ZPRED   -2.2475     2.1422      .0000     1.0000   92
*ZRESID  -3.7495     2.0136      .0000      .9834   92

Total Cases =      138


Durbin-Watson Test =   1.73757
```

FILE NAME : YH9(d).LST
* * * * M U L T I P L E R E G R E S S I O N * * * *
Listwise Deletion of Missing Data
Equation Number 1 Dependent Variable.. SUCCES_M

Block Number 1. Method: Enter DOC_IT_M MORESTRU

Variable(s) Entered on Step Number
1.. MORESTRU
2.. DOC_IT_M

Multiple R	.53809
R Square	.28954
Adjusted R Square	.27358
Standard Error	.40105

Analysis of Variance

	DF	Sum of Squares	Mean Square
Regression	2	5.83387	2.91693
Residual	89	14.31457	.16084

F = 18.13587 Signif F = .0000

---------- Variables in the Equation ----------

Variable	B	SE B	95% Confdnce Intrvl B		Beta
DOC_IT_M	.149539	.076418	-.002302	.301380	.200469
MORESTRU	.439329	.109554	.221647	.657011	.410816
(Constant)	1.747422	.368583	1.015055	2.479789	

---------- Variables in the Equation ----------

Variable	Tolerance	VIF	T	Sig T
DOC_IT_M	.760627	1.315	1.957	.0535
MORESTRU	.760627	1.315	4.010	.0001
(Constant)			4.741	.0000

Equation Number 1 Dependent Variable.. SUCCES_M
End Block Number 1 All requested variables entered.
Residuals Statistics:

	Min	Max	Mean	Std Dev	N
*PRED	3.4272	4.6918	3.9177	.2532	92
*RESID	-1.1729	.7884	.0000	.3966	92
*ZPRED	-1.9372	3.0570	.0000	1.0000	92
*ZRESID	-2.9246	1.9658	.0000	.9889	92

Total Cases = 138

Durbin-Watson Test = 1.71816

```
          * * * *   M U L T I P L E   R E G R E S S I O N   * * * *
Listwise Deletion of Missing Data
Equation Number 1     Dependent Variable..    SUCCES_M
Block Number  1.  Method:  Enter       DOC_IT_M MORESTRU MSITDOC

Variable(s) Entered on Step Number
   1..     MSITDOC
   2..     MORESTRU
   3..     DOC_IT_M

Multiple R            .55983
R Square              .31341
Adjusted R Square     .29000
Standard Error        .39649

Analysis of Variance
                    DF        Sum of Squares        Mean Square
Regression           3              6.31466             2.10489
Residual            88             13.83378              .15720

F =       13.38969       Signif F =  .0000

Equation Number 1     Dependent Variable..    SUCCES_M

---------------------- Variables in the Equation --------------------
--
Variable                B         SE B      95% Confdnce Intrvl B
Beta
DOC_IT_M          .907294      .439828       .033228      1.781360
1.216299
MORESTRU         1.124636      .406557       .316689      1.932583
1.051646
MSITDOC          -.189554      .108389      -.404954       .025846  -
1.450318
(Constant)       -.957471     1.589028     -4.115331      2.200388

------------ Variables in the Equation -----------
Variable    Tolerance        VIF         T  Sig T
DOC_IT_M      .022442     44.559     2.063  .0421
MORESTRU      .053983     18.524     2.766  .0069
MSITDOC       .011345     88.148    -1.749  .0838
(Constant)                           -.603  .5484

End Block Number   1   All requested variables entered.

Equation Number 1     Dependent Variable..    SUCCES_M
Residuals Statistics:

              Min       Max      Mean   Std Dev   N
*PRED      3.2002    4.5112    3.9177     .2634  92
*RESID    -1.1245     .8031     .0000     .3899  92
*ZPRED    -2.7239    2.2528     .0000    1.0000  92
*ZRESID   -2.8362    2.0256     .0000     .9834  92

Total Cases =      138


Durbin-Watson Test =   1.64338
```

```
LE NAME : YH3(e).LST
* * *   M U L T I P L E   R E G R E S S I O N   * * * *
stwise Deletion of Missing Data
uation Number 1     Dependent Variable..    SUCCES_M

ock Number  1.  Method:  Enter       U_ED_M    MORESTRU

riable(s) Entered on Step Number
  1..     MORESTRU
  2..     U_ED_M

ultiple R              .54072
 Square                .29238
djusted R Square       .27630
tandard Error          .39977

nalysis of Variance
                 DF        Sum of Squares        Mean Square
egression         2              5.81095             2.90547
esidual          88             14.06366              .15981

 =      18.18032        Signif F =  .0000

---------------------- Variables in the Equation -----------------------
-Variable                B         SE B      95% Confdnce Intrvl B
eta
_ED_M            .200143      .092985       .015355       .384931
222974
ORESTRU          .419462      .110438       .199990       .638934
393460
(Constant)      1.556979      .394580       .772834      2.341124

---------- Variables in the Equation -----------
Variable     Tolerance          VIF         T  Sig T
U_ED_M         .749315        1.335     2.152  .0341
MORESTRU       .749315        1.335     3.798  .0003
(Constant)                           3.946  .0002

Equation Number 1     Dependent Variable..    SUCCES_M
End Block Number   1   All requested variables entered.

Residuals Statistics:

             Min        Max       Mean     Std Dev    N

*PRED      3.4757     4.6550     3.9220      .2541    91
*RESID    -1.0690      .8497      .0000      .3953    91
*ZPRED    -1.7562     2.8849      .0000     1.0000    91
*ZRESID   -2.6740     2.1254      .0000      .9888    91

Total Cases =      138


Durbin-Watson Test =   1.77633
```

```
* * * *  M U L T I P L E   R E G R E S S I O N  * * * *
Listwise Deletion of Missing Data
Equation Number 1     Dependent Variable..    SUCCES_M

Block Number  1.  Method:  Enter       U_ED_M    MORESTRU MSUEDU

Variable(s) Entered on Step Number
   1..     MSUEDU
   2..     MORESTRU
   3..     U_ED_M

Multiple R              .54519
R Square                .29723
Adjusted R Square       .27300
Standard Error          .40068

Analysis of Variance
                    DF        Sum of Squares        Mean Square
Regression           3              5.90739             1.96913
Residual            87             13.96722              .16054

F =       12.26547        Signif F =  .0000

Equation Number 1     Dependent Variable..    SUCCES_M

---------------------- Variables in the Equation --------------------
--Variable                B         SE B     95% Confdnce Intrvl B
Beta
U_ED_M            .662799      .604149      -.538012      1.863611
.738407
MORESTRU          .919426      .654481      -.381425      2.220277
.862433
MSUEDU           -.119135      .153707      -.424644       .186375
.855870
(Constant)       -.367441     2.514181     -5.364649      4.629766

----------- Variables in the Equation -----------
Variable    Tolerance          VIF          T  Sig T
U_ED_M        .017831       56.082      1.097  .2756
MORESTRU      .021433       46.657      1.405  .1636
MSUEDU        .006625      150.951      -.775  .4404
(Constant)                              -.146  .8841

End Block Number   1   All requested variables entered.
Equation Number 1     Dependent Variable..    SUCCES_M

Residuals Statistics:

             Min        Max       Mean    Std Dev     N
*PRED      3.3873     4.5653     3.9220      .2562    91
*RESID    -1.0566      .8726      .0000      .3939    91
*ZPRED    -2.0868     2.5112      .0000     1.0000    91
*ZRESID   -2.6369     2.1779      .0000      .9832    91

Total Cases =       138

Durbin-Watson Test =    1.74279
```

```
FILE NAME : YH10(a).LST
* * * *   M U L T I P L E   R E G R E S S I O N   * * * *
Listwise Deletion of Missing Data
Equation Number 1     Dependent Variable..    SUCCES_M
Block Number  1.  Method:  Enter       U_INV_M  SUFFXDOC

Variable(s) Entered on Step Number
   1..     SUFFXDOC
   2..     U_INV_M

Multiple R              .39207
R Square                .15372
Adjusted R Square       .13021
Standard Error          .45359

Analysis of Variance
                 DF        Sum of Squares        Mean Square
Regression        2              2.69071             1.34536
Residual         72             14.81345              .20574

F =        6.53903       Signif F =  .0025

---------------------- Variables in the Equation --------------------
--Variable                B         SE B     95% Confdnce Intrvl B
Beta
U_INV_M          .223461      .088055      .047926      .398995
.284797
SUFFXDOC         .215205      .117382     -.018791      .449201
.205751
(Constant)      2.201055      .502972     1.198399     3.203711

------------ Variables in the Equation ------------
Variable    Tolerance        VIF         T  Sig T
U_INV_M       .933262      1.072     2.538  .0133
SUFFXDOC      .933262      1.072     1.833  .0709
(Constant)                           4.376  .0000

Equation Number 1     Dependent Variable..    SUCCES_M
End Block Number   1   All requested variables entered.

Residuals Statistics:

             Min        Max       Mean    Std Dev     N
*PRED     3.5800     4.3944     3.9337      .1907    75
*RESID   -1.4099      .8208      .0000      .4474    75
*ZPRED   -1.8553     2.4157      .0000     1.0000    75
*ZRESID  -3.1084     1.8096      .0000      .9864    75

Total Cases =      138


Durbin-Watson Test =    2.07500
```

```
* * * *  M U L T I P L E   R E G R E S S I O N  * * * *
stwise Deletion of Missing Data
uation Number 1     Dependent Variable..    SUCCES_M

ock Number  1.  Method:  Enter       U_INV_M  SUFFXDOC SDOCUINV

riable(s) Entered on Step Number
 1..     SDOCUINV
 2..     SUFFXDOC
 3..     U_INV_M

ltiple R            .39873
 Square             .15899
djusted R Square    .12345
tandard Error       .45535

nalysis of Variance
                 DF        Sum of Squares        Mean Square
egression         3             2.78297              .92766
esidual          71            14.72119              .20734

 =      4.47407        Signif F =  .0062

quation Number 1     Dependent Variable..    SUCCES_M
---------- Variables in the Equation ----------
-Variable              B         SE B      95% Confdnce Intrvl B
eta
_INV_M          -.194610      .632938     -1.456653      1.067433   -
248027
UFFXDOC         -.212873      .652465     -1.513851      1.088106   -
203521
DOCUINV          .103885      .155736      -.206643       .414413
754551
Constant)       3.914572     2.617909     -1.305391      9.134534

---------- Variables in the Equation -----------
ariable     Tolerance        VIF          T  Sig T
_INV_M        .018203     54.935       -.307  .7594
UFFXDOC       .030440     32.851       -.326  .7452
DOCUINV       .009258    108.020        .667  .5069
Constant)                             1.495  .1393

End Block Number   1   All requested variables entered.
Equation Number 1     Dependent Variable..    SUCCES_M

Residuals Statistics:

             Min        Max       Mean    Std Dev     N
*PRED      3.5933     4.4743     3.9337      .1939    75
*RESID    -1.3985      .8323      .0000      .4460    75
*ZPRED    -1.7555     2.7873      .0000     1.0000    75
*ZRESID   -3.0713     1.8278      .0000      .9795    75

Total Cases =      138


Durbin-Watson Test =    2.09418
```

```
FILE NAME : YH10(b).LST
* * * *   M U L T I P L E   R E G R E S S I O N   * * * *
Equation Number 1    Dependent Variable..    SUCCES_M
Block Number  1.  Method:  Enter      U_COM_M  SUFFXDOC
Variable(s) Entered on Step Number
   1..     SUFFXDOC
   2..     U_COM_M

Multiple R              .49275
R Square                .24281
Adjusted R Square       .22148
Standard Error          .42529

Analysis of Variance
                 DF        Sum of Squares        Mean Square
Regression        2              4.11793             2.05896
Residual         71             12.84181              .18087

F =       11.38363       Signif F =  .0001

---------------------- Variables in the Equation --------------------
--Variable             B         SE B     95% Confdnce Intrvl B
Beta
U_COM_M          .236856      .062991      .111255      .362457
.397810
SUFFXDOC         .224484      .109480      .006188      .442780
.216932
(Constant)      2.117325      .447735     1.224568     3.010083

------------ Variables in the Equation -----------
Variable    Tolerance        VIF          T  Sig T
U_COM_M       .952808      1.050      3.760  .0003
SUFFXDOC      .952808      1.050      2.050  .0440
(Constant)                            4.729  .0000

Equation Number 1    Dependent Variable..    SUCCES_M

End Block Number   1   All requested variables entered.

Residuals Statistics:

             Min        Max       Mean    Std Dev    N
*PRED      3.1399     4.4240     3.9238      .2375   74
*RESID    -1.3119      .8444      .0000      .4194   74
*ZPRED    -3.3008     2.1059      .0000     1.0000   74
*ZRESID   -3.0847     1.9854      .0000      .9862   74

Total Cases =      138


Durbin-Watson Test =   2.14115
```

* * * * M U L T I P L E R E G R E S S I O N * * * *

Listwise Deletion of Missing Data
Equation Number 1 Dependent Variable.. SUCCES_M
Block Number 1. Method: Enter U_COM_M SUFFXDOC SDOCUCOM
Variable(s) Entered on Step Number
1.. SDOCUCOM
2.. SUFFXDOC
3.. U_COM_M

Multiple R	.49517
R Square	.24519
Adjusted R Square	.21284
Standard Error	.42764

Analysis of Variance

	DF	Sum of Squares	Mean Square
Regression	3	4.15835	1.38612
Residual	70	12.80139	.18288

F = 7.57950 Signif F = .0002

Equation Number 1 Dependent Variable.. SUCCES_M

---------- Variables in the Equation ----------

Variable	B	SE B	95% Confdnce Intrvl B		Beta
U_COM_M	.491803	.545971	-.597101	1.580707	.826006
SUFFXDOC	.505673	.608149	-.707241	1.718588	.488662
SDOCUCOM	-.066879	.142254	-.350594	.216837	-.556888
(Constant)	1.049069	2.316400	-3.570845	5.668982	

---------- Variables in the Equation ----------

Variable	Tolerance	VIF	T	Sig T
U_COM_M	.012824	77.980	.901	.3708
SUFFXDOC	.031221	32.030	.831	.4085
SDOCUCOM	.007685	130.121	-.470	.6397
(Constant)			.453	.6520

End Block Number 1 All requested variables entered.

Equation Number 1 Dependent Variable.. SUCCES_M

Residuals Statistics:

	Min	Max	Mean	Std Dev	N
*PRED	3.0767	4.3645	3.9238	.2387	74
*RESID	-1.3118	.8130	.0000	.4188	74
*ZPRED	-3.5496	1.8462	.0000	1.0000	74
*ZRESID	-3.0676	1.9011	.0000	.9792	74

Total Cases = 138

Durbin-Watson Test = 2.06658

FILE NAME : YH11.LST
* * * * M U L T I P L E R E G R E S S I O N * * * *
Listwise Deletion of Missing Data
Equation Number 1 Dependent Variable.. SUCCES_M

Block Number 1. Method: Enter M_SUP_M SUFFXDOC

Variable(s) Entered on Step Number
1.. SUFFXDOC
2.. M_SUP_M

Multiple R	.54845
R Square	.30080
Adjusted R Square	.28138
Standard Error	.41229

Analysis of Variance

	DF	Sum of Squares	Mean Square
Regression	2	5.26529	2.63264
Residual	72	12.23887	.16998

F = 15.48756 Signif F = .0000

---------- Variables in the Equation ----------

--Variable	B	SE B	95% Confdnce Intrvl B		Beta
M_SUP_M	.315193	.065807	.184009	.446376	.481108
SUFFXDOC	.194681	.105063	-.014758	.404120	.186129
(Constant)	1.949293	.441571	1.069036	2.829549	

---------- Variables in the Equation ----------

Variable	Tolerance	VIF	T	Sig T
M_SUP_M	.962477	1.039	4.790	.0000
SUFFXDOC	.962477	1.039	1.853	.0680
(Constant)			4.414	.0000

Equation Number 1 Dependent Variable.. SUCCES_M

End Block Number 1 All requested variables entered.
Residuals Statistics:

	Min	Max	Mean	Std Dev	N
*PRED	3.2217	4.4987	3.9337	.2667	75
*RESID	-1.2984	1.0359	.0000	.4067	75
*ZPRED	-2.6695	2.1178	.0000	1.0000	75
*ZRESID	-3.1491	2.5125	.0000	.9864	75

Total Cases = 138

Durbin-Watson Test = 2.33229

```
* * *   M U L T I P L E   R E G R E S S I O N   * * * *
istwise Deletion of Missing Data
quation Number 1     Dependent Variable..    SUCCES_M
lock Number  1.  Method:  Enter       M_SUP_M  SUFFXDOC SDOCMSUP

ariable(s) Entered on Step Number
  1..     SDOCMSUP
  2..     SUFFXDOC
  3..     M_SUP_M

ultiple R              .54920
 Square                .30162
djusted R Square       .27211
tandard Error          .41494

nalysis of Variance
                 DF        Sum of Squares        Mean Square
egression         3              5.27959             1.75986
esidual          71             12.22457              .17218

 =      10.22124        Signif F =  .0000

quation Number 1     Dependent Variable..    SUCCES_M

---------------------- Variables in the Equation --------------------
-Variable              B         SE B      95% Confdnce Intrvl B
eta
_SUP_M          .159625      .543819      -.924719      1.243968
 243650
UFFXDOC         .030691      .578734     -1.123272      1.184654
 029343
DOCMSUP         .039587      .137355      -.234291       .313466
.310175
(Constant)     2.590818     2.269819     -1.935072      7.116709

---------- Variables in the Equation -----------

Variable     Tolerance          VIF          T  Sig T
M_SUP_M        .014276       70.050       .294  .7700
SUFFXDOC       .032129       31.125       .053  .9579
SDOCMSUP       .008493      117.750       .288  .7740
(Constant)                               1.141  .2575
End Block Number   1   All requested variables entered.

Equation Number 1     Dependent Variable..    SUCCES_M

Residuals Statistics:

              Min         Max        Mean     Std Dev     N
*PRED       3.2573      4.5321      3.9337      .2671    75
*RESID     -1.2957      1.0151       .0000      .4064    75
*ZPRED     -2.5324      2.2401       .0000     1.0000    75
*ZRESID    -3.1227      2.4464       .0000      .9795    75

Total Cases =      138

Durbin-Watson Test =    2.35299
```

FILE NAME : YH12(a).LST
* * * * M U L T I P L E R E G R E S S I O N * * * *
Listwise Deletion of Missing Data
Equation Number 1 Dependent Variable.. SUCCES_M

Block Number 1. Method: Enter IT_EXP04 SUFFXDOC

Variable(s) Entered on Step Number
1.. SUFFXDOC
2.. IT_EXP04 Computer Department Compency & Experienc

Multiple R	.35567
R Square	.12650
Adjusted R Square	.10189
Standard Error	.45219

Analysis of Variance

	DF	Sum of Squares	Mean Square
Regression	2	2.10247	1.05124
Residual	71	14.51802	.20448

F = 5.14105 Signif F = .0082

---------- Variables in the Equation ----------

--Variable	B	SE B	95% Confdnce Intrvl B		Beta
IT_EXP04	.124524	.058165	.008546	.240502	.237473
SUFFXDOC	.268805	.113631	.042231	.495380	.262400
(Constant)	2.464106	.488576	1.489914	3.438299	

---------- Variables in the Equation ----------

Variable	Tolerance	VIF	T	Sig T
IT_EXP04	.999899	1.000	2.141	.0357
SUFFXDOC	.999899	1.000	2.366	.0207
(Constant)			5.043	.0000

Equation Number 1 Dependent Variable.. SUCCES_M
End Block Number 1 All requested variables entered.

Residuals Statistics:

	Min	Max	Mean	Std Dev	N
*PRED	3.6540	4.4308	3.9464	.1697	74
*RESID	-1.1437	.9626	.0000	.4460	74
*ZPRED	-1.7229	2.8542	.0000	1.0000	74
*ZRESID	-2.5292	2.1287	.0000	.9862	74

Total Cases = 138

Durbin-Watson Test = 2.05321

```
* * * *  M U L T I P L E   R E G R E S S I O N  * * * *
Listwise Deletion of Missing Data
Equation Number 1    Dependent Variable..   SUCCES_M

Block Number  1.  Method:  Enter      IT_EXP04 SUFFXDOC SDOCITX

Variable(s) Entered on Step Number
   1..     SDOCITX
   2..     SUFFXDOC
   3..     IT_EXP04  Computer Department Compency & Experienc

Multiple R            .35782
R Square              .12803
Adjusted R Square     .09066
Standard Error        .45501

Analysis of Variance
                  DF       Sum of Squares       Mean Square
Regression         3              2.12796             .70932
Residual          70             14.49254             .20704

F =       3.42606       Signif F =  .0217

Equation Number 1    Dependent Variable..   SUCCES_M

---------------------- Variables in the Equation --------------------
--Variable               B        SE B     95% Confdnce Intrvl B
Beta
IT_EXP04         .251705     .367207     -.480666      .984077
.480014
SUFFXDOC         .376373     .327234     -.276274     1.029021
.367405
SDOCITX         -.030867     .087983     -.206345      .144610   -
.268137
(Constant)      2.021107    1.355034     -.681424     4.723638

----------- Variables in the Equation -----------
Variable    Tolerance        VIF         T  Sig T
IT_EXP04      .025401     39.368      .685  .4953
SUFFXDOC      .122077      8.192     1.150  .2540
SDOCITX       .021325     46.893     -.351  .7268
(Constant)                           1.492  .1403

End Block Number   1   All requested variables entered.

Equation Number 1    Dependent Variable..   SUCCES_M
Residuals Statistics:

              Min       Max      Mean   Std Dev   N
*PRED      3.6258    4.3898    3.9464     .1707  74
*RESID    -1.1421     .9742     .0000     .4456  74
*ZPRED    -1.8779    2.5973     .0000    1.0000  74
*ZRESID   -2.5100    2.1411     .0000     .9792  74

Total Cases =      138

Durbin-Watson Test =   2.05149
```

```
FILE NAME : YH12(b).LST
* * * *   M U L T I P L E   R E G R E S S I O N   * * * *
Listwise Deletion of Missing Data
Equation Number 1    Dependent Variable..   SUCCES_M
Block Number  1.  Method:  Enter       IT_STR02 SUFFXDOC

Variable(s) Entered on Step Number
   1..     SUFFXDOC
   2..     IT_STR02  Computer Department Adequate In Strength

Multiple R            .36524
R Square              .13340
Adjusted R Square     .10933
Standard Error        .45900

Analysis of Variance
                    DF        Sum of Squares        Mean Square
Regression           2              2.33511             1.16756
Residual            72             15.16905              .21068

F =       5.54182       Signif F =  .0058

---------------------- Variables in the Equation -----------------------
--
Variable                B         SE B      95% Confdnce Intrvl B
Beta
IT_STR02         .132597      .061815       .009371       .255824
.237564
SUFFXDOC         .258181      .115838       .027262       .489100
.246839
(Constant)      2.474244      .474715      1.527917      3.420571

----------- Variables in the Equation -----------
Variable    Tolerance        VIF         T  Sig T
IT_STR02      .981301      1.019     2.145  .0353
SUFFXDOC      .981301      1.019     2.229  .0289
(Constant)                           5.212  .0000

Equation Number 1    Dependent Variable..   SUCCES_M

End Block Number   1   All requested variables entered.

Residuals Statistics:

             Min       Max      Mean   Std Dev   N

*PRED      3.5105    4.4281    3.9337     .1776  75
*RESID    -1.2681     .9626     .0000     .4528  75
*ZPRED    -2.3828    2.7831     .0000    1.0000  75
*ZRESID   -2.7628    2.0973     .0000     .9864  75

Total Cases =      138


Durbin-Watson Test =   2.00498
```

```
* * * *   M U L T I P L E   R E G R E S S I O N   * * * *
Listwise Deletion of Missing Data
Equation Number 1     Dependent Variable..    SUCCES_M
Block Number  1.  Method:  Enter       IT_STR02 SUFFXDOC SDOCITST

Variable(s) Entered on Step Number
   1..     SDOCITST
   2..     SUFFXDOC
   3..     IT_STR02   Computer Department Adequate In Strength

Multiple R              .37594
R Square                .14133
Adjusted R Square       .10505
Standard Error          .46010

Analysis of Variance
                    DF        Sum of Squares        Mean Square
Regression           3              2.47390              .82463
Residual            71             15.03026              .21169

F =        3.89540       Signif F =  .0123

Equation Number 1     Dependent Variable..    SUCCES_M

---------------------- Variables in the Equation --------------------
--Variable               B         SE B     95% Confdnce Intrvl B
Beta
IT_STR02         .455148      .403158      -.348726     1.259021
.815452
SUFFXDOC         .529824      .355021      -.178067     1.237716
.506549
SDOCITST        -.079283      .097919      -.274529      .115962   -
.671102
(Constant)      1.373616     1.440221     -1.498103     4.245334

----------- Variables in the Equation -----------
Variable    Tolerance        VIF          T  Sig T
IT_STR02      .023181     43.139      1.129  .2627
SUFFXDOC      .104974      9.526      1.492  .1400
SDOCITST      .017604     56.805      -.810  .4208
(Constant)                             .954  .3434

End Block Number   1   All requested variables entered.
Equation Number 1     Dependent Variable..    SUCCES_M

Residuals Statistics:

              Min       Max      Mean   Std Dev    N
*PRED      3.4057    4.3164    3.9337     .1828   75
*RESID    -1.2757    1.0167     .0000     .4507   75
*ZPRED    -2.8882    2.0928     .0000    1.0000   75
*ZRESID   -2.7727    2.2097     .0000     .9795   75

Total Cases =      138


Durbin-Watson Test =    2.02104
```

```
FILE NAME : YH12(c).LST
* * * *   M U L T I P L E   R E G R E S S I O N   * * * *
Listwise Deletion of Missing Data
Equation Number 1    Dependent Variable..   SUCCES_M

Block Number  1.  Method:  Enter      UD_GAP_M SUFFXDOC

Variable(s) Entered on Step Number
   1..     SUFFXDOC
   2..     UD_GAP_M

Multiple R            .54824
R Square              .30057
Adjusted R Square     .28114
Standard Error        .41236

Analysis of Variance
                    DF        Sum of Squares       Mean Square
Regression           2              5.26125           2.63063
Residual            72             12.24291            .17004

F =       15.47060       Signif F =  .0000

---------------------- Variables in the Equation --------------------
--Variable               B         SE B     95% Confdnce Intrvl B
Beta
UD_GAP_M         .404845      .084583       .236233       .573457
.506605
SUFFXDOC         .099014      .110706      -.121675       .319703
.094664
(Constant)      1.916518      .444462      1.030500      2.802537

----------- Variables in the Equation -----------
Variable    Tolerance        VIF          T  Sig T
UD_GAP_M      .867137      1.153      4.786  .0000
SUFFXDOC      .867137      1.153       .894  .3741
(Constant)                             4.312  .0001

Equation Number 1    Dependent Variable..   SUCCES_M

End Block Number   1   All requested variables entered.

Residuals Statistics:

             Min       Max      Mean    Std Dev   N

*PRED       3.3427    4.4358    3.9337     .2666  75
*RESID     -1.5676     .6632     .0000     .4067  75
*ZPRED     -2.2168    1.8829     .0000    1.0000  75
*ZRESID    -3.8015    1.6083     .0000     .9864  75

Total Cases =      138

Durbin-Watson Test =   2.01025
```

```
* * * *   M U L T I P L E   R E G R E S S I O N   * * * *
Listwise Deletion of Missing Data
Equation Number 1    Dependent Variable..    SUCCES_M
Block Number  1.  Method:  Enter      UD_GAP_M SUFFXDOC SDOCUDGA

Variable(s) Entered on Step Number
   1..     SDOCUDGA
   2..     SUFFXDOC
   3..     UD_GAP_M

Multiple R            .54838
R Square              .30073
Adjusted R Square     .27118
Standard Error        .41521

Analysis of Variance
                    DF        Sum of Squares        Mean Square
Regression           3              5.26395             1.75465
Residual            71             12.24021              .17240

F =      10.17793       Signif F =  .0000

Equation Number 1    Dependent Variable..    SUCCES_M

---------------------- Variables in the Equation --------------------
--Variable              B        SE B     95% Confdnce Intrvl B
Beta
UD_GAP_M         .485408     .650366     -.811386     1.782201
.607418
SUFFXDOC         .185418     .700442    -1.211224     1.582060
.177273
SDOCUDGA        -.020351     .162873     -.345110      .304408   -
.152356
(Constant)      1.576800    2.755444    -3.917400     7.070999

----------- Variables in the Equation -----------
Variable    Tolerance        VIF         T  Sig T
UD_GAP_M      .014870     67.249      .746  .4579
SUFFXDOC      .021962     45.534      .265  .7920
SDOCUDGA      .006624    150.960     -.125  .9009
(Constant)                            .572  .5690

End Block Number   1   All requested variables entered.

Equation Number 1    Dependent Variable..    SUCCES_M

Residuals Statistics:
Min       Max       Mean   Std Dev    N
*PRED      3.3302    4.4222    3.9337     .2667  75
*RESID    -1.5693     .6615     .0000     .4067  75
*ZPRED    -2.2628    1.8312     .0000    1.0000  75
*ZRESID   -3.7795    1.5932     .0000     .9795  75

Total Cases =      138


Durbin-Watson Test =   2.00047
```

```
FILE NAME : YH12(d).LST
* * * *   M U L T I P L E   R E G R E S S I O N   * * * *
Listwise Deletion of Missing Data
Equation Number 1     Dependent Variable..    SUCCES_M
Block Number  1.  Method:  Enter       DOC_IT_M SUFFXDOC

Variable(s) Entered on Step Number
   1..     SUFFXDOC
   2..     DOC_IT_M

Multiple R              .38078
R Square                .14499
Adjusted R Square       .12124
Standard Error          .45592

Analysis of Variance
                    DF        Sum of Squares        Mean Square
Regression           2              2.53802             1.26901
Residual            72             14.96614              .20786

F =        6.10502       Signif F =  .0036

---------------------- Variables in the Equation -------------------
--Variable               B         SE B     95% Confdnce Intrvl B
Beta
DOC_IT_M          .222598      .093732      .035746       .409449
.298933
SUFFXDOC          .135658      .131660     -.126801       .398116
.129698
(Constant)       2.637559      .452470     1.735576      3.539541

----------- Variables in the Equation -----------
Variable    Tolerance        VIF          T  Sig T
DOC_IT_M      .749466      1.334      2.375  .0202
SUFFXDOC      .749466      1.334      1.030  .3063
(Constant)                            5.829  .0000

Equation Number 1     Dependent Variable..    SUCCES_M
End Block Number   1   All requested variables entered.

Residuals Statistics:

             Min        Max       Mean    Std Dev    N
*PRED      3.5576     4.4288     3.9337      .1852   75
*RESID    -1.0383      .9817      .0000      .4497   75
*ZPRED    -2.0313     2.6733      .0000     1.0000   75
*ZRESID   -2.2773     2.1533      .0000      .9864   75

Total Cases =      138


Durbin-Watson Test =    2.15865
```

```
* * * *  M U L T I P L E  R E G R E S S I O N  * * * *
Listwise Deletion of Missing Data
Equation Number 1    Dependent Variable..   SUCCES_M

Block Number  1.  Method:  Enter      DOC_IT_M SUFFXDOC SDOCITDO

Variable(s) Entered on Step Number
   1..     SDOCITDO
   2..     SUFFXDOC
   3..     DOC_IT_M

Multiple R            .38412
R Square              .14755
Adjusted R Square     .11153
Standard Error        .45843

Analysis of Variance
                    DF        Sum of Squares      Mean Square
Regression           3              2.58272            .86091
Residual            71             14.92144            .21016

F =       4.09641       Signif F =  .0097

Equation Number 1    Dependent Variable..   SUCCES_M
---------------------- Variables in the Equation --------------------
--Variable              B        SE B     95% Confdnce Intrvl B
Beta
DOC_IT_M       -.029886      .555484    -1.137490     1.077717    -
.040135
SUFFXDOC       -.082522      .491227    -1.062000      .896956    -
.078896
SDOCITDO        .060273      .130683     -.200301      .320847
.481494
(Constant)     3.539447     2.007685     -.463763     7.542657

----------- Variables in the Equation -----------
Variable    Tolerance        VIF          T  Sig T
DOC_IT_M      .021576     46.349      -.054  .9572
SUFFXDOC      .054434     18.371      -.168  .8671
SDOCITDO      .011016     90.774       .461  .6461
(Constant)                            1.763  .0822

End Block Number   1   All requested variables entered.

Equation Number 1    Dependent Variable..   SUCCES_M

Residuals Statistics:

              Min       Max      Mean   Std Dev   N
*PRED       3.6128    4.4842    3.9337     .1868  75
*RESID     -1.0353     .9842     .0000     .4490  75
*ZPRED     -1.7182    2.9466     .0000    1.0000  75
*ZRESID    -2.2584    2.1469     .0000     .9795  75

Total Cases =      138

Durbin-Watson Test =   2.18400
```

FILE NAME : YH12(e).LST
* * * * M U L T I P L E R E G R E S S I O N * * * *
Listwise Deletion of Missing Data
Equation Number 1 Dependent Variable.. SUCCES_M

Block Number 1. Method: Enter U_ED_M SUFFXDOC

Variable(s) Entered on Step Number
1.. SUFFXDOC
2.. U_ED_M

Multiple R	.39950
R Square	.15960
Adjusted R Square	.13593
Standard Error	.45141

Analysis of Variance

	DF	Sum of Squares	Mean Square
Regression	2	2.74764	1.37382
Residual	71	14.46779	.20377

F = 6.74195 Signif F = .0021

---------- Variables in the Equation ----------

--Variable	B	SE B	95% Confdnce Intrvl B		Beta
U_ED_M	.252719	.093373	.066539	.438899	.321773
SUFFXDOC	.146234	.123949	-.100914	.393381	.140261
(Constant)	2.401958	.474742	1.455349	3.348567	

---------- Variables in the Equation ----------

Variable	Tolerance	VIF	T	Sig T
U_ED_M	.837453	1.194	2.707	.0085
SUFFXDOC	.837453	1.194	1.180	.2420
(Constant)			5.059	.0000

Equation Number 1 Dependent Variable.. SUCCES_M
End Block Number 1 All requested variables entered.
Residuals Statistics:

	Min	Max	Mean	Std Dev	N
*PRED	3.4192	4.3967	3.9410	.1940	74
*RESID	-1.1774	1.0022	.0000	.4452	74
*ZPRED	-2.6893	2.3492	.0000	1.0000	74
*ZRESID	-2.6082	2.2202	.0000	.9862	74

Total Cases = 138

Durbin-Watson Test = 1.99941

```
          * * * *  M U L T I P L E   R E G R E S S I O N  * * * *
Equation Number 1     Dependent Variable..    SUCCES_M
Block Number  1.  Method:  Enter       U_ED_M    SUFFXDOC SDOCUEDU

Variable(s) Entered on Step Number
   1..     SDOCUEDU
   2..     SUFFXDOC
   3..     U_ED_M

Multiple R              .40765
R Square                .16618
Adjusted R Square       .13045
Standard Error          .45284

Analysis of Variance
                  DF        Sum of Squares        Mean Square
Regression         3              2.86090             .95363
Residual          70             14.35453             .20506

F =       4.65040        Signif F =  .0051

Equation Number 1     Dependent Variable..    SUCCES_M

---------------------- Variables in the Equation --------------------
--Variable              B         SE B     95% Confdnce Intrvl B
Beta
U_ED_M          -.244770      .675927    -1.592863      1.103323    -
.311652
SUFFXDOC        -.410170      .758934    -1.923817      1.103476    -
.393417
SDOCUEDU         .131160      .176484     -.220827       .483147
.982446
(Constant)      4.503451     2.867526    -1.215650     10.222552

----------- Variables in the Equation -----------
Variable    Tolerance        VIF          T  Sig T

U_ED_M         .016082     62.180      -.362  .7183
SUFFXDOC       .022480     44.485      -.540  .5906
SDOCUEDU       .006816    146.708       .743  .4599
(Constant)                           1.571  .1208
End Block Number   1  All requested variables entered.

Equation Number 1     Dependent Variable..    SUCCES_M

Residuals Statistics:

             Min       Max      Mean   Std Dev   N
*PRED      3.4964    4.5077    3.9410     .1980  74
*RESID    -1.1393    1.0178     .0000     .4434  74
*ZPRED    -2.2455    2.8630     .0000    1.0000  74
*ZRESID   -2.5159    2.2475     .0000     .9792  74

Total Cases =      138


Durbin-Watson Test =    2.05499
```

```
FILE NAME : YH13.LST
* * * *   M U L T I P L E   R E G R E S S I O N   * * * *
Listwise Deletion of Missing Data

Equation Number 1    Dependent Variable..   SUCCES_M
Block Number  1.  Method:  Enter
   U_INV_M  U_COM_M  M_SUP_M  IT_EXP04 IT_STR02 UD_GAP_M DOC_IT_M
U_ED_M
Variable(s) Entered on Step Number
   1..     U_ED_M
   2..     IT_STR02  Computer Department Adequate In Strength
   3..     U_COM_M
   4..     IT_EXP04  Computer Department Compency & Experienc
   5..     M_SUP_M
   6..     DOC_IT_M
   7..     U_INV_M
   8..     UD_GAP_M

Multiple R            .76059
R Square              .57850
Adjusted R Square     .55108
Standard Error        .37655

Analysis of Variance
                    DF        Sum of Squares      Mean Square
Regression           8             23.93581           2.99198
Residual           123             17.43988            .14179

F =       21.10181       Signif F =  .0000

Equation Number 1    Dependent Variable..   SUCCES_M
---------------------- Variables in the Equation --------------------
--Variable               B        SE B     95% Confdnce Intrvl B
Beta
U_INV_M          .125568     .070959     -.014891      .266027
.156050
U_COM_M          .076285     .053255     -.029131      .181700
.114145
M_SUP_M          .199716     .061423      .078133      .321300
.273838
IT_EXP04        -.052610     .042264     -.136269      .031048   -
.083628
IT_STR02         .069827     .044733     -.018718      .158372
.118747
UD_GAP_M         .278102     .078959      .121806      .434397
.312333
DOC_IT_M         .055747     .059794     -.062611      .174105
.071112
U_ED_M           .020565     .078867     -.135547      .176677
.022713
(Constant)       .864257     .243483      .382297     1.346218
----------- Variables in the Equation -----------
Variable    Tolerance        VIF         T  Sig T
U_INV_M       .440664      2.269     1.770  .0793
U_COM_M       .539674      1.853     1.432  .1546
M_SUP_M       .483135      2.070     3.251  .0015
```

IT_EXP04	.759276	1.317	-1.245	.2156
IT_STR02	.592169	1.689	1.561	.1211
UD_GAP_M	.435769	2.295	3.522	.0006
DOC_IT_M	.589031	1.698	.932	.3530
U_ED_M	.451640	2.214	.261	.7947
(Constant)			3.550	.0005

End Block Number 1 All requested variables entered.

Equation Number 1 Dependent Variable.. SUCCES_M

Residuals Statistics:

	Min	Max	Mean	Std Dev	N
*PRED	2.6518	4.7303	3.7063	.4275	132
*RESID	-1.6457	.8352	.0000	.3649	132
*ZPRED	-2.4670	2.3955	.0000	1.0000	132
*ZRESID	-4.3706	2.2179	.0000	.9690	132

Total Cases = 138

Durbin-Watson Test = 1.90557

```
FILE NAME : YH14.LST
* * * *   M U L T I P L E   R E G R E S S I O N   * * * *
Listwise Deletion of Missing Data
Equation Number 1    Dependent Variable..    SUCCES_M
Block Number  1.  Method:  Enter
   U_INV_M  U_COM_M  M_SUP_M  IT_EXP04 IT_STR02 UD_GAP_M DOC_IT_M
U_ED_M
   LARGEPRO
Variable(s) Entered on Step Number
   1..     LARGEPRO
   2..     U_COM_M
   3..     IT_STR02  Computer Department Adequate In Strength
   4..     U_ED_M
   5..     IT_EXP04  Computer Department Compency & Experienc
   6..     M_SUP_M
   7..     DOC_IT_M
   8..     U_INV_M
   9..     UD_GAP_M

Multiple R            .67745
R Square              .45894
Adjusted R Square     .38733
Standard Error        .42612

Analysis of Variance
                    DF        Sum of Squares      Mean Square
Regression           9             10.47319          1.16369
Residual            68             12.34738           .18158

F =       6.40871       Signif F =  .0000

Equation Number 1    Dependent Variable..    SUCCES_M
---------------------- Variables in the Equation --------------------
--Variable              B        SE B     95% Confdnce Intrvl B
Beta
U_INV_M          .119694     .123255     -.126258      .365645
.137533
U_COM_M          .084719     .095665     -.106178      .275616
.113223
M_SUP_M          .233565     .087941      .058082      .409048
.324764
IT_EXP04        -.049016     .068779     -.186262      .088229   -
.076122
IT_STR02         .061173     .067884     -.074289      .196634
.104325
UD_GAP_M         .183891     .121999     -.059553      .427335
.213710
DOC_IT_M         .029406     .103469     -.177063      .235875
.033731
U_ED_M           .070567     .122755     -.174386      .315521
.078499
LARGEPRO   -2.35971E-09  9.8601E-09 -2.20352E-08  1.73158E-08   -
.024320
(Constant)      1.019134     .406209      .208558     1.829711
```

---------- Variables in the Equation ----------

Variable	Tolerance	VIF	T	Sig T
U_INV_M	.396696	2.521	.971	.3349
U_COM_M	.486772	2.054	.886	.3790
M_SUP_M	.532160	1.879	2.656	.0098
IT_EXP04	.697417	1.434	-.713	.4785
IT_STR02	.593665	1.684	.901	.3707
UD_GAP_M	.395824	2.526	1.507	.1364
DOC_IT_M	.564871	1.770	.284	.7771
U_ED_M	.426720	2.343	.575	.5673
LARGEPRO	.770484	1.298	-.239	.8116
(Constant)			2.509	.0145

End Block Number 1 All requested variables entered.

Equation Number 1 Dependent Variable.. SUCCES_M

Residuals Statistics:

	Min	Max	Mean	Std Dev	N
*PRED	2.8954	4.5653	3.7324	.3688	78
*RESID	-1.5338	.7743	.0000	.4004	78
*ZPRED	-2.2696	2.2583	.0000	1.0000	78
*ZRESID	-3.5994	1.8172	.0000	.9397	78

Total Cases = 138

Durbin-Watson Test = 1.87026

* * * * M U L T I P L E R E G R E S S I O N * * * *
Listwise Deletion of Missing Data
Equation Number 1 Dependent Variable.. SUCCES_M
Block Number 1. Method: Enter
U_INV_M U_COM_M M_SUP_M IT_EXP04 IT_STR02 UD_GAP_M DOC_IT_M
U_ED_M
LARGEPRO LPINV LPUCOM LPMSUP LPITEX LPITSTR LPUDGAP
LPITDOC
LPUEDU
Variable(s) Entered on Step Number
1.. LPUEDU
2.. U_COM_M
3.. IT_STR02 Computer Department Adequate In Strength
4.. U_ED_M
5.. IT_EXP04 Computer Department Compency & Experienc
6.. M_SUP_M
7.. DOC_IT_M
8.. U_INV_M
9.. UD_GAP_M
10.. LPUCOM
11.. LPITEX
12.. LPITDOC
13.. LPMSUP
14.. LPITSTR
15.. LPUDGAP
16.. LPINV
17.. LARGEPRO

Multiple R	.71492
R Square	.51111
Adjusted R Square	.37259
Standard Error	.43122

Analysis of Variance

	DF	Sum of Squares	Mean Square
Regression	17	11.66376	.68610
Residual	60	11.15681	.18595

F = 3.68978 Signif F = .0001

Equation Number 1 Dependent Variable.. SUCCES_M

Variables in the Equation

--Variable	B	SE B	95% Confdnce Intrvl B		Beta
U_INV_M	-.011623	.145597	-.302860	.279614	-.013355
U_COM_M	.127737	.112897	-.098091	.353564	.170713
M_SUP_M	.262055	.123898	.014222	.509888	.364378
IT_EXP04	-.048422	.078633	-.205713	.108868	-.075199
IT_STR02	.078191	.092821	-.107478	.263859	.133347
UD_GAP_M	.087912	.162991	-.238119	.413943	.102167
DOC_IT_M	.090387	.126965	-.163580	.344354	.103679
U_ED_M	.120273	.152901	-.185574	.426121	.133791
LARGEPRO	-1.12496E-08	4.0894E-07	-8.29258E-07	8.06758E-07	-.115942
LPINV	1.35318E-07	7.4936E-08	-1.45764E-08	2.85211E-07	6.015378
LPUCOM	-1.57018E-09	4.5048E-08	-9.16790E-08	8.85386E-08	-.055241
LPMSUP	-5.19713E-08	6.6949E-08	-1.85890E-07	8.19471E-08	-2.356032
LPITEX	-3.97975E-08	5.2922E-08	-1.45657E-07	6.60622E-08	-1.678795
LPITSTR	-1.32775E-08	6.2503E-08	-1.38301E-07	1.11746E-07	-.547014
LPUDGAP	4.65135E-08	6.3258E-08	-8.00211E-08	1.73048E-07	1.998696
LPITDOC	-2.07258E-08	6.8214E-08	-1.57174E-07	1.15722E-07	-.736408
LPUEDU	-6.34252E-08	9.4825E-08	-2.53104E-07	1.26253E-07	-2.566020
(Constant)	1.179204	.551681	.075678	2.282731	

Variables in the Equation

Variable	Tolerance	VIF	T	Sig T
U_INV_M	.291130	3.435	-.080	.9366
U_COM_M	.357928	2.794	1.131	.2624
M_SUP_M	.274545	3.642	2.115	.0386
IT_EXP04	.546396	1.830	-.616	.5404
IT_STR02	.325175	3.075	.842	.4029
UD_GAP_M	.227094	4.403	.539	.5916

DOC_IT_M	.384172	2.603	.712	.4793
U_ED_M	.281659	3.550	.787	.4346
LARGEPRO	4.587E-04	2180.099	-.028	.9781
LPINV	7.343E-04	1361.865	1.806	.0760
LPUCOM	.003244	308.247	-.035	.9723
LPMSUP	8.846E-04	1130.482	-.776	.4406
LPITEX	.001635	611.637	-.752	.4550
LPITSTR	.001229	813.768	-.212	.8325
LPUDGAP	.001103	906.780	.735	.4650
LPITDOC	.001387	720.934	-.304	.7623
LPUEDU	5.536E-04	1806.262	-.669	.5061
(Constant)			2.137	.0366

End Block Number 1 All requested variables entered.
Residuals Statistics:

	Min	Max	Mean	Std Dev	N
*PRED	2.8923	4.9278	3.7324	.3892	78
*RESID	-1.2804	.7530	.0000	.3806	78
*ZPRED	-2.1585	3.0715	.0000	1.0000	78
*ZRESID	-2.9693	1.7463	.0000	.8827	78

Total Cases = 138

Durbin-Watson Test = 2.00419

```
FILE NAME : YH15.LST
* * * *   M U L T I P L E   R E G R E S S I O N   * * * *
Listwise Deletion of Missing Data
Equation Number 1     Dependent Variable..    SUCCES_M
Block Number  1.  Method:  Enter
   U_INV_M  U_COM_M  M_SUP_M  IT_EXP04 IT_STR02 UD_GAP_M DOC_IT_M
U_ED_M
   MORESTRU

Variable(s) Entered on Step Number
   1..     MORESTRU
   2..     U_COM_M
   3..     IT_STR02  Computer Department Adequate In Strength
   4..     IT_EXP04  Computer Department Compency & Experienc
   5..     UD_GAP_M
   6..     M_SUP_M
   7..     DOC_IT_M
   8..     U_INV_M
   9..     U_ED_M

Multiple R            .70322
R Square              .49452
Adjusted R Square     .43544
Standard Error        .34717

Analysis of Variance
                    DF        Sum of Squares       Mean Square
Regression           9              9.07926            1.00881
Residual            77              9.28051             .12053

F =       8.37002       Signif F =  .0000
---------------------- Variables in the Equation --------------------
--Variable             B        SE B     95% Confdnce Intrvl B
Beta
U_INV_M         -.024609     .093172     -.210139      .160921    -
.031819
U_COM_M          .082963     .065520     -.047504      .213431
.142834
M_SUP_M          .208496     .066934      .075214      .341778
.336635
IT_EXP04        -.003252     .050893     -.104593      .098089    -
.006059
IT_STR02        -.056891     .057652     -.171692      .057909    -
.103632
UD_GAP_M         .169438     .090487     -.010745      .349622
.215317
DOC_IT_M         .057579     .080902     -.103517      .218675
.080386
U_ED_M           .096821     .112592     -.127379      .321021
.106424
MORESTRU         .218823     .108663      .002447      .435200
.209241
(Constant)      1.016557     .389947      .240073     1.793041
```

---------- Variables in the Equation ----------

Variable	Tolerance	VIF	T	Sig T
U_INV_M	.452328	2.211	-.264	.7924
U_COM_M	.515909	1.938	1.266	.2093
M_SUP_M	.562082	1.779	3.115	.0026
IT_EXP04	.730230	1.369	-.064	.9492
IT_STR02	.595237	1.680	-.987	.3268
UD_GAP_M	.496481	2.014	1.873	.0649
DOC_IT_M	.514600	1.943	.712	.4788
U_ED_M	.428602	2.333	.860	.3925
MORESTRU	.608052	1.645	2.014	.0475
(Constant)			2.607	.0110

Equation Number 1 Dependent Variable.. SUCCES_M
Residuals Statistics:

	Min	Max	Mean	Std Dev	N
*PRED	3.0418	4.8502	3.9283	.3249	87
*RESID	-1.2122	.6565	.0000	.3285	87
*ZPRED	-2.7286	2.8373	.0000	1.0000	87
*ZRESID	-3.4917	1.8909	.0000	.9462	87

Total Cases = 138

Durbin-Watson Test = 1.95980

* * * * M U L T I P L E R E G R E S S I O N * * * *
Listwise Deletion of Missing Data

Equation Number 1 Dependent Variable.. SUCCES_M

Block Number 1. Method: Enter
U_INV_M U_COM_M M_SUP_M IT_EXP04 IT_STR02 UD_GAP_M DOC_IT_M
U_ED_M
MORESTRU MSUINV MSUCOM MSMSUP MSITX MSITSTR MSUDGAP
MSITDOC
MSUEDU
Variable(s) Entered on Step Number
1.. MSUEDU
2.. IT_EXP04 Computer Department Compency & Experienc
3.. M_SUP_M
4.. U_COM_M
5.. IT_STR02 Computer Department Adequate In Strength
6.. DOC_IT_M
7.. UD_GAP_M
8.. U_INV_M
9.. MORESTRU
10.. U_ED_M
11.. MSITSTR
12.. MSUCOM
13.. MSITX
14.. MSMSUP
15.. MSITDOC
16.. MSUINV
17.. MSUDGAP

Multiple R	.73842
R Square	.54527
Adjusted R Square	.43323
Standard Error	.34785

Analysis of Variance

	DF	Sum of Squares	Mean Square
Regression	17	10.01100	.58888
Residual	69	8.34877	.12100

F = 4.86693 Signif F = .0000

Equation Number 1 Dependent Variable.. SUCCES_M

Variables in the Equation

--Variable	B	SE B	95% Confdnce Intrvl B		Beta
U_INV_M	-.764300	.978206	-2.715766	1.187167	-.988227
U_COM_M	-.243702	.501440	-1.244047	.756644	-.419568
M_SUP_M	1.391480	.710756	-.026439	2.809399	2.246665
IT_EXP04	.367343	.463477	-.557268	1.291955	.684370
IT_STR02	-.354558	.562012	-1.475740	.766624	-.645850
UD_GAP_M	-.098875	1.272889	-2.638219	2.440469	-.125648
DOC_IT_M	.090507	.672926	-1.251945	1.432958	.126356
U_ED_M	1.426309	1.119388	-.806809	3.659426	1.567779
MORESTRU	1.550697	.846192	-.137409	3.238803	1.482794
MSUINV	.195970	.255162	-.313064	.705003	1.396910
MSUCOM	.078632	.132137	-.184974	.342238	.622841
MSMSUP	-.306993	.183854	-.673772	.059786	-2.499962
MSITX	-.101966	.123071	-.347487	.143555	-.870177
MSITSTR	.074348	.150385	-.225663	.374358	.615305
MSUDGAP	.083861	.335317	-.585079	.752801	.655937
MSITDOC	-.005006	.168698	-.341549	.331536	-.039700
MSUEDU	-.350703	.295949	-.941105	.239700	-2.548470
(Constant)	-4.104943	3.189456	-10.467733	2.257847	

Variables in the Equation

Variable	Tolerance	VIF	T	Sig T
U_INV_M	.004120	242.739	-.781	.4373
U_COM_M	.008843	113.089	-.486	.6285
M_SUP_M	.005004	199.828	1.958	.0543
IT_EXP04	.008839	113.133	.793	.4307
IT_STR02	.006288	159.028	-.631	.5302
UD_GAP_M	.002519	397.017	-.078	.9383
DOC_IT_M	.007467	133.924	.134	.8934
U_ED_M	.004353	229.719	1.274	.2069
MORESTRU	.010066	99.343	1.833	.0712
MSUINV	.001992	501.978	.768	.4451
MSUCOM	.006016	166.225	.595	.5537

MSMSUP	.002940	340.134	-1.670	.0995
MSITX	.005974	167.383	-.829	.4102
MSITSTR	.004255	235.045	.494	.6226
MSUDGAP	9.580E-04	1043.793	.250	.8033
MSITDOC	.003683	271.538	-.030	.9764
MSUEDU	.001425	701.792	-1.185	.2401
(Constant)			-1.287	.2024

End Block Number 1 All requested variables entered.

Residuals Statistics:

	Min	Max	Mean	Std Dev	N
*PRED	2.8904	4.7602	3.9283	.3412	87
*RESID	-1.0797	.5971	.0000	.3116	87
*ZPRED	-3.0420	2.4381	.0000	1.0000	87
*ZRESID	-3.1041	1.7167	.0000	.8957	87

Total Cases = 138

Durbin-Watson Test = 1.90139

```
FILE NAME : YH16.LST
* * * *   M U L T I P L E   R E G R E S S I O N   * * * *
Listwise Deletion of Missing Data
Equation Number 1     Dependent Variable..    SUCCES_M

Block Number  1.  Method:  Enter
   U_INV_M  U_COM_M  M_SUP_M  IT_EXP04 IT_STR02 UD_GAP_M DOC_IT_M
U_ED_M
   SUFFXDOC

Variable(s) Entered on Step Number
   1..     SUFFXDOC
   2..     IT_EXP04   Computer Department Compency & Experienc
   3..     M_SUP_M
   4..     UD_GAP_M
   5..     IT_STR02   Computer Department Adequate In Strength
   6..     U_INV_M
   7..     DOC_IT_M
   8..     U_COM_M
   9..     U_ED_M

Multiple R              .67946
R Square                .46167
Adjusted R Square       .38353
Standard Error          .37042

Analysis of Variance
                    DF        Sum of Squares        Mean Square
Regression           9              7.29565              .81063
Residual            62              8.50707              .13721

F =       5.90790       Signif F =  .0000
---------------------- Variables in the Equation -------------------
--Variable                B         SE B     95% Confdnce Intrvl B
Beta
U_INV_M          -.110290      .106502     -.323184      .102605   -
.145596
U_COM_M           .104238      .086213     -.068099      .276575
.180721
M_SUP_M           .218679      .084296      .050174      .387184
.337591
IT_EXP04          .058513      .058596     -.058619      .175646
.113963
IT_STR02         -.016872      .064821     -.146448      .112704   -
.031089
UD_GAP_M          .235964      .104368      .027335      .444593
.304974
DOC_IT_M          .010439      .094348     -.178160      .199038
.014665
U_ED_M            .119194      .118950     -.118583      .356972
.151805
SUFFXDOC          .016198      .114836     -.213356      .245751
.016042
(Constant)       1.478151      .456970      .564681     2.391621
```

```
---------- Variables in the Equation -----------
Variable    Tolerance        VIF          T  Sig T
U_INV_M       .439252      2.277     -1.036  .3044
U_COM_M       .388643      2.573      1.209  .2312
M_SUP_M       .512713      1.950      2.594  .0118
IT_EXP04      .666649      1.500       .999  .3219
IT_STR02      .608640      1.643      -.260  .7955
UD_GAP_M      .477183      2.096      2.261  .0273
DOC_IT_M      .494199      2.023       .111  .9123
U_ED_M        .378326      2.643      1.002  .3202
SUFFXDOC      .671277      1.490       .141  .8883
(Constant)                             3.235  .0020

Equation Number 1    Dependent Variable..    SUCCES_M
Residuals Statistics:

             Min       Max      Mean  Std Dev   N
*PRED     3.0353    4.7194    3.9440    .3206  72
*RESID   -1.2956     .6677     .0000    .3461  72
*ZPRED   -2.8345    2.4190     .0000   1.0000  72
*ZRESID  -3.4976    1.8024     .0000    .9345  72

Total Cases =      138

Durbin-Watson Test =   2.11234



          * * * *  M U L T I P L E   R E G R E S S I O N  * * * *
Listwise Deletion of Missing Data
Equation Number 1    Dependent Variable..    SUCCES_M

Block Number  1.  Method:  Enter
   U_INV_M  U_COM_M  M_SUP_M  IT_EXP04 IT_STR02 UD_GAP_M DOC_IT_M
U_ED_M
   SUFFXDOC SDOCUINV SDOCUCOM SDOCMSUP SDOCITX  SDOCITST SDOCUDGA
SDOCITDO
   SDOCUEDU

Variable(s) Entered on Step Number
   1..     SDOCUEDU
   2..     IT_EXP04  Computer Department Compency & Experienc
   3..     M_SUP_M
   4..     IT_STR02  Computer Department Adequate In Strength
   5..     U_INV_M
   6..     UD_GAP_M
   7..     DOC_IT_M
   8..     U_COM_M
   9..     SUFFXDOC
  10..     SDOCITX
  11..     U_ED_M
  12..     SDOCITST
  13..     SDOCUINV
  14..     SDOCUCOM
  15..     SDOCITDO
  16..     SDOCMSUP
  17..     SDOCUDGA
```

```
ultiple R            .73222
 Square              .53615
djusted R Square     .39012
tandard Error        .36843

nalysis of Variance
                DF        Sum of Squares        Mean Square
egression       17              8.47259              .49839
esidual         54              7.33013              .13574

 =      3.67155        Signif F =  .0001

quation Number 1     Dependent Variable..    SUCCES_M
---------------------- Variables in the Equation --------------------
-Variable            B         SE B      95% Confdnce Intrvl B
eta
_INV_M          -.912684      .905246     -2.727593       .902225  -
.204853
_COM_M          1.432142      .821696      -.215259      3.079543
.482944
_SUP_M         -1.206134     1.061731     -3.334776       .922507  -
.861999
T_EXP04         -.465078      .575490     -1.618866       .688711  -
.905804
T_STR02          .910542      .614717      -.321892      2.142975
.677760
D_GAP_M         3.102194     1.447721       .199688      6.004701
.009466
OC_IT_M         -.562629      .826262     -2.219186      1.093927  -
.790435
_ED_M          -1.571417     1.260803     -4.099175       .956342  -
2.001348
SUFFXDOC         .333916      .914083     -1.498710      2.166542
.330703
SDOCUINV         .176019      .222988      -.271044       .623083
1.333882
SDOCUCOM        -.328981      .209764      -.749533       .091572  -
2.835320
SDOCMSUP         .365335      .273816      -.183633       .914304
2.933472
SDOCITX          .136698      .147015      -.158049       .431445
1.213078
SDOCITST        -.243002      .154595      -.552947       .066943  -
2.121069
SDOCUDGA        -.718894      .361902     -1.444464       .006677  -
5.634910
SDOCITDO         .131935      .210833      -.290761       .554631
1.097754
SDOCUEDU         .427274      .324463      -.223235      1.077784
3.325696
(Constant)       .613846     3.584122     -6.571887      7.799579
---------- Variables in the Equation ----------
Variable    Tolerance        VIF          T  Sig T
U_INV_M       .006015    166.255     -1.008  .3178
U_COM_M       .004233    236.264      1.743  .0870
M_SUP_M       .003197    312.759     -1.136  .2610
IT_EXP04      .006837    146.254      -.808  .4226
IT_STR02      .006695    149.357      1.481  .1444
UD_GAP_M      .002453    407.586      2.143  .0367
DOC_IT_M      .006375    156.869      -.681  .4988
U_ED_M        .003331    300.173     -1.246  .2180
```

SUFFXDOC	.010481	95.408	.365	.7163
SDOCUINV	.003008	332.423	.789	.4333
SDOCUCOM	.002628	380.489	-1.568	.1226
SDOCMSUP	.001777	562.747	1.334	.1877
SDOCITX	.005047	198.147	.930	.3566
SDOCITST	.004717	211.981	-1.572	.1218
SDOCUDGA	.001067	936.788	-1.986	.0521
SDOCITDO	.002791	358.247	.626	.5341
SDOCUEDU	.001347	742.499	1.317	.1934
(Constant)			.171	.8647

End Block Number 1 All requested variables entered.

Residuals Statistics:

	Min	Max	Mean	Std Dev	N
*PRED	2.7176	4.7872	3.9440	.3454	72
*RESID	-1.1920	.6048	.0000	.3213	72
*ZPRED	-3.5501	2.4409	.0000	1.0000	72
*ZRESID	-3.2352	1.6415	.0000	.8721	72

Total Cases = 138

Durbin-Watson Test = 2.05177

```
FILE NAME : YH17.LST
* * * *   M U L T I P L E   R E G R E S S I O N   * * * *
Listwise Deletion of Missing Data
Equation Number 1     Dependent Variable..   SUCCES_M

Block Number  1.  Method:  Enter
   U_INV_M  U_COM_M  M_SUP_M  IT_EXP04 IT_STR02 UD_GAP_M DOC_IT_M
U_ED_M
   LARGEPRO MORESTRU

Variable(s) Entered on Step Number
   1..     MORESTRU
   2..     U_COM_M
   3..     LARGEPRO
   4..     IT_STR02   Computer Department Adequate In Strength
   5..     M_SUP_M
   6..     U_ED_M
   7..     IT_EXP04   Computer Department Compency & Experienc
   8..     DOC_IT_M
   9..     UD_GAP_M
  10..     U_INV_M

Multiple R              .63975
R Square                .40928
Adjusted R Square       .27502
Standard Error          .38412

Analysis of Variance
                 DF        Sum of Squares        Mean Square
Regression       10              4.49807              .44981
Residual         44              6.49217              .14755

F =       3.04852       Signif F =  .0051
---------------------- Variables in the Equation -------------------
--Variable              B         SE B     95% Confdnce Intrvl B
Beta
U_INV_M          .187774      .151749     -.118056       .493605
.243816
U_COM_M         -.009505      .109197     -.229577       .210567   -
.015532
M_SUP_M          .194595      .090701      .011798       .377392
.306401
IT_EXP04         .025461      .079622     -.135007       .185928
.047116
IT_STR02        -.189399      .092142     -.375099      -.003699   -
.289679
UD_GAP_M         .053425      .131728     -.212056       .318907
.070470
DOC_IT_M         .068916      .121499     -.175948       .313781
.089084
U_ED_M           .098583      .159084     -.222030       .419196
.109197
LARGEPRO   -7.81821E-09  9.8961E-09 -2.77625E-08  1.21261E-08   -
.113374
MORESTRU         .269420      .166605     -.066349       .605190
.248144
```

```
(Constant)      1.203655      .616513      -.038847      2.446156
---------- Variables in the Equation ----------
Variable    Tolerance        VIF          T   Sig T
U_INV_M       .345799      2.892      1.237   .2225
U_COM_M       .421673      2.372      -.087   .9310
M_SUP_M       .658239      1.519      2.145   .0375
IT_EXP04      .618393      1.617       .320   .7507
IT_STR02      .675981      1.479     -2.056   .0458
UD_GAP_M      .444688      2.249       .406   .6870
DOC_IT_M      .544284      1.837       .567   .5734
U_ED_M        .432376      2.313       .620   .5387
LARGEPRO      .651913      1.534      -.790   .4337
MORESTRU      .570175      1.754      1.617   .1130
(Constant)                            1.952   .0573

End Block Number   1   All requested variables entered.

Equation Number 1    Dependent Variable..    SUCCES_M

Residuals Statistics:

              Min        Max       Mean    Std Dev    N

*PRED       3.1202     4.5216     3.9090      .2886   55
*RESID     -1.1759      .5938      .0000      .3467   55
*ZPRED     -2.7332     2.1225      .0000     1.0000   55
*ZRESID    -3.0612     1.5459      .0000      .9027   55

Total Cases =      138


Durbin-Watson Test =   2.16388



          * * * *   M U L T I P L E   R E G R E S S I O N   * * * *
Listwise Deletion of Missing Data
Equation Number 1    Dependent Variable..    SUCCES_M

Block Number  1.  Method:  Enter
   U_INV_M  U_COM_M  M_SUP_M  IT_EXP04 IT_STR02 UD_GAP_M DOC_IT_M
U_ED_M
   LARGEPRO MORESTRU LPINV    LPUCOM   LPMSUP   LPITEX   LPITSTR
LPUDGAP
   LPITDOC  LPUEDU   MSUINV   MSUCOM   MSMSUP   MSITX    MSITSTR
MSUDGAP
   MSITDOC  MSUEDU
Variable(s) Entered on Step Number
   1..     MSUEDU
   2..     M_SUP_M
   3..     LPUCOM
   4..     U_COM_M
   5..     IT_STR02  Computer Department Adequate In Strength
   6..     IT_EXP04  Computer Department Compency & Experienc
   7..     DOC_IT_M
   8..     UD_GAP_M
   9..     U_INV_M
  10..     MORESTRU
  11..     LPMSUP
  12..     LPITSTR
```

```
 13..     U_ED_M
 14..     LPUEDU
 15..     MSMSUP
 16..     LPITEX
 17..     MSUCOM
 18..     MSITSTR
 19..     MSITX
 20..     MSUINV
 21..     LPITDOC
 22..     MSITDOC
 23..     LPUDGAP
 24..     MSUDGAP
 25..     LARGEPRO
 26..     LPINV

Multiple R            .79373
R Square              .63001
Adjusted R Square     .28645
Standard Error        .38108

Analysis of Variance
                    DF        Sum of Squares      Mean Square
Regression          26              6.92398            .26631
Residual            28              4.06626            .14522

F =       1.83377       Signif F =  .0595

Equation Number 1    Dependent Variable..   SUCCES_M
---------------------- Variables in the Equation -------------------
--Variable               B        SE B     95% Confdnce Intrvl B
Beta
U_INV_M         -.049163    2.375186    -4.914512     4.816186   -
.063836
U_COM_M          .345127    1.542142    -2.813808     3.504061
.563956
M_SUP_M         1.819567    1.241775     -.724093     4.363227
2.865013
IT_EXP04        -.326004    1.211777    -2.808217     2.156208   -
.603287
IT_STR02       -1.830321    1.489189    -4.880787     1.220145   -
2.799414
UD_GAP_M       -2.738080    2.249457    -7.345883     1.869723   -
3.611636
DOC_IT_M        1.674431    2.061821    -2.549018     5.897879
2.164451
U_ED_M          2.755819    2.074595    -1.493796     7.005435
3.052516
LARGEPRO   -7.97258E-07  5.1968E-07 -1.86178E-06  2.67264E-07 -
11.561264
MORESTRU        1.647654    1.631116    -1.693535     4.988844
1.517538
LPINV       2.35414E-07  1.2464E-07 -1.99036E-08  4.90732E-07
14.740239
LPUCOM      1.57870E-08  5.4021E-08 -9.48704E-08  1.26444E-07
.777507
LPMSUP     -4.53061E-09  7.5455E-08 -1.59093E-07  1.50032E-07   -
.289637
LPITEX     -1.34730E-07  7.1862E-08 -2.81933E-07  1.24730E-08   -
8.005067
LPITSTR     1.86840E-08  6.8808E-08 -1.22264E-07  1.59632E-07
1.086106
```

LPUDGAP	4.48281E-08	7.3772E-08	-1.06287E-07	1.95943E-07
2.712261				
LPITDOC	-3.79577E-08	7.6547E-08	-1.94756E-07	1.18841E-07
1.895314				
LPUEDU	3.85930E-08	1.0984E-07	-1.86401E-07	2.63587E-07
2.194598				
MSUINV	-.007539	.623548	-1.284819	1.269740
.051775				
MSUCOM	-.080936	.414475	-.929949	.768078
.624657				
MSMSUP	-.453618	.319716	-1.108526	.201290
3.471937				
MSITX	.112348	.324899	-.553178	.777875
1.042613				
MSITSTR	.467571	.398504	-.348728	1.283869
3.651489				
MSUDGAP	.744482	.590194	-.464475	1.953439
5.710070				
MSITDOC	-.409769	.551706	-1.539887	.720349
3.021639				
MSUEDU	-.748176	.551791	-1.878468	.382116
5.207058				
(Constant)	-3.116008	6.118130	-15.648429	9.416414

---------- Variables in the Equation ----------

Variable	Tolerance	VIF	T	Sig T
U_INV_M	.001389	719.812	-.021	.9836
U_COM_M	.002081	480.566	.224	.8245
M_SUP_M	.003456	289.316	1.465	.1540
IT_EXP04	.002628	380.554	-.269	.7899
IT_STR02	.002547	392.600	-1.229	.2293
UD_GAP_M	.001501	666.256	-1.217	.2337
DOC_IT_M	.001860	537.568	.812	.4236
U_ED_M	.002502	399.624	1.328	.1948
LARGEPRO	2.327E-04	4297.940	-1.534	.1362
MORESTRU	.005855	170.800	1.010	.3211
LPINV	2.169E-04	4609.394	1.889	.0693
LPUCOM	.001867	535.682	.292	.7723
LPMSUP	5.679E-04	1760.932	-.060	.9525
LPITEX	7.248E-04	1379.661	-1.875	.0713
LPITSTR	8.259E-04	1210.754	.272	.7880
LPUDGAP	6.633E-04	1507.701	.608	.5483
LPITDOC	9.045E-04	1105.568	-.496	.6239
LPUEDU	3.387E-04	2952.375	.351	.7279
MSUINV	7.206E-04	1387.661	-.012	.9904
MSUCOM	.001291	774.406	-.195	.8466
MSMSUP	.002207	453.171	-1.419	.1670
MSITX	.001454	687.986	.346	.7321
MSITSTR	.001364	732.961	1.173	.2506
MSUDGAP	6.449E-04	1550.722	1.261	.2176
MSITDOC	7.984E-04	1252.543	-.743	.4638
MSUEDU	8.960E-04	1116.082	-1.356	.1860
(Constant)			-.509	.6145

End Block Number 1 All requested variables entered.
Residuals Statistics:

	Min	Max	Mean	Std Dev	N
*PRED	2.7098	4.9862	3.9090	.3581	55
*RESID	-.6442	.5586	.0000	.2744	55
*ZPRED	-3.3490	3.0082	.0000	1.0000	55

*ZRESID -1.6905 1.4658 .0000 .7201 55

Total Cases = 138

Durbin-Watson Test = 2.22270

```
FILE NAME : YH19.LST
          * * * *  M U L T I P L E   R E G R E S S I O N  * * * *
Listwise Deletion of Missing Data
Equation Number 1     Dependent Variable..    SUCCES_M

Block Number  1.  Method:  Enter
   U_INV_M  U_COM_M  M_SUP_M  IT_EXP04 IT_STR02 UD_GAP_M DOC_IT_M
U_ED_M
   MORESTRU SUFFXDOC
Variable(s) Entered on Step Number
   1..     SUFFXDOC
   2..     IT_EXP04  Computer Department Compency & Experienc
   3..     M_SUP_M
   4..     U_ED_M
   5..     IT_STR02  Computer Department Adequate In Strength
   6..     U_INV_M
   7..     MORESTRU
   8..     UD_GAP_M
   9..     DOC_IT_M
  10..     U_COM_M

Multiple R            .73623
R Square              .54203
Adjusted R Square     .44857
Standard Error        .32288

Analysis of Variance
                    DF        Sum of Squares      Mean Square
Regression          10              6.04596           .60460
Residual            49              5.10825           .10425

F =       5.79948       Signif F =  .0000

Equation Number 1     Dependent Variable..    SUCCES_M

Residuals Statistics:

             Min       Max      Mean    Std Dev   N

*PRED       2.9139    4.8965    4.0283     .3201  60
*RESID     -1.1281     .5889     .0000     .2942  60
*ZPRED     -3.4813    2.7120     .0000    1.0000  60
*ZRESID    -3.4940    1.8240     .0000     .9113  60

Total Cases =      138

Durbin-Watson Test =   1.88940

* * * *  M U L T I P L E   R E G R E S S I O N  * * * *

Listwise Deletion of Missing Data
Equation Number 1     Dependent Variable..    SUCCES_M

Block Number  1.  Method:  Enter
   U_INV_M  U_COM_M  M_SUP_M  IT_EXP04 IT_STR02 UD_GAP_M DOC_IT_M
U_ED_M
```

```
   MORESTRU SUFFXDOC MSUINV   MSUCOM   MSMSUP   MSITX    MSITSTR
MSUDGAP
   MSITDOC  MSUEDU   SDOCUINV SDOCUCOM SDOCMSUP SDOCITX  SDOCITST
SDOCUDGA
   SDOCITDO SDOCUEDU

Variable(s) Entered on Step Number
   1..     SDOCUEDU
   2..     IT_EXP04  Computer Department Compency & Experienc
   3..     M_SUP_M
   4..     IT_STR02  Computer Department Adequate In Strength
   5..     UD_GAP_M
   6..     U_INV_M
   7..     MORESTRU
   8..     DOC_IT_M
   9..     U_COM_M
  10..     SUFFXDOC
  11..     SDOCITX
  12..     U_ED_M
  13..     MSITSTR
  14..     MSUCOM
  15..     SDOCITST
  16..     MSITX
  17..     SDOCMSUP
  18..     MSITDOC
  19..     MSMSUP
  20..     MSUEDU
  21..     SDOCITDO
  22..     MSUINV
  23..     SDOCUCOM
  24..     SDOCUDGA
  25..     SDOCUINV
  26..     MSUDGAP

Multiple R            .86228
R Square              .74353
Adjusted R Square     .54147
Standard Error        .29443

Analysis of Variance
                    DF        Sum of Squares      Mean Square
Regression          26              8.29351           .31898
Residual            33              2.86069           .08669

F =       3.67966       Signif F =  .0003

Equation Number 1    Dependent Variable..   SUCCES_M
---------------------- Variables in the Equation --------------------
--Variable              B        SE B     95% Confdnce Intrvl B
Beta
U_INV_M        -1.960049    1.550016    -5.113582     1.193483  -
2.581537
U_COM_M         2.154637    1.207090     -.301206     4.610480
3.961845
M_SUP_M        -3.221283    1.787976    -6.858947      .416381  -
5.616283
IT_EXP04        -.038445     .778769    -1.622861     1.545972  -
.077090
IT_STR02         .616219     .744921     -.899334     2.131771
1.122066
```

UD_GAP_M	2.870104	2.260821	-1.729570	7.469779	3.963167
DOC_IT_M	-.225276	1.013148	-2.286542	1.835990	-.335032
U_ED_M	-.418300	1.691424	-3.859527	3.022927	-.499618
MORESTRU	.641649	2.069886	-3.569565	4.852862	.667582
SUFFXDOC	-.772503	1.594819	-4.017186	2.472180	-.822536
MSUINV	.787920	.499864	-.229061	1.804901	5.981976
MSUCOM	-.157204	.375089	-.920328	.605919	-1.389265
MSMSUP	-.223022	.282187	-.797135	.351091	-1.933082
MSITX	-.290976	.231334	-.761628	.179677	-2.757025
MSITSTR	-3.03548E-04	.229394	-.467010	.466403	-.002646
MSUDGAP	.559874	.442007	-.339397	1.459144	4.852355
MSITDOC	.061561	.298822	-.546397	.669519	.548014
MSUEDU	-.931078	.367311	-1.678379	-.183778	-7.641543
SDOCUINV	-.393558	.449117	-1.307294	.520177	-3.206437
SDOCUCOM	-.300899	.362966	-1.039358	.437561	-2.740313
SDOCMSUP	1.063531	.369809	.311148	1.815914	9.722310
SDOCITX	.303387	.191538	-.086300	.693075	2.882775
SDOCITST	-.169000	.205601	-.587298	.249297	-1.563746
SDOCUDGA	-1.188513	.416683	-2.036260	-.340766	-10.078823
SDOCITDO	-.033902	.290446	-.624818	.557014	-.311674
SDOCUEDU	.998546	.410181	.164026	1.833067	7.876363
(Constant)	4.021258	6.261990	-8.718856	16.761372	

Equation Number 1 Dependent Variable.. SUCCES_M

---------- Variables in the Equation ----------

Variable	Tolerance	VIF	T	Sig T
U_INV_M	.001865	536.262	-1.265	.2149
U_COM_M	.001578	633.881	1.785	.0835
M_SUP_M	7.998E-04	1250.388	-1.802	.0807
IT_EXP04	.003187	313.778	-.049	.9609
IT_STR02	.004224	236.739	.827	.4141
UD_GAP_M	7.974E-04	1254.016	1.269	.2131
DOC_IT_M	.003423	292.125	-.222	.8254
U_ED_M	.001904	525.154	-.247	.8062
MORESTRU	.001676	596.745	.310	.7585
SUFFXDOC	.002695	371.034	-.484	.6313
MSUINV	5.396E-04	1853.148	1.576	.1245
MSUCOM	7.073E-04	1413.807	-.419	.6778
MSMSUP	.001299	769.770	-.790	.4350
MSITX	.001618	618.199	-1.258	.2173

MSITSTR	.001944	514.391	-.001	.9990
MSUDGAP	5.296E-04	1888.277	1.267	.2141
MSITDOC	.001098	910.494	.206	.8380
MSUEDU	8.552E-04	1169.339	-2.535	.0162
SDOCUINV	5.805E-04	1722.773	-.876	.3872
SDOCUCOM	7.113E-04	1405.959	-.829	.4131
SDOCMSUP	6.800E-04	1470.537	2.876	.0070
SDOCITX	.002346	426.206	1.584	.1227
SDOCITST	.002147	465.680	-.822	.4170
SDOCUDGA	6.224E-04	1606.586	-2.852	.0074
SDOCITDO	.001090	917.392	-.117	.9078
SDOCUEDU	7.424E-04	1346.942	2.434	.0205
(Constant)			.642	.5252

End Block Number 1 All requested variables entered.

Residuals Statistics:

	Min	Max	Mean	Std Dev	N
*PRED	2.6088	4.8568	4.0283	.3749	60
*RESID	-.5471	.3272	.0000	.2202	60
*ZPRED	-3.7861	2.2097	.0000	1.0000	60
*ZRESID	-1.8581	1.1112	.0000	.7479	60

Total Cases = 138

Durbin-Watson Test = 1.68736

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FILE NAME : YH20.LST
* * * *  M U L T I P L E   R E G R E S S I O N   * * * *
Listwise Deletion of Missing Data
Equation Number 1     Dependent Variable..    SUCCES_M
Block Number  1.  Method:  Enter
   U_INV_M  U_COM_M  M_SUP_M  IT_EXP04 IT_STR02 UD_GAP_M DOC_IT_M
U_ED_M
   LARGEPRO MORESTRU SUFFXDOC

Variable(s) Entered on Step Number
   1..     SUFFXDOC
   2..     M_SUP_M
   3..     MORESTRU
   4..     LARGEPRO
   5..     UD_GAP_M
   6..     IT_STR02   Computer Department Adequate In Strength
   7..     IT_EXP04   Computer Department Compency & Experienc
   8..     DOC_IT_M
   9..     U_ED_M
  10..     U_INV_M
  11..     U_COM_M

Multiple R            .62271
R Square              .38777
Adjusted R Square     .13834
Standard Error        .38088

Analysis of Variance
                    DF        Sum of Squares        Mean Square
Regression          11              2.48080              .22553
Residual            27              3.91684              .14507

F =       1.55463       Signif F =  .1697

Equation Number 1     Dependent Variable..    SUCCES_M

---------------------- Variables in the Equation -------------------
--Variable              B         SE B     95% Confdnce Intrvl B
Beta
U_INV_M          -.374209      .250074      -.887319       .138901   -
.486556
U_COM_M           .231637      .210088      -.199427       .662702
.365584
M_SUP_M           .170361      .127766      -.091793       .432514
.289026
IT_EXP04          .036099      .092014      -.152698       .224897
.074125
IT_STR02         -.147844      .117629      -.389198       .093511   -
.245858
UD_GAP_M          .249755      .180173      -.119930       .619440
.359593
DOC_IT_M         -.066701      .186704      -.449786       .316384   -
.090121
U_ED_M            .017152      .197455      -.387992       .422297
.020746
```

```
ARGEPRO     4.66517E-09  1.4038E-08 -2.41379E-08  3.34682E-08
 064228
IORESTRU        .220489      .232428      -.256413       .697391
 223723
SUFFXDOC        .131253      .175558      -.228962       .491469
 144640
(Constant)     2.053621      .875067       .258132      3.849111

---------- Variables in the Equation -----------
Variable    Tolerance        VIF          T  Sig T
U_INV_M        .214475      4.663     -1.496  .1462
U_COM_M        .206250      4.848      1.103  .2799
M_SUP_M        .482600      2.072      1.333  .1935
IT_EXP04       .635203      1.574       .392  .6979
IT_STR02       .592596      1.687     -1.257  .2196
UD_GAP_M       .336961      2.968      1.386  .1770
DOC_IT_M       .356340      2.806       -.357  .7237
U_ED_M         .397564      2.515       .087  .9314
LARGEPRO       .607083      1.647       .332  .7422
MORESTRU       .407690      2.453       .949  .3512
SUFFXDOC       .605834      1.651       .748  .4611
(Constant)                               2.347  .0265

Equation Number 1    Dependent Variable..    SUCCES_M
Residuals Statistics:

             Min        Max       Mean    Std Dev    N
*PRED     3.4364     4.6740     3.9742      .2555   39
*RESID   -1.1060      .6776      .0000      .3211   39
*ZPRED   -2.1048     2.7388      .0000     1.0000   39
*ZRESID  -2.9038     1.7792      .0000      .8429   39

Total Cases =      138

Durbin-Watson Test =   2.20925

* * * *   M U L T I P L E   R E G R E S S I O N   * * * *
Listwise Deletion of Missing Data
Equation Number 1    Dependent Variable..    SUCCES_M

Block Number  1.  Method:  Enter
   U_INV_M  U_COM_M  M_SUP_M  IT_EXP04 IT_STR02 UD_GAP_M DOC_IT_M
U_ED_M
   LARGEPRO MORESTRU SUFFXDOC LPINV    LPUCOM   LPMSUP   LPITEX
LPITSTR
   LPUDGAP  LPITDOC  LPUEDU   MSUINV   MSUCOM   MSMSUP   MSITX
MSITSTR
   MSUDGAP  MSITDOC  MSUEDU   SDOCUINV SDOCUCOM SDOCMSUP SDOCITX
SDOCITST
   SDOCUDGA SDOCITDO SDOCUEDU

Equation Number 1    Dependent Variable..    SUCCES_M

Variable(s) Entered on Step Number
   1..     SDOCUEDU
   2..     M_SUP_M
   3..     LARGEPRO
   4..     IT_STR02  Computer Department Adequate In Strength
   5..     IT_EXP04  Computer Department Compency & Experienc
   6..     U_INV_M
   7..     MORESTRU
```

```
 8..      DOC_IT_M
 9..      UD_GAP_M
10..      SUFFXDOC
11..      U_COM_M
12..      LPITSTR
13..      LPITEX
14..      U_ED_M
15..      MSUCOM
16..      MSMSUP
17..      SDOCITDO
18..      MSITX
19..      SDOCITX
20..      MSITSTR
21..      SDOCUDGA
22..      SDOCITST
23..      MSUEDU
24..      SDOCMSUP
25..      SDOCUINV
26..      MSUDGAP
27..      LPMSUP
28..      LPUDGAP
29..      MSUINV
30..      SDOCUCOM

Multiple R                .95565
R Square                  .91327
Adjusted R Square         .58804
Standard Error            .26336

Analysis of Variance
                    DF        Sum of Squares        Mean Square
Regression          30               5.84279              .19476
Residual             8                .55485              .06936

F =        2.80808       Signif F =  .0647

---------------------- Variables in the Equation --------------------
--Variable                B         SE B     95% Confdnce Intrvl B
Beta
U_INV_M         -6.227886     5.333445   -18.526820      6.071048  -
8.097659
U_COM_M          4.804367     5.201545    -7.190406     16.799139
7.582536
M_SUP_M         -6.023596     4.413604   -16.201375      4.154183  -
10.219373
IT_EXP04        -2.402702     1.497154    -5.855141      1.049736  -
4.933620
IT_STR02         4.483818     2.526166    -1.341525     10.309162
7.456420
UD_GAP_M         7.278281     4.811187    -3.816324     18.372887
10.479130
DOC_IT_M        -2.546127     2.163663    -7.535537      2.443284  -
3.440092
U_ED_M          -4.230738     4.583058   -14.799278      6.337802  -
5.117059
LARGEPRO    -5.24782E-07  3.3669E-07 -1.30119E-06  2.51624E-07  -
7.224939
MORESTRU        -2.203872     2.823540    -8.714961      4.307216  -
2.236198
SUFFXDOC        -3.167016     4.925492   -14.525208      8.191177  -
3.490031
```

PMSUP	1.33524E-07	1.1978E-07	-1.42689E-07	4.09736E-07
.428382				
PITEX	-1.16140E-07	1.2917E-07	-4.14003E-07	1.81724E-07 -
.670904				
PITSTR	-4.94879E-08	5.4304E-08	-1.74713E-07	7.57373E-08 -
.727361				
PUDGAP	1.68112E-07	1.2439E-07	-1.18727E-07	4.54951E-07
.281434				
SUINV	2.271512	.862643	.282256	4.260768
5.984239				
SUCOM	-1.975201	.731438	-3.661898	-.288505 -
6.476780				
SMSUP	.597277	.516804	-.594473	1.789027
.689951				
SITX	1.045492	.459568	-.014272	2.105255
1.079563				
SITSTR	-1.248602	.524311	-2.457665	-.039539 -
1.080598				
SUDGAP	.278604	.861692	-1.708459	2.265666
.345935				
SUEDU	-.554326	.712271	-2.196824	1.088173 -
.336240				
DOCUINV	-.806635	1.125820	-3.402778	1.789507 -
5.604588				
DOCUCOM	.828580	1.066806	-1.631476	3.288637
7.307500				
DOCMSUP	.923165	.793029	-.905563	2.751892
3.237668				
DOCITX	-.394368	.344572	-1.188953	.400216 -
4.177678				
DOCITST	.035029	.537391	-1.204194	1.274253
.325969				
DOCUDGA	-2.065470	.600954	-3.451270	-.679670 -
17.659113				
DOCITDO	.706372	.566852	-.600789	2.013533
5.842855				
DOCUEDU	1.628367	.914793	-.481146	3.737880
12.236693				
(Constant)	24.518197	21.087916	-24.110575	73.146969

---------- Variables in the Equation ----------

Variable	Tolerance	VIF	T	Sig T
U_INV_M	2.254E-04	4435.920	-1.168	.2765
U_COM_M	1.609E-04	6216.585	.924	.3827
M_SUP_M	1.934E-04	5171.947	-1.365	.2095
IT_EXP04	.001147	871.755	-1.605	.1472
IT_STR02	6.143E-04	1627.867	1.775	.1138
UD_GAP_M	2.259E-04	4426.165	1.513	.1688
DOC_IT_M	.001269	788.297	-1.177	.2731
U_ED_M	3.528E-04	2834.325	-.923	.3829
LARGEPRO	5.045E-04	1981.983	-1.559	.1577
MORESTRU	.001321	757.122	-.781	.4575
SUFFXDOC	3.680E-04	2717.614	-.643	.5382
LPMSUP	2.441E-04	4096.082	1.115	.2973
LPITEX	1.969E-04	5077.534	-.899	.3948
LPITSTR	.001210	826.193	-.911	.3888
LPUDGAP	2.299E-04	4350.293	1.352	.2135
MSUINV	2.942E-04	3398.963	2.633	.0300
MSUCOM	2.912E-04	3434.052	-2.700	.0271
MSMSUP	6.583E-04	1519.030	1.156	.2811
MSITX	4.571E-04	2187.929	2.275	.0525

ITSTR	5.007E-04	1997.042	-2.381	.0444
UDGAP	2.059E-04	4856.152	.323	.7547
UEDU	3.492E-04	2863.635	-.778	.4588
OCUINV	1.276E-04	7838.004	-.716	.4941
OCUCOM	1.225E-04	8165.255	.777	.4597
OCMSUP	2.165E-04	4619.121	1.164	.2779
OCITX	8.137E-04	1229.014	-1.145	.2855
OCITST	4.335E-04	2306.750	.065	.9496
OCUDGA	4.107E-04	2435.075	-3.437	.0089
OCITDO	4.931E-04	2027.930	1.246	.2480
OCUEDU	2.294E-04	4359.125	1.780	.1129
onstant)			1.163	.2785

---------- Variables not in the Equation ----------

Variable	Beta In	Partial	Tolerance	VIF	Min Toler	Sig T
INV	28.888465	.781736	6.351E-05	15745.947	6.351E-05	317 .0128
UCOM	16.200030	.432546	6.183E-05	16173.625	4.139E-05	269 .2449
ITDOC	6.342414	.197165	8.381E-05	11931.319	8.381E-05	532 .6111
UEDU	-.007675	-.000227	7.594E-05	13167.848	4.690E-05	001 .9995
SITDOC	6.791289	.170901	5.492E-05	18207.801	5.492E-05	459 .6602

nd Block Number 1 Tolerance = 1.00E-04 Limits reached.

esiduals Statistics:

	Min	Max	Mean	Std Dev	N
PRED	2.8673	5.0160	3.9742	.3921	39
RESID	-.3603	.2726	.0000	.1208	39
ZPRED	-2.8230	2.6568	.0000	1.0000	39
ZRESID	-1.3680	1.0353	.0000	.4588	39

otal Cases = 138

urbin-Watson Test = 2.21788

```
LE NAME : Inter_iv.lst
* * *   M U L T I P L E   R E G R E S S I O N   * * * *
stwise Deletion of Missing Data
uation Number 1     Dependent Variable..    SUCCES_M

riable(s) Entered on Step Number
 1..     GH
 2..     D
 3..     C
 4..     B
 5..     E
 6..     F
 7..     A
 8..     H
 9..     G
10..     DE
11..     BC
12..     DG
13..     CE
14..     BE
15..     BH
16..     AG
17..     CH
18..     DF
19..     EH
20..     BD
21..     AE
22..     CD
23..     EG
24..     AB
25..     FH
26..     AF
27..     BG
28..     EF
29..     FG
30..     DH
31..     AD
32..     CF
33..     AC
34..     BF
35..     CG
36..     AH

quation Number 1     Dependent Variable..    SUCCES_M

ultiple R            .85887
 Square              .73765
djusted R Square     .63824
tandard Error        .33802

nalysis of Variance
                    DF        Sum of Squares        Mean Square
egression           36             30.52096             .84780
esidual             95             10.85473             .11426

 =       7.41993        Signif. F =   .0000
```

Equation Number 1 Dependent Variable.. SUCCES_M

Variables in the Equation

Variable	B	SE B	95% Confdnce Intrvl B		Beta
A	.807592	.699285	-.580665	2.195849	1.003637
B	.293854	.472682	-.644537	1.232245	.439693
C	-.083357	.559939	-1.194977	1.028263	-.114294
D	-.515353	.369124	-1.248158	.217452	-.819190
E	.965730	.387943	.195565	1.735895	1.642313
F	-.010573	.689087	-1.378584	1.357438	-.011875
G	.418239	.487651	-.549870	1.386348	.533513
H	-.759320	.656823	-2.063279	.544639	-.838649
AB	-.306432	.097636	-.500263	-.112600	-2.813430
AC	.140615	.140480	-.138274	.419503	1.195271
AD	.084216	.120584	-.155174	.323605	.699653
AE	.003545	.098081	-.191171	.198261	.029401
AF	-.078171	.154022	-.383943	.227600	-.607643
AG	.318246	.153208	.014090	.622403	2.285406
AH	-.252050	.176223	-.601896	.097797	-1.834999
BC	.234755	.117202	.002080	.467429	2.113962
BD	.108245	.081445	-.053443	.269933	.977414
BE	-.048436	.097692	-.242379	.145506	-.420747
BF	-.173600	.142821	-.457136	.109936	-1.456862
BG	-.087158	.109943	-.305423	.131108	.670601
BH	.197026	.145245	-.091321	.485373	1.528059
CD	-.014359	.086272	-.185631	.156913	-.122294
CE	-.025566	.055920	-.136581	.085449	-.228427
CF	-.083632	.143045	-.367612	.200348	-.681841
CG	-.326264	.164134	-.652111	-4.17768E-04	-2.424777
CH	.094323	.132500	-.168724	.357369	.686733
DE	-.021875	.055664	-.132382	.088632	-.199783
DF	-7.41511E-05	.120218	-.238737	.238589	-5.909E-04