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This graduate project examined predictors of user satisfaction of the Integrated Financial Control System (IFICS) developed at William Beaumont Army Medical Center and also collected baseline productivity data with which to compare WBAMC's former manual, hardcopy procurement process against the auromated IFICS system which replaced it. Furthermore, similar data was collected at Landstuhl Regional Medical Center (LRMC), a U.S. Army medical center located in Germany, which still uses a manual procurement system but plans to implement IFICS. The data was collected via a new survey instrument designed and validated for this study. Based on previous research and theory, a causal model of IFICS overall user satisfaction was developed and tested. Path analysis was used to estimate the fit of the model to the data. The findings of the study indicated that WBAMC employees preferred IFICS over the manual system. The predictor variables which explained the most variation in overall user satisfaction were, in descending order of importance, user perceptions of IFICS quality, followed by the construct variable usability, Surprisingly, age and educationlevel were not predictors of overall satisfaction.

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GRADUATE PROGRAM IN HEALTH CARE ADMINISTRATION

A STUDY OF THE INTEGRATED FINANCIAL CONTROL SYSTEM (IFICS)

A GRADUATE MANAGEMENT PROJECT SUBMITTED TO THE FACULTY OF THE U.S. ARMY-BAYLOR UNIVERSITY GRADUATE PROGRAM IN CANDIDACY FOR THE DEGREE OF MASTERS IN HEALTH CARE ADMINISTRATION

BY

CAPTAIN GLENN MARTIN BULLARD

LANDSTUHL, GERMANY

MAY 1995

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ABSTRACT

This graduate project examined predictors of user satisfaction of the Integrated Financial Control System (IFICS) developed at William Beaumont Army Medical Center (WBAMC) and also collected baseline productivity data with which to compare WBAMC's former manual, hardcopy procurement process against the automated IFICS system which replaced it. Furthermore, similar data was collected at Landstuhl Regional Medical Center (LRMC), a U.S. Army medical center located in Germany, which still uses a manual procurement system but plans to implement IFICS. The data was collected via a new survey instrument designed and validated for this study.

Based on previous research and theory, a causal model of IFICS overall user satisfaction was developed and tested. Path analysis was used to estimate the fit of the model to the data.

The findings of the study indicated that WBAMC employees preferred IFICS over the manual system. The predictor variables which explained the most variation in overall user satisfaction were, in descending order of importance, user perceptions of IFICS quality, followed by the construct variable usability. Surprisingly, age and education level were not predictors of overall user satisfaction. T-test analysis indicated that WBAMC and LRMC had similar populations. Further analysis indicated that non-IFICS users require significantly more time than IFICS users to accomplish procurement forms generation and processing tasks.

The findings of this study support management's decision to implement IFICS at LRMC; ultimately, IFICS will save the organization substantial budget dollars and untold man-hours of work.

This study contributes to the scientific body of knowledge by adding to the stream of research on identification of constructs which can predict the direction and magnitude of information technology user satisfaction levels.

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CHAPTER 1

INTRODUCTION

The effort within the military to integrate administrative information management systems over the last decade has lagged behind the effort to integrate clinical systems. Colonel (COL) Tom Roach, the current Chief, Information Management Division (C,IMD) at Landstuhl Regional Medical Center (LRMC) first recognized a void in administrative systems integration while stationed at William Beaumont Army Medical Center (WBAMC) in 1992. He recognized that supply officers and budget managers at the division and department level throughout the military medical system were having difficulty reconciling commitments against obligated funds and that they were often unable to obtain the status of a purchase request from various processing activities. Customers complained that their Purchase Requests and Commitment (PR&C)(DA Form 3953, see Appendix One) and Request for Issue (DA Form 2765, see Appendix Two) forms were often misplaced, not acted upon, or canceled without them being notified. The entire information process was very difficult--often impossible--to manage (Guidry 1993, 9) (Roach 1994).

COL Roach identified several common data element discrepancies among the multiple standard systems which military medical facilities use. Those main systems are: the Theater Army Medical Management Information System

(TAMMIS), the Central Processing and Distribution System (CPD), the Standard Army Installation Logistics System (SAILS), the Standard Army Financial System (STANFINS), and the Standard Army Contracting System (SAACONS) at WBAMC, Fort Bliss Department of Contracting, and Fort Sam Houston.

The data discrepancies were a significant contributor to information inefficiencies at the department/division hospital level and resulted in the loss of significant amounts of year-end funds because the funds were not obligated by the end of the fiscal year. Accordingly, the WBAMC commander directed COL Roach to develop a plan to integrate the multiple data sources. The efforts of COL Roach and his staff led to the creation of the Integrated Financial Control System (IFICS)(WBAMC Health Care Highlights 1993, 1). (COL Roach has subsequently been reassigned to LRMC).

The WBAMC IMD goal for IFICS was to provide the organization with a standard automated system for funds tracking, departmental and divisional budget distribution and control, electronic requisition forms generation, and expense reconciliation through an automated systems interface (Roach 1994)(William Beaumont Army Medical Center 1993). WBAMC placed the IFICS system on-line in September of 1993 and brought the system to full operational status during the following 12 months. Lieutenant Colonel (LTC) Terry Shanahan, the current Chief, IMD at WBAMC said in an interview that IFICS was successful because its developers

understood the essential steps of the procurement process and were able to eliminate the non-standard routes of procurement forms processing. They were also able to implement electronic signature authorizations and eliminate WBAMC's redundant, error-plagued manual data entry system which required duplicate information entry into the various information and accounting systems (Guidry 1993)(Shanahan 1994).

WBAMC IMD personnel market the IFICS system as a reengineered procurement process which has both saved the hospital significant budget dollars and paid for itself within two years. They further state that IFICS is under consideration by the Department of Defense (Health Affairs) (DOD(HA)) for Army Medical Department (AMEDD) wide deployment and is in high demand by other AMEDD medical centers and commands (William Beaumont Army Medical Center 1993).

CONDITIONS WHICH PROMPTED THE STUDY

LRMC currently operates in a non-integrated information system environment similar to pre-IFICS WBAMC and still uses many hard copy processes such as procurement of supplies and services and manual checkbook accounting reconciled with hard copy financial information system printouts. COL Roach, the former Chief of Information Management at WBAMC and current Chief of Information Management at LRMC is a co-developer and strong proponent of IFICS. He began exploring the possibility of implementing IFICS at LRMC soon after his

arrival in Germany in October of 1992. He presented his proposal to the LRMC command group early in 1993 and received authorization from the LRMC commander to begin IFICS implementation procedures.

Not everyone at LRMC is supportive of IFICS implementation, however. The Chief of Resource Management, a key member of the hospital commander's staff, stated that the resource management staff was unable to review the IFICS proposal prior to COL Roach's command group presentation and therefore a through requirements analysis was not performed by the resource management staff. Furthermore, he is concerned about the long term cost of the IFICS system and the validity of benefit statements made by WBAMC IMD staff. A final point raised by the Resource Management Chief is that AMEDD health care facilities in Europe already use an integrated financial system called the Standard Army Resource Management System (SARMS) and therefore IFICS is a redundant and unnecessary financial control system.

STATEMENT OF THE MANAGEMENT PROBLEM

The issue of IFICS implementation is a source of contention within the LRMC staff because many of the promised benefits of the system have not been validated by reliable methods. Therefore, this study performs comparative analysis of purchase request processing times before and after IFICS implementation at WBAMC, and compares selected elements of procurement, funds tracking, and budget

management between post-IFICS WBAMC and pre-IFICS LRMC.

This study will also collect, by survey method, selected baseline data on user satisfaction levels of the (paperless) IFICS system at WBAMC and identify what factors contribute most to user satisfaction so that LRMC IFICS planners can incorporate and emphasize statistically valid contribution factors into their IFICS training program. Finally, this study will collect, by survey method, baseline data on present levels of user satisfaction with the current (paper driven) procurement, funds tracking, and budget management process at LRMC to facilitate future comparative analysis.

LITERATURE REVIEW

IFICS is a "homegrown" information system recently developed by the IMD at WBAMC and has not yet received a systematic review by academic journals. There have been, however, articles written about topics related to IFICS as well as component parts of the system itself.

A review of the literature developed five general topic areas: current trends in hospital information systems, networks, automated purchasing systems, dimensions of information system quality, and survey questionnaire design.

CURRENT TRENDS IN HOSPITAL INFORMATION SYSTEMS

In recent years the American work force has transitioned from a producer of material goods into a

producer of information (Moore 1987, 214). The healthcare industry is in the midst of a stampede toward integrated health care information systems. The momentum for information systems integration stems from the massive amount of information generated in the healthcare industry. In fact, the healthcare sector is one of the largest producers of information of any industry. Once a primarily labor intensive industry, healthcare has become increasingly information intensive. Early efforts to develop information systems to handle, sort, organize, and utilize the vast amounts of healthcare information resulted in the establishment of many non-integrated departmental information systems. Organizations made large investments in computer technology but most healthcare Chief Executive Officers (CEOs) were unhappy with the information benefits derived from their investments. The reason information system benefits were disappointing to most healthcare executives was due, in part, to the complex methods required to distribute and use their healthcare system's information. Another possible reason may be that these information systems were purchased with little system integration consideration (Warden and McNulty 1992, 37-38).

A significant problem with all healthcare facilities, including DOD health care facilities, is the tremendous volume of paper documents. The salient point is that hard copy documents require people to handle them. A New England Journal of Medicine study published in the August 5th, 1993

edition, found that twenty five percent of every hospital dollar was spent on administrative cost. The article went on to compare the ratio of hospital managers and clerks to hospital patients in 1968 (1:3.16) with the ratio of hospital managers and clerks to hospital patients in 1990 (1.43:1). The authors attributed much of the administrative personnel to patient ratio shift to increased information handling requirements (NEJM, 1993).

Memorial Sloan-Kettering, a well-known cancer clinic, has adopted an imaging technology strategy to drive down administrative cost. This strategy starts with imaging personnel scanning hard copy documents into an optical disk database. The database is linked to both internal and external information systems and made accessible to over sixteen hundred terminals. Memorial Sloan-Kettering's databasing and networking efforts have streamlined a cumbersome paper-driven process and enabled them to take greater advantage of integrated information management features such as work-management and prioritizing functions, queuing, and automatic routing. Key features of the system are fast access to account information and increased efficiency in claims adjudication, third-party carrier payment reconciliation, and benefit verification. It is significant to note that Sloan-Kettering not only saved money through their automation efforts, but they also improved customer relations at the same time by providing

customers the information they wanted more expeditiously (McBride 1993, 38-39).

Mirroring the rest of the healthcare industry, DOD healthcare facilities have likewise struggled in their efforts to manage information, primarily using non-integrated department or process specific information systems and conventional manual records. DOD officials have been aware of the continuing healthcare industry efforts to integrate clinical information systems and in an effort to keep pace, contracted with Science Application International Corporation (SAIC) to develop the Composite Health Care System (CHCS). After testing CHCS at 164 clinics and 14 hospitals, the DOD, in May of 1992, gave SAIC the go-ahead to install the $1.6 Billion CHCS system in approximately 700 DOD hospitals and clinics throughout the world (Laughtin 1992, 8-10).

While the literature has established the healthcare industry and DOD trend toward physician-oriented integrated clinical information systems such as CHCS, the same cannot be said about management-oriented integrated information systems, in particular, AMEDD hospital management information systems. While the DOD has invested billions of dollars in the clinically-oriented integrated information system, CHCS, the same cannot be said for DOD efforts to integrate the various financial and administrative information systems such as STANFINS, TAMMIS, SACCONS, and SARMS in a way that provides timely management information

to the end-user level, such as the individual departments and divisions of DOD medical facilities.

NETWORKS

The development of local area networks (LANs) has made integrated systems such as IFICS possible. In the early 1980's Apple computers were both popular and expensive. Large-capacity disk drives were also expensive. Local school systems wanted Apple computers for the classroom but could not afford the disk drives. The Corvus company was the first company to recognize the problem and began selling LANs to individual education boards. The LAN idea caught on quickly with schools which found LANs an affordable way to provide computers for their students. Over the last 10 years the economics of networking has changed. Disk drives are less expensive so the primary reason organizations have networks today is to share information. Prime examples are local electronic mail, workgroup coordination, and scheduling. LANs are also useful for sharing special devices such as CD-ROMs, plotters, and fax machines. LANs can accomplish almost anything that a mainframe computer or minicomputer can. Besides being able to perform similar functions to these larger computers, LANs have the advantage of being less expensive and less susceptible to system wide shutdown (Nance 1994, 2).

AUTOMATED PURCHASING SYSTEMS

Historically, each hospital area has been responsible for its own environmental necessities such as laundry, food, and housekeeping, and materials management. After the turn of the Century, cost-saving technological improvements such as steam power and inexpensive electricity gradually enabled hospitals to centralize laundry, food, and housekeeping processes. Materials management however, generally remained the responsibility of the using unit until the 1980's when cost concerns accelerated hospital efforts to centralize the materials management function (Griffith 1992, 114).

Organizations have created information services to emphasize continuous improvement in information. The emergence of a Total Quality Management(TQM)/Continuous Quality Improvement (CQI) environment in health care organizations has led to increased organization reliance on automated information services such as order entry systems. These automated systems allow departmental monitoring of high-cost, high-volume activities such as materials management, radiology and pharmacy (Griffith 1992, 338).

Many hospitals have implemented automated materials management systems which have improved their ability to manage purchasing and inventory control functions. Supply and materials requisitions are input into computerized purchasing systems which have the capacity to match the request against budgetary authorizations to ensure financial control of the purchasing system. These systems are able to

flag purchase overdrafts, automatically generate purchase requests, and match receipt notices against open order files. Integrated systems are able to also provide direct linkage to their accounts payable programs (Austin 1988, 224).

Independent review of automated purchasing systems available through commercial vendors indicates that obtainable benefits of these systems include improvements in bid and contracting procedures, reductions in inventory, updating of daily patient charges for materials, interface with accounts payable to ensure prompt payment discounts are captured, and reductions in labor costs (Sneider and Murphy 1987, 40-47).

DIMENSIONS OF INFORMATION SYSTEM QUALITY

Studies relating to the introduction of information technology (IT) have been conducted from a number of theoretical perspectives. The organizational characteristics complexity, size, participation, and communication; the technology characteristic ease of use; and the individual characteristics age, education, and attitude have been researched as possible contributing factors to successful information technology implementation. Currently, there is a dearth of valid measures for predicting user acceptance and satisfaction of new information technology. Most subjective measures used in

current IT research are unvalidated and so their relationship to IT usage and satisfaction is unknown. Desiring better measures, Davis (1989) identified two constructs which he hypothesized and demonstrated were important determinants of user acceptance: IT-perceived ease of use and IT-perceived usefulness.

Laughlin (1992) reported that physician and employee satisfaction levels with CHCS were adversely affected by negative usability issues. In fact, physician dissatisfaction with CHCS usability was so great that physician complaints sent by electronic mail to officials at Walter Reed Army Medical Center were leaked to the Washington Post in February of 1992.

In Bergman's 1994 article, G. Ward Keever, senior vice president of information services at the Medical Center of Delaware stated that usability was an important factor for physicians and added that physicians fell into three categories:

* doctors who hoped to retire before they had to use new computer technology,
* doctors just out of medical school who were comfortable with new computer technology, and
* doctors in the middle, who are willing to try new computer technologies once or twice, but are willing to continuing using the technology only if they are satisfied with it.

Mr. Keever indicated that the physician interface with information technologies is an important consideration in IT

implementation; therefore ITs that are easy to learn should be employed because older physicians are more likely to be dissatisfied with difficult to use IT and resistant to using them (Bergman 1994).

The results of Brancheau and Wetherbe's (1990) study on organizational acceptance of spreadsheet software supported their hypotheses that early adopters of new IT were more likely to be younger in age than late adopters of the same technology. Also early adopters of IT were more highly educated than late adopters and more likely to be opinion leaders than opinion followers. Brancheau and Wetherbe's research indicates that younger age is an important predictor of early IT adoption and Davis'(1989) research indicates that age is a factor of user perceptions of IT usefulness and ease of use. Hays (1994) reported that older employees are fearful of new information technologies and are resistant to new computer-related technology. Hays also reports that psychologists generally believe that older employees possess preconceived mental frameworks about new IT which cause them to be more resistant to new computer technology.

Griffith (1992) states that current TQM/CQI theories assume the existence of sophisticated information systems. TQM requires the existence of a feedback loop for reliable operational data on organizational performance. In order for empowered workers to monitor performance, analyze shortcomings, and perform self-correction, they must have a

means of knowing the organizational goals, knowing what their actual performance is, and having a means of correcting performance which does not conform to the organization's standards and goals (Griffith 1992, 336). A key dimension of information system quality then, is the system's ability to provide workers a way to measure their performance against their organization's standards and goals. Griffith offers several other essential measures of information system quality which are: service delays, user satisfaction with promptness, and overall user satisfaction with the information system (Griffith 1992, 363).

Murine (1988) identified thirteen software quality factors (dimensions) which were measurable at the end-user level. Each of the thirteen factors were associated with various criteria. Hayes (1992) also described these factors as user oriented and therefore capable of being evaluated by the customer. From the list of thirteen quality factors, four: correctness, reliability, usability, and efficiency were chosen as applicable to this study because they identify factors associated with the software end-user satisfaction levels. The remainder of the quality factors were not used because they were associated with software programming, which is outside the scope of this study. Hayes defines correctness as how close a software program meets customers' specifications, reliability as how close the software program performs intended functions and usability as the level of effort required to understand

program output. Murine (1988) defines efficiency as the extent to which minimum resources are used to perform a function.

SURVEY DESIGN

Surveys are often used for data collection in the health care field. The survey method can be used for various sample sizes and can reflect respondent's opinions, attitudes, knowledge, and self-reported behavior (Crosby, 1989). Surveys usually provide researchers with the easiest and least expensive method of obtaining information about people's perceptions. Surveys are a quantitative research instrument designed to: (1) measure overall satisfaction, (2) obtain diagnostic data which explains the satisfaction ratings and (3) track levels of satisfaction over time (Weiss 1988).

Benchmark measurements of overall satisfaction are useful in determining how well an organization is presently doing and establishes the basis for setting goals to achieve a desired level of satisfaction. Diagnostic data can facilitate the identification of opportunities and strategies to obtain desired satisfaction goals. Tracking satisfaction levels over time is important in determining the effectiveness of implemented strategies and marks progress toward achieving satisfaction goals (Weiss 1988).

An effective survey must be diagnostic and ask questions that isolate performance or procedural problems.

Survey data may not be conclusive, however, and additional investigation may be necessary to clarify the seriousness of a perceived problem. Appropriate survey design is critical to the parsimonious collection of relevant data.

The right questions must be asked if researchers are to receive value from their efforts - questions respondents are qualified to evaluate. Also, the dimensions measured must be the ones that respondents feel are the most important. Secondly, questions must be asked that are relevant to the improvement of the information technology product.

Oliver (1990) states that questionnaire design also influences the probability of response. The following questions are useful in determining whether a questionnaire will encourage responses:

(1) Is the questionnaire attractive? Members of the target population are more likely to respond to questionnaires that are typeset rather than typewritten and printed rather than photocopied. The print should be easy to read with effective use of white space.

(2) Is the questionnaire too long? Approximate time to complete the survey on the cover page will help offset this deterrent to response.

(3) Is the questionnaire confusing? A pilot survey will help identify confusing aspects of the survey.

(4) Is the questionnaire easy to return? A postage-paid, self-mailer or similar method makes the survey easier to return and can increase the rate of returned surveys.

Oliver (1990) indicates that the literature offers no consensus on the optimal types of survey questions to ask; however, combinations of different types of questions often improve the validity and reliability of the data. Numerical, quality, occurrence, and agreement ratings were incorporated into the IFICS survey to improve the construct validity of the results. In addition to the above questionnaire design considerations Hayes (1992) states that a researcher must also consider which measurement scales to use and provides the following examples.

NUMERICAL SCALES

Numeric scales, commonly called Likert scales, use the 1 to 5 scale, with the number 3 indicating neutrality (Hayes 1992).

QUALITY RATINGS

Quality ratings are used to measure the perceived value of a particular dimension or characteristic. An example of a quality rating is:

()very hard ()hard ()neutral ()easy ()very easy

(Hayes 1992)

OCCURRENCE RATINGS

Occurrence ratings measure the frequency of an occurrence or the consistency of an action. An example of an occurrence rating is:

()never ()rarely ()occasionally ()frequently ()routinely (Hayes 1992)

Of the many information sources on survey design found in the literature review, four main sources were chosen as references for the design of this study's questionnaire. Ulrich's reference book *Organizational Surveys: Development and Application* (1983) was the primary source for this study's survey design because it was written as a guide for DOD Organization Effectiveness Consultants to use in their survey design efforts. Ulrich broke the survey process down into seven component parts: survey need, survey development, survey design, survey administration, survey analysis, survey data feedback, and survey application.

Other authors approached the survey process from different perspectives. For example, Fowlers' book *Survey Research Methods* (1993) identifies the components of surveys as a combination of three different methodologies: sampling, question design, and interviewing. Fink and Kosecoff's book *How To Conduct Surveys: A Step-by-Step Guide* (1985) offered a `how-to' approach to conducting surveys. Their book took the survey designer through a series of decision points on survey design such as: definition of terms, hypotheses formation, open verses closed-ended question design,

questionnaire format, sampling, pilot testing, appropriate survey designs, data analysis, and presentation of survey results. Lastly, Hayes' book *Measuring Customer Satisfaction: Development and Use of Questionnaires* (1992) was concerned with the development and use of a specific type of survey - customer satisfaction. Hayes provides valuable information on identification of quality dimensions, examination of reliability and validity issues in the assessment of customer's perceptions and attitudes, and the advantages of different response formats.

Demographic questions are usually included in surveys and serve two purposes. First, demographic questions help determine the representativeness of the survey. It is important to know if the survey respondents represent a good cross-section of the population. Second, demographic questions help identify respondent sub-groups which have unique characteristics. General demographic variables often asked are age, gender, race, and education level. Military surveys commonly ask demographic questions concerning rank, unit, time in present job, time in present installation, supervisory status, and type of duty position (Ulrich 1983).

PURPOSE OF THE STUDY

The purpose of this study was to identify the determinants of overall IFICS satisfaction. An additional purpose of this study was to establish baseline descriptive statistics on end-user satisfaction with IFICS and to look

for the direction and magnitude of correlation between selected demographic variables and the dependent variable "overall IFICS user satisfaction". Furthermore, this study investigates the assertion that IFICS users have significantly faster purchase request processing times than manual system users.

The approach used in this study contributes to an understanding of IFICS user behavior by identifying which important factors contribute most to explaining overall IFICS user satisfaction. Information Management personnel can use the data to help decide how best to concentrate limited resources in the development of training programs and materials designed to improve end-user satisfaction levels.

OBJECTIVES

There were six objectives of this study:

1. Develop and administer a survey instrument that measures IFICS user satisfaction and collects data on specific areas of interest.
2. Compile baseline data on IFICS user satisfaction.
3. Analyze the model shown in Figure 1, which depicts overall IFICS user satisfaction (dependent variable), quality (endogenous variable), and correctness, reliability, usability, efficiency, education level, and age (exogenous independent variables) using path analysis.

4. Test for statistically significant differences between Pre-IFICS and Post-IFICS implementation purchase request processing times at WBAMC.
5. Test for statistically significant differences between purchase request processing times post-IFICS implementation at WBAMC and pre-IFICS implementation at LRMC.
6. Make recommendations based upon survey results.

An additional benefit of this study is that other organizations may use this study in their evaluation of the appropriateness of IFICS as an AMEDD-wide system.

ASSUMPTIONS

Several assumptions impact this study. First, each respondent is assumed to have sufficient knowledge of the process surveyed to provide meaningful responses. Second, it is assumed that WBAMC respondents can accurately differentiate between satisfaction levels before and after IFICS implementation and remember with accuracy the number and processing times of procurement actions before and after IFICS implementation. Third, it is assumed that a neutral point selection is a midpoint choice between satisfied and dissatisfied and not a substitute choice for no opinion. Fourth, all respondents are assumed to have an opinion on IFICS or manual procurement methods, therefore, missing responses are coded "missing" without further interpretation. Fifth, an ordinal-interval scale assumption

is made based on Kerlinger's view that "the best procedure would seem to be to treat ordinal measurements as though they were interval measurements but to be constantly alert to the possibility of *gross* inequality of intervals" (Emory and Cooper 1991).

Ethical considerations incorporated into this study include providing a cover letter with the pretest and formal survey which explains the purpose of the survey and that the survey is voluntary, anonymous and confidential.

HYPOTHESES

An important aspect of this research was to identify the determinants of overall IFICS user satisfaction. This required a comparison of the relative effects of the exogenous variables usability, correctness, reliability, and efficiency and the demographic variables education level and age with the endogenous variable quality and the dependent variable overall user satisfaction as shown in Figure 1.

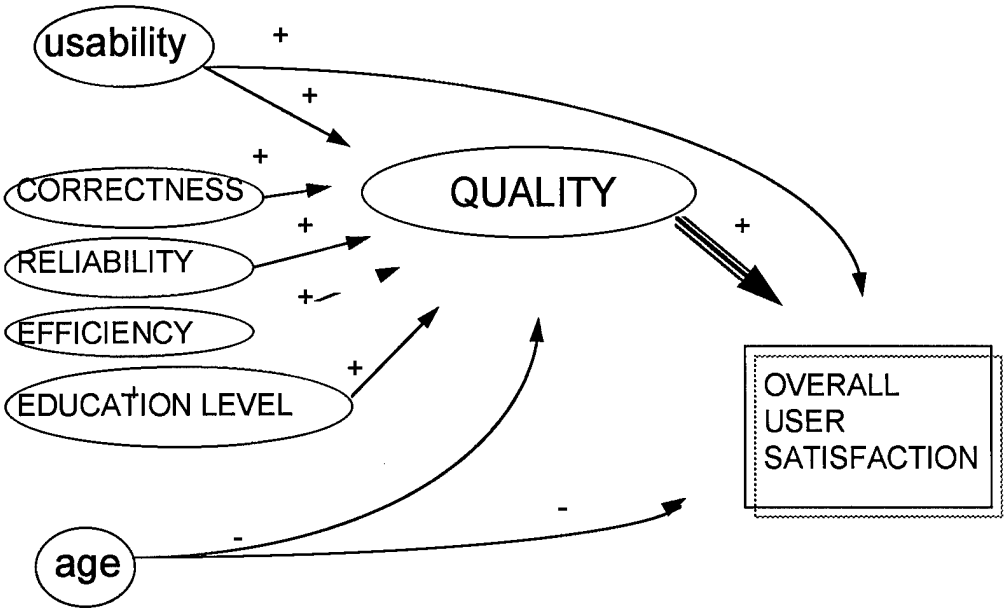


Figure 1. Research Model of Potential Factors Influencing the Level of IFICS User-Satisfaction.

The rationale for the following hypotheses were drawn from a review of the literature and from discussions with Information Management personnel at both WBAMC and LRMC.

The first nine hypotheses emerged from the model presented in Figure 1:

* Ha1- The construct usability influences a person's perception of IFICS quality in a positive direction.
Rationale: Maurine (1988) lists this construct as a desirable quality factor. A higher level of the construct usability indicates a higher end-user quality perception level.

* Ha2- The construct correctness influences a person's perception of IFICS quality in a positive direction.
Rationale: Maurine (1988) lists this construct as a desirable quality factor. A higher level of the construct correctness indicates a higher end-user quality perception level.

* Ha3- The construct reliability influences a person's perception of IFICS quality in a positive direction.
Rationale: Maurine (1988) lists this construct as a desirable quality factor. A higher level of the construct reliability indicates a higher end-user quality perception

* Ha4- The construct efficiency influences a person's perception of IFICS quality in a positive direction.
Rationale: Maurine (1988) lists this construct as a desirable quality factor. A higher level of the construct efficiency indicates a higher end-user quality perception level.

* Ha5- The demographic variable education level influences a person's perception of IFICS quality in a positive direction.
Rationale: Branchiau and Wetherbe (1990) note that higher education levels influence information technology perceptions and diffusion in a positive direction.

* Ha6- The construct usability directly influences a person's perception of overall user satisfaction in a positive direction.
Rationale: Laughlin's (1992) findings indicate that user satisfaction levels increase as user perceptions of usability increase.

* Ha7- The demographic variable age influences a person's perception of quality in a negative direction.
Rationale: Hays (1994) identified older workers who did not grow up using microcomputers as more fearful of information technologies and therefore more likely to resist new information technology implementation efforts.

* Ha8- The demographic variable age directly influences a person's perception of overall user satisfaction in a negative direction.
Rationale: Keever (see Bergman 1994, 31) asserts that physicians fall into three categories with older doctors resisting new information technologies more that younger doctors.

* Ha9- The construct quality influences a person's perception of overall user satisfaction in a positive direction.

Rationale: Zeithaml, Parasuraman, and Berry (1990) posit that low levels of quality are correlated with low levels of customer satisfaction and that improved levels of quality are correlated with higher levels of customer satisfaction.

The IFICS information brochure infers that less time is required by employees to generate and process supply requests using a paperless system than is required using a manual system. Therefore, this study will investigate several differences between the pre-IFICS and post-IFICS implementation Purchase Request and Commitment (PR&C) processing times at WBAMC; and between pre-IFICS LRMC and post-IFICS WBAMC PR&C processing times. The hypothesized differences to be examined include:

Ha10: There is a statistically significant difference in the amount of time it takes to generate a PR&C between pre-IFICS and post-IFICS implementation at WBAMC.

Ha11 There is a statistically significant difference in the amount of time it takes to generate a PR&C between pre-IFICS LRMC and post-IFICS WBAMC.

Ha12: There is a statistically significant difference in the amount of time it takes to check the status of a PR&C between pre-IFICS and post-IFICS implementation at WBAMC.

Ha13: There is a statistically significant difference in the amount of time required to check the status of a PR&C at pre-IFICS LRMC and post-IFICS WBAMC.

CHAPTER 2

METHODS AND PROCEDURES

This study employed the results of a self-administered satisfaction survey to measure current WBAMC IFICS user satisfaction levels (See Appendix Three, Section 1). The unit of analysis for this study was the individual IFICS user at WBAMC or the individual manual procurement system user at LRMC. The survey also provided data to test selected aspects of processing time differences as well as satisfaction level differences in funds tracking and budget management between WBAMC and LRMC (see Appendix Three, Survey Instrument, Sections 2 and 4).

The survey design contained two elements: a cross-sectional element and a longitudinal element. The first section of the survey was cross-sectional and examined current levels of WBAMC user satisfaction and perceptions of quality with the IFICS system. The second and fourth sections of the survey were both cross-sectional and longitudinal. The survey included quantitative data questions concerning current processing times, quantity of documents processed, as well as funds tracking and budget management under the current manual system at LRMC and both before and after IFICS implementation at WBAMC. Section three of the survey solicited demographic information from all respondents.

The design of the survey facilitated baseline frequency data collection on levels of current user

satisfaction with the IFICS system at WBAMC and permitted t-test comparisons between the different groups. The survey design also facilitated t-test comparisons between current LRMC processes (document processing times and levels of satisfaction with funds tracking and budget management) and current WBAMC document processing times and levels of satisfaction with funds tracking and budget management. Additionally, the survey design facilitated t-test comparisons of document, fund, and budget data prior to and after IFICS implementation at WBAMC.

The questions in the first section of the survey (Appendix Three) were designed to measure WBAMC respondents' current level of overall satisfaction with the IFICS system (Question 29) as well as acquire scale measures of various aspects of the IFICS system (questions 5-24). Questions 25-27 asked WBAMC respondents to indicate their level of agreement with statements about how IFICS implementation affected them and whether they prefer IFICS over a manual system.

Section Two of the survey contained quantitative questions such as: (On average) How many DA Form 3953's (PR&Cs) do you personally generate in a week? There were three response columns for each question. The first column was for WBAMC post-IFICS implementation responses, the second column was for WBAMC pre-IFICS implementation responses, and the third column was for LRMC pre-IFICS implementation responses. The grouping of the possible

answer choices were developed from personal experience with the procurement system.

PILOT SURVEY

A convenience sample of five potential IFICS users at LRMC was selected and given the pilot survey on November 16, 1994. A follow-up interview was conducted with each respondent. The average time to complete the survey, as depicted in Table 1, was 10.2 minutes.

TABLE 1.

AVERAGE TIME TO COMPLETE PILOT SURVEY-LANDSTUHL

Case #	Start	Stop	Total			
1	11:27	11:45	0:18			
2	11:25	11:34	0:09			
3	11:36	11:44	0:08			
4	11:30	11:37	0:07			
5	13:46	13:55	0:09			
			0:51	Total/5	10.2	minutes average

The most important finding from the Landstuhl respondents' interviews was that the references to WBAMC IFICS in the survey greatly confused them and several respondents felt they should not take the survey because they were not familiar with either WBAMC or IFICS. It was decided to extract the questions pertaining to Landstuhl respondents and include only those questions on the Landstuhl version (See Appendix Four). It was felt that

this survey modification would reduce the amount of confusion experienced by Landstuhl respondents and improve the response rate of the survey without affecting survey results. In the Landstuhl survey, therefore, the statement `intentionally omitted' was placed beside the numbers where WBAMC questions were omitted. The numbering scheme remained the same to simplify coding.

SAMPLE SIZE

Fowler (1992) wrote that the sample size decision should be made on a case-by-case basis rather by a rote number or equation. He advised against sample selection methods such as percentage of total population, using routine sample sizes, or trying to determine how much error can be tolerated in advance and adjusting the sample size accordingly. The method recommended by Fowler is to base the sample size decision on the minimum sample size that can be tolerated for the smallest important subgroup. The smallest subgroup of interest in this survey is the funds managers/department-division chiefs category of the survey. It was estimated that there were a possible sixty respondents in this category. T-tests require a minimum of 20 cases which is one third of the estimated smallest subgroup. Predicting a modest response rate of 50% required the distribution of forty surveys to the smallest subgroup to obtain the minimum required number of cases for t-tests. At the time of survey distribution, there were 168

registered IFICS users at WBAMC. Using the two-thirds estimate, 110 surveys were randomly distributed to IFICS users at WBAMC and an equal number to potential IFICS users at LRMC. Of the 110 surveys distributed at each hospital in December, 1994, 70 surveys were returned from WBAMC of which 63 were usable and seven were unusable. The usable survey response rate for WBAMC was 57.2%. Some 68 surveys were returned from LRMC. All LRMC surveys were usable for a response rate of 61.8%. The combined response rate was 59.5%.

The steps followed in the survey process were:

1. The determination of the number of IFICS users at WBAMC. This was accomplished by remote email downloading of the IFICS user file from WBAMC.

2. The determination of the number of possible IFICS users at LRMC. This was accomplished by inspecting the planning documents located in the LRMC Information Management Division.

3. The development of a survey instrument to measure IFICS and manual procurement, funds tracking, and budget management satisfaction levels at WBAMC and LRMC. The initial stages of survey development were accomplished through interviews with the chiefs of both the LRMC and WBAMC Information Management Divisions. The survey development also included review of applicable literature and review of IFICS documents. The survey was pretested at both LRMC and WBAMC. A convenience sample of 5 persons per hospital was used for the pretest. A respondent comment sheet accompanied the WBAMC pretest to gather comments on survey improvement. The LRMC respondents were personally interviewed to gather survey improvement comments.

4. Survey reliability was evaluated using correlational analysis and validity was evaluated on the basis of pretest results and construct validity. Validity of the survey instrument was further strengthened by expert opinion review. At each stage of the survey instrument evolution, the LRMC chief of Information Management, who was a co-developer of the IFICS system at WBAMC, reviewed and commented on the validity of

each survey question.

5. The appropriate sample size was determined to be 110 surveys at each hospital.

6. A survey pretest was conducted before Thanksgiving day 1994 and the formal survey was distributed before Christmas day 1994.

The survey process was complicated by time and distance factors between the two hospitals. These difficulties were attenuated through the cooperation of the WBAMC Information Management Staff who distributed and collected both the pretest and the formal survey at that hospital and returned the surveys to Landstuhl. The limitation of this plan was that the evaluation of the WBAMC pretest was limited to written comments because face to face interviews with pretest respondents was not possible because of cost. LRMC respondents were interviewed concerning the survey's clarity, format, and length. The resultant questionnaire contained 4 dichotomous items (1-4), 42 scaled items, 10 demographic items (44-53), and 7 fill-in questions (37-43)(see Appendix Three).

DEMOGRAPHIC VARIABLES

As depicted in Figure 1. the demographic variable age is posited to affect both quality and overall user satisfaction. The demographic variable education level is posited to affect quality. The variable relationships are briefly described below.

AGE

It is hypothesized that age is inversely related to a person's perception of quality and overall user satisfaction. Hays (1994) identified older workers who did not grow up using microcomputers as more fearful of new information technologies. Older workers were more likely to resist new information technology implementation efforts, believing existing technology methods were better (quality) than new technology methods and that they were more comfortable with current methods (overall satisfaction) than with new technologies. In the IFICS survey, each person was asked to fill in his/her exact age in years.

EDUCATION LEVEL

Brancheau and Wetherbe (1990) found that higher education levels influenced information technology perceptions and acceptance within organizations in a positive direction. In this project, seven education levels were represented, reflecting respondents who had completed 1) some high school education; 2) a high school education; 3) some college level course education; 4) a 2-year college degree; 5) a 4-year college degree; 6) a Masters degree; 7) a Doctorate degree. It is felt that increased levels of education are positively related to increased perceptions of IFICS quality.

While these demographic variables are hypothesized to predict the endogenous variables of the causal model, there

are several constructs which are likewise hypothesized to predict the endogenous variables.

CONSTRUCTS

The scales used in this study to assess the constructs usability, reliability, efficiency, and correctness are derived from the literature review of survey design. Coefficient alpha (Cronbach's alpha) was used to estimate the reliability of the various subscales of this survey (Cleary 1988, 176).

Fourteen items were thought to assess the constructs usability, reliability, correctness, and efficiency. Table 2. through Table 5. present the constructs and sub-factors that were intuitively hypothesized to comprise each construct.

TABLE 2.

VARIABLES OF THE CONSTRUCT USABILITY

VARIABLE NAME	CONSTRUCT/ Measures
	USABILITY VARIABLES*
USABILTY	USABILITY = Mean(FOMATSCR,CLARSCR,READSCR,READRPT,CLARRPT)
FOMATSCR	Satisfaction with format of screens
CLARSCR	Satisfaction with screen clarity
READSCR	Satisfaction with screen readability
READRPT	Satisfaction with report readability
CLARRPT	Satisfaction with report clarity

* The response choices for these variables were:
(1)Very Dissatisfied
(2)Dissatisfied
(3)Neutral
(4)Satisfied
(5)Very Satisfied

TABLE 3.

VARIABLES OF THE CONSTRUCT CORRECTNESS

VARIABLE NAME	CONSTRUCT/ Measures
	CORRECTNESS VARIABLES*
CORRECT	CORRECT = Mean(COMPRPT, SYSHELP, QALMANUL, QALTRAIN)
COMPRPT	Satisfaction with report completeness
SYSHELP	Satisfaction with system help features
QALMANUL	Satisfaction with IFICS users manual
QALTRAIN	Satisfaction with quality of IFICS training

* The response choices for these variables were:
(1) Very Dissatisfied
(2) Dissatisfied
(3) Neutral
(4) Satisfied
(5) Very Satisfied

TABLE 4.

VARIABLES OF THE CONSTRUCT RELIABILITY

VARIABLE NAME	CONSTRUCT/ Measures
	RELIABILITY VARIABLES*
RELIABIT	RELIABIT= Mean(LFORMSAT,SFORMSAT,CKSTATSA)
LFORMSAT	Satisfaction with DD Form 3953
SFORMSAT	Satisfaction with DD Form 2765
CHSTATSA	Satisfaction with ability to check status

* The response choices for these variables were:
(1)Very Dissatisfied
(2)Dissatisfied
(3)Neutral
(4)Satisfied
(5)Very Satisfied

TABLE 5.

VARIABLES OF THE CONSTRUCT EFFICIENCY

VARIABLE NAME	CONSTRUCT/ Measures
	EFFICIENCY VARIABLES*
EFFICIEN	EFFICIEN = Mean(ORDTIME, STATRIVL)
ORDTIME	Satisfaction with order entry timeliness
STATRIVL	Satisfaction with status retrieval timeliness

* The response choices for these variables were:
(1)Very Dissatisfied
(2)Dissatisfied
(3)Neutral
(4)Satisfied
(5)Very Satisfied.

Using the statistical package SPSS, a factor analysis was performed on the fourteen variables using varimax rotation to confirm the 4 computed variables (constructs). The purpose of the factor analysis was to document which survey questions clustered with the respective construct. Since there has been no previous validation of the sorting of variables with the constructs, the factor analysis helped determine if the variables were correctly clustered by the intuitive method as presented in Tables 2-5 or whether an improved sorting of variables could be accomplished. A third possible outcome of factor analysis could be that the variables are not associated with the constructs as hypothesized.

Table 6. below displays the results of the varimax rotation factor analysis.

TABLE 6.

RESULTS OF FACTOR ANALYSIS

construct/ variable	USABILITY	EFFICIEN	RELIABIT	CORRECT
CLARSCR	0.88989			
READSCR	0.87114			
FOMATSCR	0.83565			
LFORMSAT	0.80216			
QALMANUL				0.7277
QALTRAIN				0.60351
SYSHELP				0.56416
COMPRPT		0.86022		
ORDTIME		0.82468		
STATRTVL		0.80039		
READRPT		0.78936		
CLARRPT		0.77294		
CKSTATSA			0.88938	
SFORMSAT			0.55575	

As predicted, four dimensions (usability, efficiency, reliability, and correctness) emerged from the factor analysis. The 14 items generally clustered into the constructs predicted with a few exceptions and are depicted in Table 7 through Table 10 below.

TABLE 7.

REVISED CONSTRUCT USABILITY

VARIABLE NAME	CONSTRUCT/ Measures
	USABILITY VARIABLES*
USABILTY	USABILITY = Mean(LFORMSAT,FOMATSCR,CLARSCR,READSCR)
LFORMSAT	Satisfaction with DD Form 3953
FOMATSCR	Satisfaction with format of screens
CLARSCR	Satisfaction with screen clarity
READSCR	Satisfaction with screen readability

* The response choices for these variables were:
(1)Very Dissatisfied
(2)Dissatisfied
(3)Neutral
(4)Satisfied
(5)Very Satisfied

TABLE 8.

REVISED CONSTRUCT CORRECTNESS

VARIABLE NAME	CONSTRUCT/ Measures
	CORRECTNESS VARIABLES*
CORRECT	CORRECT = Mean(SYSHELP,QALMANUL,QALTRAIN)
SYSHELP	Satisfaction with system help features
QALMANUL	Satisfaction with IFICS users manual
QALTRAIN	Satisfaction with quality of IFICS training

* The response choices for these variables were:
(1)Very Dissatisfied
(2)Dissatisfied
(3)Neutral
(4)Satisfied
(5)Very Satisfied

TABLE 9.

REVISED CONSTRUCT RELIABILITY

VARIABLE NAME	CONSTRUCT/ Measures
	RELIABILITY VARIABLES*
RELIABIT	RELIABIT= Mean(SFORMSAT,CKSTATSA)
SFORMSAT	Satisfaction with DD Form 2765
CHSTATSA	Satisfaction with ability to check status

* The response choices for these variables were:
(1)Very Dissatisfied
(2)Dissatisfied
(3)Neutral
(4)Satisfied
(5)Very Satisfied

TABLE 10.

REVISED CONSTRUCT EFFICIENCY

VARIABLE NAME	CONSTRUCT/ Measures
	EFFICIENCY VARIABLES*
EFFICIEN	EFFICIEN = Mean(READRPT,COMPRPT,CLARRPT,ORDTIME,STATRIVL)
READRPT	Satisfaction with report readability
COMPRPT	Satisfaction with report completeness
CLARRPT	Satisfaction with report clarity
ORDTIME	Satisfaction with order entry timeliness
STATRIVL	Satisfaction with status retrieval timeliness

* The response choices for these variables were:
(1)Very Dissatisfied
(2)Dissatisfied
(3)Neutral
(4)Satisfied
(5)Very Satisfied.

The item LFORMSAT (satisfaction with DD Form 3953) clustered with the construct usability rather than reliability. The items READRPT (satisfaction with report readability) and CLARRPT (satisfaction with report clarity) clustered with the construct efficiency rather than usability and the item COMPRPT (satisfaction with report

completeness) clustered with the construct efficiency rather than correctness.

The confirmatory finding of four factors (usability, correctness, efficiency, and usability) strengthen the conclusion that the IFICS survey items and sub-scales measure distinct dimensions as hypothesized and support the content validity of the survey instrument. Furthermore, face validity of the scales used in this study add strength to the conclusion that distinct dimensions are measured. Reliability Coefficient alpha (Cronbach's alpha) was computed for the revised constructs presented in Table 7. through Table 10. and the extremely favorable results are presented in Table 11.

TABLE 11.

RELIABILITY COEFFICIENTS FOR THE REVISED CONSTRUCTS

CONSTRUCT	CASES	N of Items	ALPHA
USABILITY	63	4	.9479
CORRECTNESS	63	3	.9115
RELIABILITY	62	2	.5766
EFFICIENCY	63	5	.9261

QUALITY

This endogenous variable is the subjective assessment of user perceptions of IFICS quality. Predictors of perceived IFICS quality levels are hypothesized to be the constructs usability, correctness, reliability, and efficiency, and the demographic variables education level and age.

OVERALL USER SATISFACTION

Overall user satisfaction, the subjective assessment of overall satisfaction of the IFICS system by its users, is the dependent variable of interest. The items posited to predict overall user satisfaction are the construct usability, the demographic variable age, and the endogenous variable quality.

PATH ANALYSIS

The purpose of path analysis is to estimate the goodness of fit when a causal model is proposed a priori. Several assumptions underlie the use of path analysis. First, the model is recursive (unidirectional). Second, the relations among the variables are causal, linear, and additive. Third, the residual of each endogenous variable is not correlated with any variable that preceded it in the model. Additionally, the residuals must not be correlated with each other. Also, correlations among exogenous variables remain unanalyzed. Fourth, interval (or higher)

scales are used. Fifth, the model is correctly depicted. Lastly, the measurements are made without error (Pedhazur 1982).

This study will use the R Square amount of variance accounted for calculated through multiple regression to determine if the posited model fits as well as the fully recursive model. The fully recursive model is viewed as being causally linked to all succeeding endogenous variables. The path coefficients will be estimated (using standardized Bata weights) in order to establish which variables are significant predictors.

T-TEST

This study employed the use of t-tests for randomly paired samples to test for a statistical differences between WBAMC IFICS user and LRMC manual procurement system user groups. In the randomly paired t-test, differences between pairs of observations are viewed as single sample measurements and a single sample t-test is performed using only those differences. The data generated consist of measurements made on paired individuals, one member of the pair is a WBAMC IFICS user and the other member is a LRMC manual procurement system user. An assumption of the paired t-test is that observed differences are a random sample from a normally distributed population of differences. The null hypothesis states that the population means of the two groups are equal. If the t value of the test statistic is

located in the rejection region of the normal distribution curve, the researcher may conclude that there is a statistically significant difference in the means of the WBAMC IFICS user and LRMC manual procurement system user groups at a stated level of significance. A second set of t-tests were performed comparing the group means between pre-IFICS users and post-IFICS users at WBAMC. Again, if the t value of the test statistic is located in the rejection region of the normal distribution curve, the researcher may conclude that there is a statistically significant difference in the means of the WBAMC pre-IFICS user and the WBAMC post-IFICS user groups at a stated level of significance. Additionally, if significant results are obtained, then the direction of the significance should be analyzed for congruence with the posited hypothesis (i.e. is less time required to check PR&C status after IFICS implementation? Are IFICS users more satisfied than non-IFICS users?).

A difficulty to consider with this method of testing involves the artificial matching of subjects. Although this study's subjects were grouped based on their location and the type of procurement system they used, the possibility that unrecognized differences may have affected subject response remains and should temper the zeal of the researcher when the results of the study are evaluated (Knapp 1985, 175).

CHAPTER 3

THE RESULTS

This chapter presents the results of analysis testing the hypothesized variables' ability to explain overall IFICS user satisfaction as described in chapter two and depicted in Figure 1. This chapter also depicts the results of the t-test between: (1) pre-IFICS implementation and post-IFICS implementation Purchase Request and Commitment (PR&C) generation times (Ha10), and (2) pre-IFICS implementation and post-IFICS implementation time spent checking PR&C status (Ha11), at WBAMC. Additionally, t-test results of WBAMC pre-IFICS and post-IFICS PR&C processing time differences are displayed. Furthermore, this chapter contains t-test results between post-IFICS implementation WBAMC and pre-IFICS implementation LRMC testing for differences in time required to check the status of a PR&C (Ha12) as well as t-test of differences between post-IFICS implementation WBAMC and pre-IFICS implementation LRMC PR&C processing times (Ha13).

CORRELATIONS AMONG THE VARIABLES

Table 12. contains the correlations among the variables used in the casual model for factors influencing the level of IFICS user satisfaction. Extremely strong correlations ($\underline{r} > +/- .40$) for factors influencing IFICS user satisfaction were found for the relation between overall

user satisfaction and user perceptions of IFICS system usability, correctness, efficiency, and reliability, and quality. Extremely strong correlations were also found for the relation between IFICS user perceptions of overall system quality and the constructs correctness, usability and efficiency.

The strongest correlation (r = .8987) was between overall user satisfaction and overall system quality. This strong positive correlation is congruent with the hypothesized causal model. A strong positive correlation was also found between overall user satisfaction and the constructs usability (r = .7197), correctness (r = .6999), efficiency (r = .6664), and reliability (r = .4814). Similarly, an extremely strong positive correlation was found between overall system quality and the constructs correctness (r = .8395), usability (r = .7656), and efficiency (r = .5646). A strong correlation was found between overall system quality and the construct reliability (r = .3884). Each of the four constructs (usability, correctness, reliability, and efficiency) were significantly related to each other, and only the correlations between reliability and correctness (r = .365) and reliability and efficiency (r = .2947) were less than .40 in magnitude.

Surprisingly, neither the demographic variable age nor the demographic variable education level were significantly correlated with overall system quality or overall user satisfaction. An extremely strong correlation

was found between age and the constructs usability (r = .6011), efficiency (r = .4283) and correctness (r = .4247). Interestingly, the variable education level failed to reach a significant correlation level with any other factor in the causal model.

The strength of the correlations raises the issue of multicollinearity. Asher (1983) succinctly states that

> the explanatory variables in a regression equation are called independent variables, but normally they are not independent in a statistical sense. Statistical independence implies that variables are mutually uncorrelated, but if that is the case, regression analysis would be unnecessary since the standardized regression coefficients would reduce to zero-order correlation coefficients. Hence, regression analysis and the notion of statistical control it entails only become useful when the independent variables are moderately intercorrelated. When the correlations among the independent variables are too high, the problem of multicollinearity arises and difficulties occur in drawing inferences on the basis of regression estimates...High correlations among the independent variables result in larger standard errors of the estimated regression coefficients...multicollinearity makes it difficult to make causal inferences since the path estimates can differ dramatically from one sample to another...[and] is more likely to be a problem with aggregate data than with survey(individual) data since in aggregating observations, the random measurement error component of the score is likely to be canceled, whereas in survey data, random measurement error is ever present...The presence of random error attenuates correlation coefficients, thereby making the problem of collinearity less likely...When one has highly correlated independent variables, one might decide to eliminate one or more of such variables from the regression equation or one might combine the collinear variables together into an index or scale. In some cases, data reduction techniques such as factor analysis may be used to reduce a large number of indicators, many of which might be highly intercorrelated, into a smaller number of underlying factors that are less correlated...

> There is no automatic level at which collinearity becomes a problem, although some analysts arbitrarily set .7 or .8 as the correlational level at which to be concerned about collinearity (Asher 1983, 50-52).

Asher's point is well taken and cautious evaluation of this study's results is necessary to preclude the possibility of drawing faulty conclusions based on the effects of multicollinearity. Factor analysis was used in this study to attenuate the effects of collinearity between the independent variables. The moderate collinearity of many of the independent variable correlation coefficients is a desirable result. The concern about multicollinearity between some of the aggregate independent variables, such as usability and correctness (.8119), is reduced, although still present, by factor analysis which confirmed that these exogenous variables measured distinct dimensions.

TABLE 12.

CORRELATION COEFFICIENTS

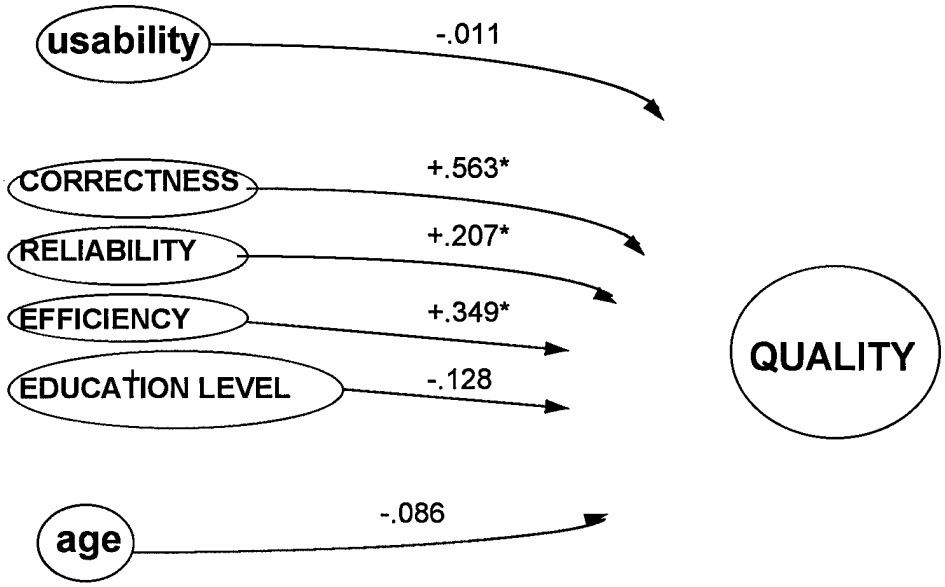
Coefficient/2-tailed Significance

	usability	correct	reliabit	efficien	age
usability	********	.8119 .4521	.5938 .6011		
		p= .000	p= .000	p= ..000	p= .000
correct	.8119 ********	.3650	.6079 .4247		
	p= .000		p= .003	p= .000	p= .002
reliabit	.4521 .3650	********	.2947 .1294		
	p= .000	p= .003		p= .019	p= .361
efficien	.5938 .6079	.2947 ********	.4283		
	p= .000	p= .000	p= .019		p= .002
age	.6011 .4247	.1294 .4283	********		
	p= .000	p= .002	p= .361	p= .002	
edlevel	-.0201	.1685 .2385	.1790 .2928		
	p= .876	p= .187	p= .060	p= .160	p= .001
ovallsat	.7197 .6999	.4814 .6664	.2316		
	p= .000	p= .000	p= .000	p= .000	p= .098
ovsysqal	.7656 .8395	.3884 .5646	.2705		
	p= .000	p= .000	p= .002	p= .000	p= .055

	edlevel	ovallsat	ovsysqal
usabilty	-.0201	.7197 .7656	
	p= .876	p= .000	p= .000
correct	.1685 .6999	.8395	
	p= .187	p= .000	p= .000
reliabit	.2385 .4814	.3884	
	p= .060	p= .000	p= .002
efficien	.1790 .6664	.5646	
	p= .160	p= .000	p= .000
age	.2928 .2316	.2705	
	p= .001	p= .098	p= .055
edlevel	*******	-.0554	-.0347
		p= .672	p= .789
ovallsat	-.0554	*******	.8987
	p= .672		p= .000
ovsysqal	-.0347	.8987 *******	
	p= .789	p= .000	

Causal Modeling Analysis

This section presents the results of the path analyses, using standardized beta weights.



* = Statistically Significant

Figure 2. Results of the Causal Model of Factors Influencing the Level of Perceived IFICS Quality (using standardized beta weights).

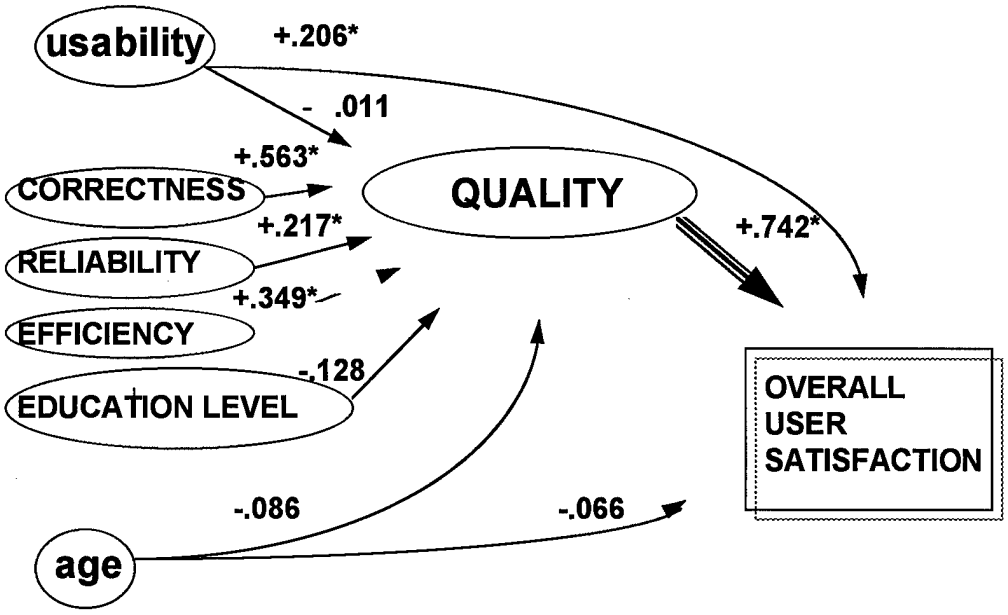
Overall System Quality

As shown in Figure 2. three of the variables hypothesized to directly affect perceptions of overall system quality were found to be statistically significant, explaining 74.5% of the variation in the endogenous variable. The most important predictor was the construct

variable correctness (+.563), followed by the construct variables efficiency (+.349), and reliability (+.217). The two demographic variables, age and education level, and the construct variable usability, were hypothesized to directly affect user perceptions of overall system quality; however, these variables were not found to be significant in predicting the endogenous variable quality.

OVERALL USER SATISFACTION

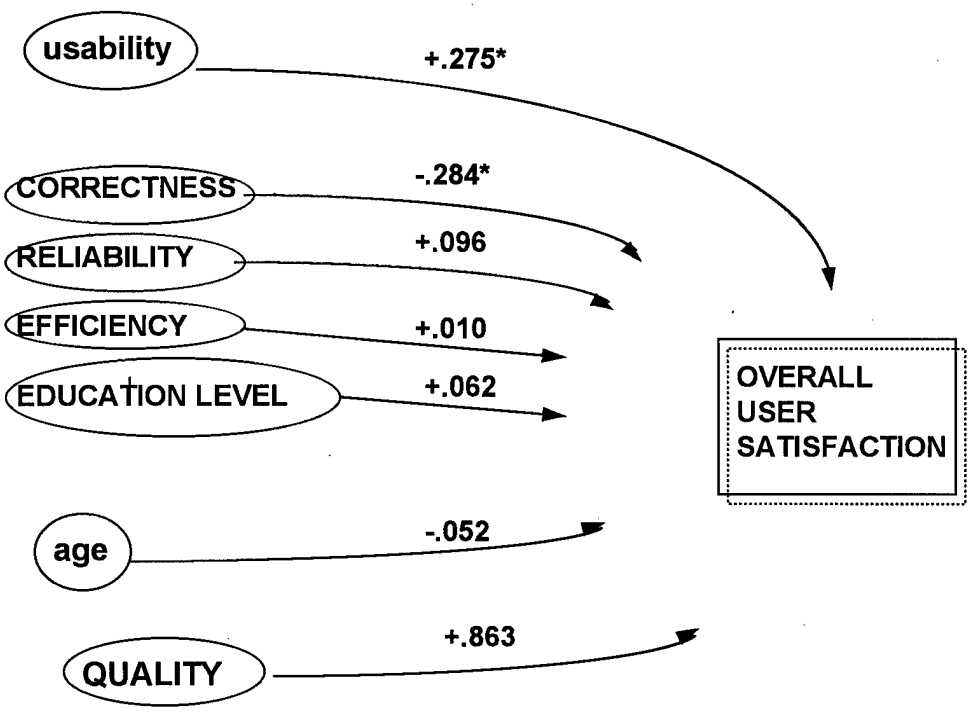
As shown in Figure 3. two of the factors hypothesized to directly affect overall user satisfaction were found to be statistically significant. The demographic variable age was not found to be predictive of overall user satisfaction. The most important predicator of overall user satisfaction was user perceptions of overall system quality (+.742) followed by user perceptions of usability (+.206), which is the effort required to understand the systems output. The demographic variable age was not a statistically significant predictor of overall user satisfaction. These factors explained 73.7% of the variation in the dependent variable.



* significant at $p < .05$ level

Figure 3. Results of the Causal Model of Factors Influencing the Level of IFICS Overall User Satisfaction (using standardized beta weights).

The next step in causal model analysis is to compare the hypothesized model against a fully recursive model. The fully recursive model is a path analysis which assumes that all variables lead to all the other variables in the model. The results of the fully recursive model are depicted in Figure 4. below.



* = Statistically Significant

Figure 4. Results of the Fully Recursive Causal Model of Factors Influencing the Level of IFICS User Satisfaction (using standardized beta weights).

"Trimmed" Causal Model

From the fully recursive models above, a "trimmed " model was developed. The causal paths retained in the "trimmed" model depicted in Figure 5. were determined by a two-step process, using standardized beta weights. First, original model hypothesized causal paths that were non-significant were eliminated, provided they also were not significant predictors in the fully recursive analysis. The

variables which were not significant predictors in the original model were age and education level and the path branch of the construct usability leading to the endogenous variable quality. In the second step, causal paths that were found to be statistically significant from the Fully Recursive model were added to the hypothesized model. The variables usability, correctness, and quality were significant predictors of overall user satisfaction. (Figure 4). Surprisingly, a new line emerged for inclusion in the "trimmed" model. The exogenous construct correctness was an inversely related significant predictor (-.292, p =.0137) of the dependent variable overall user satisfaction (see Figures 4 and 5). Since there is no theoretical underpinning for this new line, additional research is necessary to confirm if, in fact, a theoretical basis exist for this construct's relationship with the dependent variable. The relationship's of the other variables retained in the trimmed model (i.e. the significant relationships from Figure 3, Causal Model Results, p.54, and Figure 4, Fully Recursive Model Results, p.55) are illustrated in Figure 5, "Trimmed" Causal Model, p.57. The amount of variance explained in the fully recursive model of overall user satisfaction increased to 77.1%.

In the revised (trimmed) model, each of the exogenous and endogenous variables were, of course, statistically significant predictors of overall IFICS user satisfaction, explaining 83% of the variation in the dependent variable

overall satisfaction. As before, user perceptions of overall system quality was the most important predictor of overall IFICS user satisfaction (.974, p= .000).

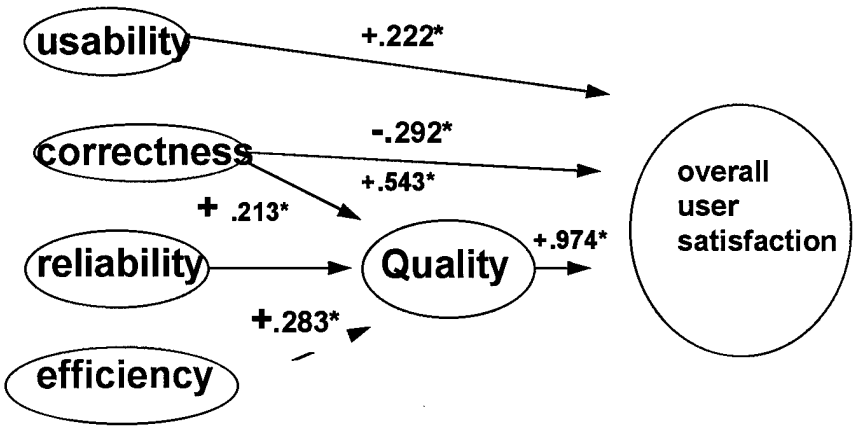


Figure 5. The "Trimmed" Causal Model (using standardized beta weights).

COMPARISONS OF PRE AND POST-IFICS PR&C PROCESSING TIMES

In addition to the analysis of the IFICS overall user satisfaction causal model described in the previous section in which data from sections one and three of the IFICS survey were used, sections two and four of the IFICS survey were designed to facilitate performance of t-tests on

various aspects of interest between both pre-IFICS and post-IFICS WBAMC and between pre-IFICS LRMC and post-IFICS WBAMC.

Of specific interest were comparisons of pre-IFICS and post-IFICS average PR&C generations times at WBAMC and comparisons of the average amount of time spent checking the status of a PR&C at pre-IFICS and post-IFICS WBAMC. Likewise, there was specific interest in comparisons of pre-IFICS LRMC an post-IFICS WBAMC average PR&C generation times and comparisons of the average amount of time spent checking the status of a PR&C at pre-IFICS LRMC and post-IFICS WBAMC. A summary of the t-test results is presented in Table 13 and Table 14.

TABLE 13.

RESULTS OF t-test BETWEEN PRE AND POST-IFICS WBAMC

VARIABLE	pre-IFICS WBAMC MEAN	S.D.	post-IFICS WBAMC MEAN	S.D.	n	t-value	2-tail sig
AVG TIME REQUIRED TO GENERATE A PURCHASE REQUEST (p.91)							
	3.57	1.25	2.38	1.14	63	-5.65	P <.001
AVG TIME REQUIRED TO CHECK STATUS OF A PURCHASE REQUEST (p.92)							
	4.18	1.29	2.21	1.23	63	-10.47	P <.001

TABLE 14.

RESULTS OF t-test between LRMC and post-IFICS WBAMC

VARIABLE	pre-IFICS LRMC MEAN	S.D.	post-IFICS WBAMC MEAN	S.D.	n	t-value	2-Tail sig
AVG TIME REQUIRED TO GENERATE A PURCHASE REQUEST (p.91)							
	3.62	1.34	2.41	1.15	61	-4.97	P <.001
AVG TIME REQUIRED TO CHECK STATUS OF A PURCHASE REQUEST (p.92)							
	3.69	1.50	2.21	1.23	61	-5.72	P <.001

There were four t-tests performed relating to the formal hypothesis of this study. First, on average, it took WBAMC personnel between six and twelve minutes (MEAN=3.57) to generate each PR&C prior to the implementation of the IFICS system. After IFICS implementation at WBAMC, the same personnel required, on average, between three and six minutes (MEAN=2.38) to generate each PR&C. Second, on average, it took WBAMC personnel between 10 and 60 minutes to check the status of each PR&C prior to the implementation of IFICS at WBAMC. After IFICS implementation at WBAMC, the average time required to check the status of each PR&C declined to between 1 and 5 minutes per PR&C. Third, on average, it took LRMC personnel between six and twelve minutes (MEAN=3.62) to manually generate a PR&C. Interestingly, the scale means of pre-IFICS WBAMC and pre-IFICS LRMC were almost identical with the means equaling 3.57 and 3.62 (i.e. in the six to twelve minute range)

respectively. The t-value of these two means was not significant (t=.20, p=.839) which strengthens the hypothesis that pre-IFICS WBAMC and pre-IFICS LRMC populations are similar. As noted above, post-IFICS WBAMC average PR&C generation times were between three and six minutes (MEAN=2.41) per PR&C. Fourth, on average, it took LRMC personnel between ten and sixty minutes (MEAN=3.69) to check the status of each manually generated PR&C and, on average, it took post-IFICS WBAMC personnel between one and five minutes (MEAN=2.21) to check the status of each computer-generated PR&C. The difference in the reported average time required to check the status of a PR&C between pre-IFICS WBAMC and pre-IFICS LRMC was not significant (t=1.90, p=.062), supporting the hypothesis that both groups of employees are similar.

Overall, 90 people returned the questionnaire. Two respondents failed to identify their gender. The age (measured in single year increments) of the respondents ranged from 22 to 64. Eleven respondents identified their age as 31. This represented the largest frequency response within a single age category for this variable. Twelve respondents failed to identify their age. The Mean of the survey respondents education level was 4.4, which is a scale rating of just over a 2 year college degree. The responses ranged from high school (6 responses) to a doctorate degree (3 responses). One survey was returned without the respondent's education level identified. The average amount

of time the survey respondents had been in their present job was 41 months. Two surveys had missing data for this variable. Finally, all primary job types (question 44) were represented by one or more responses with the exception of clinical "other" category. The largest response category was clinical NCOIC (29), followed by special technical staff (24), division admin/funds control officer (15), administrative NCOIC (15), and department admin/funds control officer (10). All other categories contained 9 or fewer responses. Based on the dispersion of responses to the demographic variables and the absence of apparent bias, the survey is assumed to be representative of the population. The implications of these findings will be discussed in the next chapter.

CHAPTER 4

DISCUSSIONS, CONCLUSIONS AND RECOMMENDATIONS

This study investigated thirteen hypotheses related to the Integrated Financial Control System (IFICS) (see Appendix Five). A Survey instrument was designed and validated for data collection. Conclusions about the representativeness of the survey were derived from selected demographic variables (Appendix Six).

The first nine hypotheses were from the causal model predicating IFICS users' overall satisfaction levels and the last four hypotheses examined hypothesized differences between pre-IFICS and post-IFICS implementation at WBAMC and between pre-IFICS LRMC and post-IFICS WBAMC. The hypothesized model fits the data well, except for the demographic variables age and education level and one branch of the causal variable usability, and explained approximately 74% of the variation in overall IFICS user satisfaction. The model did not fit the data, of course, as well as the fully recursive model. Therefore, based on the fully recursive model, a "trimmed" version of the causal model was developed that deleted the non-significant causal paths and added an additional path (correctness to overall user satisfaction, Beta = -.292, $p<.01$) that had been shown to be statistically significant. The results of the t-tests (Table 13 and Table 14) supported formal hypotheses ten through thirteen described in Chapter One. For example, a

statistically significant difference was found between the time it took to manually generate a PR&C at WBAMC and the reduced amount of time required after IFICS was implemented at WBAMC. Likewise, it was found that it takes, on average, statistically significant fewer minutes to check the status of each PR&C at post-IFICS WBAMC than it does at LRMC, where the manual system is used. The implications of the results are discussed below.

First, a summary of the similarities and differences between the hypothesized model and the "trimmed" model (Ha1-Ha5) is presented. Second is a discussion of hypotheses Ha10 through Ha13. Finally, the chapter ends with a discussion of the implications for IFICS and recommendations for future research.

Summary of Findings

Listed in descending order (see Figure 3, p.54), the most important predictor of overall system quality in the posited model, based on the size of the path coefficients (using standardized beta weights), was the construct variable correctness (+.563), followed by efficiency (+.349), and then reliability (+.217). The most important predictor of overall user satisfaction was user perceptions of overall system quality (+.742), followed by usability (+.206).

The importance of user satisfaction levels with the perceived quality of IFICS strengthens Griffith's (1992)

position that information system quality, defined as an information system's ability to provide its users with a means to measure actual performance against organizational goals and standards, is an essential measure of an information system and also an important consideration in assessing overall user satisfaction. The predictive ability of the measure overall system quality is substantial, accounting for 74% of the variance in overall IFICS satisfaction levels.

The construct usability, which measured the level of effort required to understand IFICS output, while significant, accounted for a modest 21% of the variance in overall IFICS satisfaction levels. The results of this study do not support Griffith's (1992) work which inferred that a greater amount of variance might be accounted for by this variable.

Surprisingly, the construct age failed to reach statistical significance as a predictor of either perceptions of information system quality or overall IFICS satisfaction levels. This finding is in contrast to previous information technology studies (Brancheau and Wetherbe 1990) (Hays 1994) (Davis 1989) and is conceivably of major importance to many different stakeholders in the information technology industry, in particular the health care industry. Information Technology studies conducted over the last 20 years consistently found that as age increased so did resistance to the adoptions of new

information systems. The findings in this study, however, indicate that age was not a statistically significant factor in either users' perceptions of IFICS quality or levels of overall user satisfaction. This finding was unexpected and suggests that among the government employees surveyed, the transitional period between the industrial age and information technology age may have ended. The other demographic variable used in the overall IFICS satisfaction model, education level, was not significant in predicting patient satisfaction. This is an encouraging finding for hospital managers because it suggests that they can expect employees with a wide range of educational levels to successfully fill IFICS related positions.

The ability of an information system to meet user specifications, perform intended functions, and require minimum resources to accomplish designed functions enhances user perceptions of quality in the information system. As IFICS designers contemplate IFICS system improvements, these are the areas that are positively correlated with increased perception levels of IFICS system quality by the end-user. The easier it is for IFICS users to understand the systems output (usability), the more satisfied they are with the overall system. This finding indicates that IFICS trainers should place increased emphasis on system output comprehension by IFICS users if/when additional resources become available.

The final observation from the causal model is the acceptance of the hypothesis that a person's perception of IFICS quality is a statistically significant predictor of overall satisfaction with IFICS. In fact, an IFICS user's quality perception level is, by far, the most important predictor of overall satisfaction with IFICS.

The results of the IFICS survey confirmed that the implementation of IFICS at WBAMC improved the PR&C process by saving significant amounts of time both in PR&C generation and the time spent checking the status of PR&C's. The manpower reductions within the AMEDD have made time-management an important management concern. The results of this study suggest that implementing IFICS will save AMEDD organizations significant man-hours of productivity.

The IFICS organizational benefits promised by the IFICS developers, such as improved purchase request processing times and improved purchase request status retrieval times have been quantified by means of a reliable and valid survey instrument and the significant differences confirmed by statistical methods. Importantly, managers should note the difference between the before and after IFICS budget management satisfaction Means at WBAMC (Appendix Six). Before IFICS was implemented the budget management satisfaction Mean was 2.7 which is just over half-way between a “dissatisfied” and “neutral” ranking on the five-point Likert measurement scale. After IFICS was

implemented, the satisfaction score rose to 4.0 which is a "satisfied" ranking on the scale.

The SARMS (Standard Army Resource Management System) financial system, used by resource managers in the European theater, is a financial accounting and reporting system used at the organizational level. The financial data provided by SARMS is not accessible on-line to the department/division level of the hospital. IFICS reads the financial data reported by SARMS and transmits the data on-line to the department/division level user providing a needed critical link that will increase the availability of SARMS data to managers. IFICS is not, therefore, a redundant and unnecessary system, but rather IFICS complements SARMS by providing a gateway for the flow of budget information to the end-user level. IFICS does not purport to replace SARMS or any other Army Financial System, but rather it enhances the Army financial system by providing an automated pathway for the flow of integrated information to the department/division level of the organization.

The cost of implementing IFICS at LRMC is insignificant compared with the savings created by the system. The system hardware was already on site and the LAN was already being installed to support CHCS. The only substantial one-time cost for IFICS was the ten thousand dollar cost to bring WBAMC IFICS personnel to LRMC to install the system; the only significant recurring annual cost is the salary of two

full time system administrators required to maintain the IFICS system.

The findings of this study support management's decision to implement IFICS at LRMC; ultimately, IFICS will save the organization substantial budget dollars and untold man-hours of work. I do not foresee the long-term cost of maintaining and upgrading IFICS ever approaching the level of savings in labor cost (and frustration) associated with a manual procurement system. The DOD would be well served to implement IFICS at any AMEDD facility still using a manual procurement system.

RECOMMENDATIONS FOR FUTURE RESEARCH

This study contributes to the scientific body of knowledge by adding to the stream of research on identification of constructs which can predict the direction and magnitude of information technology user satisfaction levels. Future researchers should seek to improve the reliability and validity of the IFICS survey through further inquiry into survey design. While the IFICS survey was demonstrated to be valid and reliable, every subsequent iteration of the survey should result in an improved instrument. Likewise, the "trimmed" causal model of potential factors affecting overall levels of IFICS user satisfaction, while appropriate as a starting point for future research, can be improved - particularly the construct reliability. The construct reliability had a considerably lower coefficient alpha (.5766) than the other

three constructs (.9115 or higher). One possible explanation may be the low number of component variable factors (two) which made up the construct reliability. Future research should seek to identify additional measures of reliability to improve the alpha score on this construct.

There is a need to perform a follow-up study at LRMC after IFICS has been implemented to measure the level of user satisfaction attained at the hospital as well as to validate the baseline data obtained from WBAMC. Future research should evaluate the "trimmed" model as an investigative tool. A comparison of satisfaction levels with the procurement and funds tracking process at LRMC will provide the LRMC information management division a more accurate assessment of the changes it needs to make in its training program to maximize IFICS user satisfaction.

Future researchers may wish to replicate this study to determine if the low predictive ability of the demographic variable age and education level of information system user satisfactions is:

(1) confined to the two hospitals evaluated,

(2) applicable to the entire AMEDD population,

(3) applicable to the entire healthcare industry,

(4) applicable to the entire U. S. Workforce.

Lastly, future researchers should expand the focus of IFICS research to include a benefit analysis to determine the feasibility of implementing IFICS throughout the AMEDD.

PURCHASE REQUEST AND COMMITMENT For use of this form, see AR 37-108; the proponent agency is OCA.	PURCHASE INSTRUMENT NO.	REQUISITION NO.	DATE	PAGE OF PAGES

TO: Purchasing and Contracting Officer	THRU:	FROM:

It is requested that the supplies and services enumerated below or on attached list be:

PURCHASED FOR	DELIVERED TO	NOT LATER THAN *(Date)*

The supplies and services listed below cannot be secured through normal supply channels or other Army supply sources in the immediate vicinity, and their procurement will not violate existing regulations pertaining to local purchases for stock, therefore, local procurement is necessary for the following reason: *(Check appropriate box and complete item.)*

	LOCAL PURCHASES AUTHORIZED AS THE NORMAL MEANS OF SUPPLY FOR THE FOREGOING BY		REQUISITIONING DISCLOSES NONAVAILABILITY OF ITEMS AND LOCAL PURCHASE IS AUTHORIZED BY
	EMERGENCY SITUATION PRECLUDES USE OF REQUISITION CHANNELS FOR SECURING ITEM		

ITEM	DESCRIPTION OF SUPPLY OR SERVICES	QUANTITY	UNIT	ESTIMATED Unit Price	ESTIMATED Total Cost

NAME AND TELEPHONE NO OF PERSON TO CALL FOR ADDITIONAL INFORMATION

Fund Certification

The supplies and services listed on this request are properly chargeable to the following allotments, the available balances of which are sufficient to cover the cost thereof, and funds have been committed.

ACCOUNTING CLASSIFICATION	AMOUNT

DATE	TYPED NAME AND TITLE OF CERTIFYING OFFICER	SIGNATURE

DISCOUNT	
PURCHASE ORDER NUMBER	
DELIVERY SCHEDULE	

THE FOREGOING ITEMS ARE REQUIRED NOT LATER THAN AS INDICATED ABOVE FOR THE FOLLOWING PURPOSE

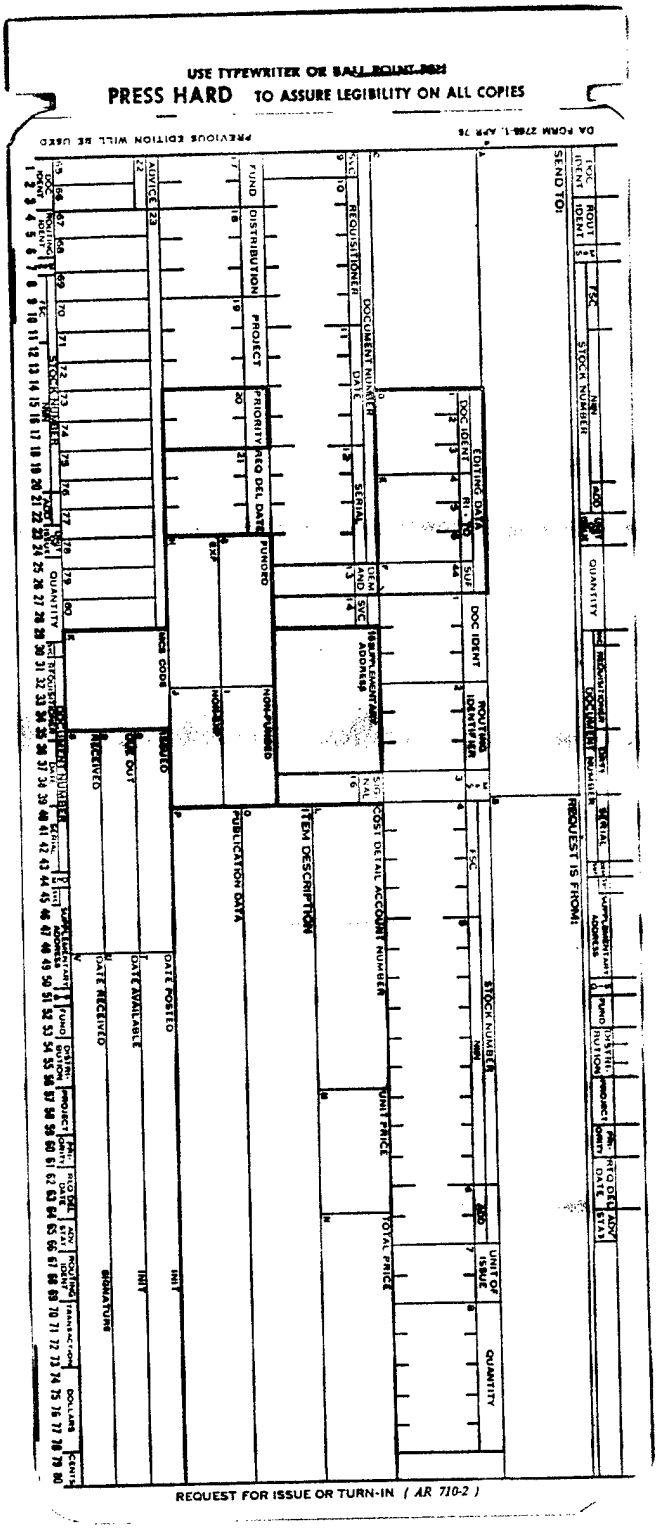
Approved by commanding officer or his designee

DATE	TYPED NAME AND GRADE OF INITIATING OFFICER TELEPHONE NO.	SIGNATURE	DATE	TYPED NAME AND GRADE OF COMMANDING OFFICER OR DESIGNEE	SIGNATURE
DATE	TYPED NAME AND GRADE OF SUPPLY OFFICER	SIGNATURE			

DA FORM 1 AUG 76 3953

PREVIOUS EDITIONS OF THIS FORM WILL BE USED UNTIL EXHAUSTED.

APPENDIX TWO



APPENDIX THREE

A SATISFACTION SURVEY OF INTEGRATED FINANCIAL CONTROL SYSTEM (IFICS) USERS AT WILLIAM BEAUMONT ARMY MEDICAL CENTER AND PRE-IMPLEMENTATION SURVEY OF POTENTIAL IFICS USERS AT LANDSTUHL REGIONAL MEDICAL CENTER.

1. Where do you work? (circle one)

   (a) WBAMC (William Beaumont Army Medical Center, USA)

   (b) LRMC (Landstuhl Regional Medical Center, Germany)

WBAMC RESPONDENTS ONLY: (circle one)

2. Do you have experience using **both** IFICS (paperless) AND Pre-IFICS (paper copy) PR&C generation, Funds Tracking, or Budget Management function — YES NO

LRMC RESPONDENTS ONLY: (circle one)

3. Do you have experience in PR&C generation, funds tracking, or budget management functions? — YES NO

NOTE: If you checked **-no-** to question 2 or 3 above, stop here and return survey to origin (see last page)

SECTION 1: **William Beaumont respondents** (begin at question 4)

Landstuhl respondents: skip section 1. Begin at section two: questiion 30

(circle one)

4. Did you perform the same or similar PR&C, funds tracking, or budget management function prior to IFICS implementation at WBAMC? — YES NO

(check one)

5. How often do you use IFICS? (on average)
   _____Routinely (10+ times per week)
   _____Frequently (6-9 times per week)
   _____Occasionally (1-5 times per week)
   _____Rarely (less than once a week)

(check one)

6. How often do you use IFICS **help** feature? (on average)
   _____Routinely (more than 75% of the time)
   _____Frequently (between 50% and 75% of the time)
   _____Occasionally (between 25% and 50% of the time)
   _____Rarely (less than 25% of the time)
   _____Never

(check one)

7. How often do you require assistance from non-system sources (users manual, peers, IMD staff) when using IFICS?
   _____Routinely (more than 75% of the time)
   _____Frequently (between 50% and 75% of the time)
   _____Occasionally (between 25% and 50% of the time)
   _____Rarely (less than 25% of the time)
   _____Never

(check one)

8. How often do you avoid using IFICS because the program is too difficult?
   _____Routinely (more than 75% of the time
   _____Frequently (between 50% and 75% of the time)
   _____Occasionally (between 25% and 50% of the time)
   _____Rarely (less than 25% of the time)
   _____Never

(check one)

9. Overall, how would you rate IFICS ease of use?
   _____Very easy
   _____Easy
   _____Neutral
   _____Difficult
   _____Very Difficult

(check one)

10. How satisfied are you with IFICS paperless DD Form 3953?
    _____Very Dissatisfied
    _____Dissatisfied
    _____Neutral
    _____Satisfied
    _____Very Satisfied

(check one)

11 How satisfied are you with IFICS paperless DD Form 2765?
   _____Very Dissatisfied
   _____Dissatisfied
   _____Neutral
   _____Satisfied
   _____Very Satisfied

(check one)

12. How satisfied are you with IFICS capability to check PR&C status?
    _____Very Dissatisfied
    _____Dissatisfied
    _____Neutral
    _____Satisfied
    _____Very Satisfied

Please indicate your satisfaction level with the following IFICS items:

	Very Dissatisfied	Dissatisfied	Neutral	Satisfied	Very Satisfied
13. Format of screens	1._____	2._____	3._____	4._____	5._____
14. Clarity of information on screens	1._____	2._____	3._____	4._____	5._____
15. Readability of screens	1._____	2._____	3._____	4._____	5._____
16. Readability of printed reports	1._____	2._____	3._____	4._____	5._____

Please indicate your satisfaction level with the following IFICS items:

	Very Dissatisfied	Dissatisfied	Neutral	Satisfied	Very Satisfied
17. Completeness of printed reports	1._____	2._____	3._____	4._____	5._____
18. Clarity of printed report information	1._____	2._____	3._____	4._____	5._____
19. Order entry timeliness	1._____	2._____	3._____	4._____	5._____
20. Status retrieval timeliness	1._____	2._____	3._____	4._____	5._____
21. IFICS **help** features	1._____	2._____	3._____	4._____	5._____
22. Quality of IFICS Users Manual	1._____	2._____	3._____	4._____	5._____
23. Quality of IFICS Training classes	1._____	2._____	3._____	4._____	5._____
24. Overall quality of IFICS system	1._____	2._____	3._____	4._____	5._____

Please indicate your level of agreement:

25. Converting to IFICS made my job easier
_____Strongly Disagree
_____Disagree
_____Neutral
_____Agree
_____Strongly Agree

26. Converting to IFICS was good for me professionally
_____Strongly Disagree
_____Disagree
_____Neutral
_____Agree
_____Strongly Agree

27. Converting to IFICS was good for me Personally
_____Strongly Disagree
_____Disagree
_____Neutral
_____Agree
_____Strongly Agree

28. I prefer IFICS over a manual (hard paper copy) system
_____Strongly Disagree
_____Disagree
_____Neutral
_____Agree
_____Strongly Agree

29. Overall, how satisfied are you with IFICS?
_____Very Dissatisfied
_____Dissatisfied
_____Neutral
_____Satisfied
_____Very Satisfied

SECTION TWO: **ALL**

This section seeks comparisons of IFICS with other methods of processing of the same type information.

William Beaumont respondents please complete columns 1 and 2.

Landstuhl respondents please complete column 3.

30. (**On average**) How many DD-3953's (PR&C) does your Department/division generate per week?

(1) WBAMC **after** IFICS installation	(2) WBAMC **before** IFICS installation	(3) Landstuhl Regional MedCen
___ 1-10	___ 1-10	___ 1-10
___ 11-20	___ 11-20	___ 11-20
___ 21-30	___ 21-30	___ 21-30
___ 31-40	___ 31-40	___ 31-40
___ 41+	___ 41+	___ 41+

31. (**On average**) How many DD-3953's (PR&C) do **You** personally generate per week?

(1) WBAMC **after** IFICS installation	(2) WBAMC **before** IFICS installation	(3) Landstuhl Regional MedCen
___ 1-10	___ 1-10	___ 1-10
___ 11-20	___ 11-20	___ 11-20
___ 21-30	___ 21-30	___ 21-30
___ 31-40	___ 31-40	___ 31-40
___ 41+	___ 41+	___ 41+

32. (On average) How many DD-2765's (PR&C) does your department/division generate per week?

(1) WBAMC **after** IFICS installation	(2) WBAMC **before** IFICS installation	(3) Landstuhl Regional MedCen
___ 1-10	___ 1-10	___ 1-10
___ 11-20	___ 11-20	___ 11-20
___ 21-30	___ 21-30	___ 21-30
___ 31-40	___ 31-40	___ 31-40
___ 41+	___ 41+	___ 41+

33. **(On average)** How many DD-2765's (PR&C) do **You** personally generate per week?

(1) WBAMC **after** IFICS installation	(2) WBAMC **before** IFICS installation	(3) Landstuhl Regional MedCen
___ 1-10	___ 1-10	___ 1-10
___ 11-20	___ 11-20	___ 11-20
___ 21-30	___ 21-30	___ 21-30
___ 31-40	___ 31-40	___ 31-40
___ 41+	___ 41+	___ 41+

34. **(On average)** How many **minutes** does it take you to generate a DD-3953?

(1) WBAMC **after** IFICS installation	(2) WBAMC **before** IFICS installation	(3) Landstuhl Regional MedCen
___ 0-3	___ 0-3	___ 0-3
___ 3-6	___ 3-6	___ 3-6
___ 6-9	___ 6-9	___ 6-9
___ 9-12	___ 9-12	___ 9-12
___ 12+	___ 12+	___ 12+

35. **(On average)** How many **minutes** does it take you to generate a DD-2765?

(1) WBAMC **after** IFICS installation	(2) WBAMC **before** IFICS installation	(3) Landstuhl Regional MedCen
___ 0-3	___ 0-3	___ 0-3
___ 3-6	___ 3-6	___ 3-6
___ 6-9	___ 6-9	___ 6-9
___ 9-12	___ 9-12	___ 9-12
___ 12+	___ 12+	___ 12+

36. **(On average)** How long does it take you to check the status of a PR&C ? (check one only)

	(1) WBAMC **after** IFICS installation	(2) WBAMC **before** IFICS installation	(3) Landstuhl Regional MedCen
IN MINUTES:			
a. Less than 1	_____	_____	_____
b. More than 1 but less than 5	_____	_____	_____
c. More than 5 but less than 10	_____	_____	_____
d. More than 10 but less 60	_____	_____	_____
IN HOURS			
e. More than 1 but less than 24	_____	_____	_____
IN DAYS			
f. 1 or more	_____	_____	_____

37. (**On average**) From the time you prepare a routine PR&C, how long does it take for your department/division chief to sign it?

WBAMC (**after** IFICS implementation) _____ Days _____ Hours _____ Minutes

WBARM (**before** IFICS implementation) _____ Days _____ Hours _____ Minutes

LANDSTUHL REGIONAL MEDCEN _____ Days _____ Hours _____ Minutes

38. (**On average**) From the time you prepare a routine PR&C , how long does it take for Resource Management Division to approve it? (fund cite assigned) -include time estimated in number 37 above.

WBAMC (**after** IFICS implementation) _____ Days _____ Hours _____ Minutes

WBARM (**before** IFICS implementation) _____ Days _____ Hours _____ Minutes

LANDSTUHL REGIONAL MEDCEN _____ Days _____ Hours _____ Minutes

39. (**On average**) From the time you prepare a routine PR&C, how long does it take for the Chief of Logistics to approve and sign ? - include time estimated in answers 37 and 38 above.

WBAMC (**after** IFICS implementation) _____ Days _____ Hours _____ Minutes

WBARM (**before** IFICS implementation) _____ Days _____ Hours _____ Minutes

LANDSTUHL REGIONAL MEDCEN _____ Days _____ Hours _____ Minutes

40. (**On average**) From the time you prepare a routine PR&C, how long does it take for the document to reach the Contracting office or source of supply? - include time estimated in answers 37 , 38 and 39 above.

WBAMC (**after** IFICS implementation) _____ Days _____ Hours _____ Minutes

WBARM (**before** IFICS implementation) _____ Days _____ Hours _____ Minutes

LANDSTUHL REGIONAL MEDCEN _____ Days _____ Hours _____ Minutes

41. (**On average**) **How many** procurement actions (PR&Cs) need to be 'hand carried' through the system each month?

(1) WBAMC **after** IFICS installation	(2) WBAMC **before** IFICS installation	(3) Landstuhl Regional MedCen
_____	_____	_____

42. (**On average**) **How long** (in hours and minutes) does it take to 'hand carry' a procurement (PR&C) through the system?

(1) WBAMC **after** IFICS installation	(2) WBAMC **before** IFICS installation	(3) Landstuhl Regional MedCen
_____hrs	_____hrs	_____hrs
_____min	_____min	_____min

43. (**On average**) what is the grade level of the employee that usually 'hand carries' a procurement (PR&C) through the system?

GS_____
E_____
O_____
LN_____ (Germany)
Other_____ (specify) _____

SECTION THREE: **all respondents**

44. Primary Job Type: (check one only, please)

Clinical	Administrative
___ Ward Clerk	___ Clerical Staff Member
___ NCOIC	___ NCOIC
___ Head Nurse	___ Admin. asst./secretary
___ Admin./asst./secretary	___ Div admin/funds control officer
___ Dept admin/funds control officer	___ Divison Chief
___ Department chief	___ Special Technical Staff (LOG,RMD, or Contracting workers)
_____Other (specify)	_____Other (specify)

45. What date were you assigned to: William Beaumont AMC ? _____

Landstuhl RMC ? _____

46. How long have you been assigned to your present position? _____

47. Your current Pay Grade/ Service classification

GS_____
E_____
O_____
LN_____ (Germany)
Other (specify)_____

48. Education Level: Please check highest level completed

___ some High School
___ High School
___ some college level courses
___ 2 yr college degree
___ 4 yr college degree
___ Masters level degree
___ Doctorate

49. What is your proficiency level with a computer or typewriter keyboard?

___ minimal skill level
___ moderate skill level
___ Expert skill level

50. Other than IFICS, what computer applications have you used. (Check all that apply)

___ Word Processing
___ Communications
___ Statistical Packages
___ Electronic Mail
___ Custom Applications for my job
___ Spreadsheets
___ Database Management
___ Computer Based training
___ On-line Information service
___ Computer Games
___ other (specify)_____

51. Other than IFICS, what type of computer training have you had?. (Check all that apply)

___ None
___ Computer-aided instruction (such as software tutorials)
___ Hands-on Application software instruction (such as WordPerfect classes)
___ CHCS training
___ High School computer courses
___ College computer courses
___ Seminars or Lectures
___Computer programmer training
___Computer Science Degree
___ Other (specify)_____

52. What is your age? _____(in years)

53. What is your gender? ____male ____ female

SECTION FOUR: Please complete this section if you are responsible for budget execution and/or funds management. (such as clinic NCOICs, Department Administrative officers, or Department/Division Chiefs)

William Beaumont respondents please complete columns 1 and 2.

Landstuhl respondents please complete column 3.

KEY:

VD = Very Dissatisfied
D = Dissatisfied
N = Neutral
S = Satisfied
VS = Very Satisfied

	(1) WBAMC **after** IFICS installation	(2) WBAMC **before** IFICS installation	(3) Landstuhl Regional MedCen
54. Your satisfaction level with your ability to track budget commitments against obligations	___VD ___ D ___ N ___ S ___ VS	___VD ___D ___N ___S ___VS	___VD ___D ___N ___S ___VS

	(1) WBAMC **after** IFICS installation	(2) WBAMC **before** IFICS installation	(3) Landstuhl Regional MedCen
55. Your satisfaction level with your ability to track Contract Awards	___VD ___ D ___ N ___ S ___ VS	___VD ___D ___N ___S ___VS	___VD ___D ___N ___S ___VS

	(1) WBAMC **after** IFICS installation	(2) WBAMC **before** IFICS installation	(3) Landstuhl Regional MedCen
56. Your satisfaction level with your ability to receive expense adjustment feedback	___VD ___ D ___ N ___ S ___ VS	___VD ___D ___N ___S ___VS	___VD ___D ___N ___S ___VS

	(1) WBAMC **after** IFICS installation	(2) WBAMC **before** IFICS installation	(3) Landstuhl Regional MedCen
57. Your satisfaction level with the PR&C signature approval process	___VD ___ D ___ N ___ S ___ VS	___VD ___D ___N ___S ___VS	___VD ___D ___N ___S ___VS

	(1) WBAMC **after** IFICS installation	(2) WBAMC **before** IFICS installation	(3) Landstuhl Regional MedCen
58. Your **overall** satisfaction level with the funds tracking process.	___VD ___ D ___ N ___ S ___ VS	___VD ___D ___N ___S ___VS	___VD ___D ___N ___S ___VS

	(1) WBAMC **after** IFICS installation	(2) WBAMC **before** IFICS installation	(3) Landstuhl Regional MedCen
59. Your satisfaction level with your ability to get budget status reports?	___VD ___ D ___ N ___ S ___ VS	___VD ___D ___N ___S ___VS	___VD ___D ___N ___S ___VS

	(1) WBAMC **after** IFICS installation	(2) WBAMC **before** IFICS installation	(3) Landstuhl Regional MedCen
60. Your satisfaction level with your ability to maintain an audit trail of budget adjustments?	___VD ___ D ___ N ___ S ___ VS	___VD ___D ___N ___S ___VS	___VD ___D ___N ___S ___VS

	(1) WBAMC **after** IFICS installation	(2) WBAMC **before** IFICS installation	(3 Landstuhl Regional MedCen
61. Your satisfaction level with your ability to minimize end-of-year loss of funds?	___VD ___ D ___ N ___ S ___ VS	___VD ___D ___N ___S ___VS	___VD ___D ___N ___S ___VS

	(1) WBAMC **after** IFICS installation	(2) WBAMC **before** IFICS installation	(3) Landstuhl Regional MedCen
62. Your satisfaction level with your ability to manage-to-budget?	___VD ___ D ___ N ___ S ___ VS	___VD ___D ___N ___S ___VS	___VD ___D ___N ___S ___VS

	(1) WBAMC **after** IFICS installation	(2) WBAMC **before** IFICS installation	(3) Landstuhl Regional MedCen
63. Your **overall** satisfaction level with the budget management function	___VD ___ D ___ N ___ S ___ VS	___VD ___D ___N ___S ___VS	___VD ___D ___N ___S ___VS

THANK YOU FOR PARTICIPATING IN THIS SURVEY
PLEASE RETURN SURVEY AS SOON AS POSSIBLE, YOUR OPINION IS IMPORTANT.

William Beaumont respondents, Please return this survey to Bob Brown in your Information Management Division . He will forward them to Landstuhl Regional Medical Center.

Landstuhl Region Medial Center respondents, Please return this survey the hospital headquarters building room 205, ATTN: CPT Glenn M. Bullard, Admin Resident. DSN-486-8105/8199

Question? email address: bullarg@larmc-amedd.army.mil
(or) cc mail: Svetlik, COL Mary Anne

APPENDIX FOUR

A PRE-IMPLEMENTATION SURVEY OF POTENTIAL INTEGRATED FINANCIAL CONTROL SYSTEM (IFICS) USERS AT LANDSTUHL REGIONAL MEDICAL CENTER.

1. Do you work at Landstuhl Regional Medical Center? (circle one)

YES NO

QUESTIONS 2- 29: Intentionally omitted (Applicable to personnel at William Beaumont Army Medical Center Only)

SECTION TWO:

30. **(On average)** How many DD-3953's (PR&C) does your Department/division generate per week?

___ 0-10
___ 11-20
___ 21-30
___ 31-40
___ 41+

31. **(On average)** How many DD-3953's (PR&C) do **You** personally generate per week?

___ 0-10
___ 11-20
___ 21-30
___ 31-40
___ 41+

32. (On average) How many DD-2765's (PR&C) does your department/division generate per week?

___ 0-10
___ 11-20
___ 21-30
___ 31-40
___ 41+

33. **(On average)** How many DD-2765's (PR&C) do **You** personally generate per week?

___ 0-10
___ 11-20
___ 21-30
___ 31-40
___ 41+

34. (**On average**) How many **minutes** does it take you to generate a DD-3953?

___ 0-3
___ 3-6
___ 6-9
___ 9-12
___ 12+

35. (**On average**) How many **minutes** does it take you to generate a DD-2765?

___ 0-3
___ 3-6
___ 6-9
___ 9-12
___ 12+

36. (**On average**) How long does it take you to check the status of each PR&C ? (check one only) PLEASE SPECIFY A NUMBER IF HOURS OR DAYS

IN MINUTES:
a. Less than 1 _____
b. More than 1 but less than 5 _____
c. More than 5 but less than 10 _____
d. More than 10 but less 60 _____
IN HOURS
e. More than 1 but less than 24 _____
IN DAYS
f. 1 or more _____

37. (**On average**) From the time you prepare a routine PR&C, how long does it take for your department/division chief to sign it? PLEASE SPECIFY A NUMBER

_____ Days _____ Hours _____ Minutes

38. (**On average**) From the time you prepare a routine PR&C , how long does it take for Resource Management Division to approve it? (fund cite assigned) -include time estimated in number 37 above. PLEASE SPECIFY A NUMBER

_____ Days _____ Hours _____ Minutes

39. (**On average**) From the time you prepare a routine PR&C, how long does it take for the Chief of Logistics to approve and sign ? - include time estimated in answers 37 and 38 above. PLEASE SPECIFY A NUMBER

_____ Days _____ Hours _____ Minutes

40. **(On average)** From the time you prepare a routine PR&C, how long does it take for the document to reach the Contracting office or source of supply? - include time estimated in answers 37 , 38 and 39 above. PLEASE SPECIFY A NUMBER

_____ Days _____ Hours _____ Minutes

41. **(On average)** **How many** procurement actions (PR&Cs) need to be 'hand carried' through the system each month?

_____

42. **(On average)** **How long** (in hours and minutes) does it take to 'hand carry' a procurement (PR&C) through the system?

_____hrs

_____min

43. **(On average)** what is the grade level of the employee that usually 'hand carries' a procurement (PR&C) through the system?

GS_____
E_____
O_____
LN_____ (Germany)
Other_____ (specify) _____

SECTION THREE: DEMOGRAPHIC DATA

44. Primary Job Type: (check one only, please)

Clinical	Administrative
___ Ward Clerk	___ Clerical Staff Member
___ NCOIC	___ NCOIC
___ Head Nurse	___ Admin. asst./secretary
___ Admin./asst./secretary	___ Div admin/funds control officer
___ Dept admin/funds control officer	___ Division Chief
___ Department chief	___ Special Technical Staff (LOG,RMD, or Contracting workers)
_____Other (specify)	_____Other (specify)

45. What date were you assigned to Landstuhl RMC: _____

46. How long have you been assigned to your present position: _____

47. Your current Pay Grade/ Service classification: GS_____
E_____
O_____
LN_____ (Germany)
Other (specify)_____

48. Education Level: Please check highest level completed

___ some High School
___ High School
___ some college level courses
___ 2 yr college degree
___ 4 yr college degree
___ Masters level degree
___ Doctorate

49. What is your proficiency level with a computer or typewriter keyboard:
___ minimal skill level
___ moderate skill level
___ Expert skill level

50. What computer applications have you used. (Check all that apply)

___ Word Processing
___ Communications
___ Statistical Packages
___ Electronic Mail
___ Custom Applications for my job
___ Spreadsheets
___ Database Management
___ Computer Based training
___ On-line Information service
___ Computer Games
___ other (specify)_____

51. What type of computer training have you had. (Check all that apply)

___ None
___ Computer-aided instruction (such as software tutorials)
___ Hands-on Application software instruction (such as WordPerfect classes)
___ CHCS training
___ High School computer courses
___ College computer courses
___ Seminars or Lectures
___Computer programmer training
___Computer Science Degree
___ Other (specify)_____

52. What is your age: _____(in years)

53. What is your gender: ____male ____ female

SECTION FOUR: FUNDS TRACKING AND BUDGET MANAGEMENT

KEY:

VD = Very Dissatisfied
D = Dissatisfied
N = Neutral
S = Satisfied
VS = Very Satisfied

54. Your satisfaction level with your ability to track budget commitments against obligations
___VD
___D
___N
___S
___VS

55. Your satisfaction level with your ability to track Contract Awards
___VD
___D
___N
___S
___VS

56. Your satisfaction level with your ability to receive expense adjustment feedback
___VD
___D
___N
___S
___VS

57. Your satisfaction level with the PR&C signature approval process
___VD
___D
___N
___S
___VS

58. Your **overall** satisfaction level with the funds tracking process
___VD
___D
___N
___S
___VS

59. Your satisfaction level with your ability to get budget status reports
___VD
___D
___N
___S
___VS

60. Your satisfaction level with your ability to maintain an audit trail of budget adjustments
___VD
___D
___N
___S
___VS

61. Your satisfaction level with your ability to minimize end-of-year loss of funds
___VD
___D
___N
___S
___VS

62. Your satisfaction level with your ability to manage-to-budget
___VD
___D
___N
___S
___VS

63. Your **overall** satisfaction level with the budget management function
___VD
___D
___N
___S
___VS

THANK YOU FOR PARTICIPATING IN THIS SURVEY.

PLEASE RETURN SURVEY AS SOON AS POSSIBLE, YOUR OPINION IS IMPORTANT.

Landstuhl Region Medial Center respondents, Please return this survey the hospital headquarters building room 205, ATTN: CPT Glenn M. Bullard, Admin Resident. DSN-486-8105/8199

Question? email address: bullarg@larmc-amedd.army.mil
(or) cc mail: Svetlik, COL Mary Anne

APPENDIX FIVE

* Ha1- The construct usability influence's a person's perception of IFICS quality in a positive direction.

* Ha2- The construct correctness influence's a person's perception of IFICS quality in a positive direction.

* Ha3- The construct reliability influence's a person's perception of IFICS quality in a positive direction.

* Ha4- The construct efficiency influence's a person's perception of IFICS quality in a positive direction.

* Ha5- The demographic variable education level influence's a person's perception of IFICS quality in a positive direction.

* Ha6- The construct usability directly influences a person's perception of overall user satisfaction in a positive direction.

* Ha7- The demographic variable age influences a person's perception of quality in a negative direction.

* Ha8- The demographic variable age directly influences a person's perception of overall user satisfaction in a negative direction.

* Ha9- The construct quality influences a person's perception of overall user satisfaction in a positive direction.

* Ha10- There is a statistically significant difference in the amount of time it takes to generate a PR&C between pre-IFICS and post-IFICS implementation at WBAMC.

* Ha11- There is a statistically significant difference in the amount of time it takes to generate a PR&C between pre-IFICS LRMC and post-IFICS WBAMC.

* Ha12- There is a statistically significant difference in the amount of time it takes to check the status of a PR&C between pre-IFICS and post-IFICS implementation at WBAMC.

* Ha13- There is a statistically significant difference in the amount of time required to check the status of a PR&C at pre-IFICS LRMC and post-IFICS WBAMC.

VARIABLES USED IN THE ANALYSIS

OVSATUSE OVERALL IFICS "EASE OF USE" SATISFACTION

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
VERY DIFFICULT	1	2	1.5	3.2	3.2
DIFFICULT	2	7	5.3	11.3	14.5
NEUTRAL	3	9	6.9	14.5	29.0
EASY	4	13	9.9	21.0	50.0
VERY EASY	5	31	23.7	50.0	100.0
	9	69	52.7	Missing	
	Total	131	100.0	100.0	

Mean 4.032 Std dev 1.187 Variance 1.409

OVSYSQAL IFICS SYSTEM QUALITY: OVERALL SATISFACTION

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
VERY DISSATISFIED	1	4	3.1	6.5	6.5
DISSATISFIED	2	5	3.8	8.1	14.5
NEUTRAL	3	6	4.6	9.7	24.2
SATISFIED	4	20	15.3	32.3	56.5
VERY SATISFIED	5	27	20.6	43.5	100.0
MISSING	9	69	52.7	Missing	
	Total	131	100.0	100.0	

Mean 3.984 Std dev 1.208 Variance 1.459

OVALLSAT OVERALL IFICS SATISFACTION

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
STRONGLY DISSAGREE	1	2	1.5	3.3	3.3
DISSAGREE	2	8	6.1	13.1	16.4
NEUTRAL	3	5	3.8	8.2	24.6
AGREE	4	16	12.2	26.2	50.8
STRONGLY AGREE	5	30	22.9	49.2	100.0
MISSING	9	70	53.4	Missing	
	Total	131	100.0	100.0	

Mean 4.049 Std dev 1.189 Variance 1.414

LMINGENA WBAMC-MINUTES REQUIRED TO COMPLETE DA FORM 3953 AFTER IFICS INSTALL AT WBAMC

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
0-3 MINUTES	1	17	13.0	27.0	27.0
3-6 MINUTES	2	18	13.7	28.6	55.6
6-9 MINUTES	3	18	13.7	28.6	84.1
9-12 MINUTES	4	7	5.3	11.1	95.2
12+ MINUTES	5	3	2.3	4.8	100.0
MISSING	9	68	51.9	Missing	
	Total	131	100.0	100.0	

Mean 2.381 Std dev 1.142 Variance 1.304

LMINGENB WBAMC-MINUTES REQUIRED TO COMPLETE DA FORM 3953 BEFORE IFICS INSTALL AT WBAMC

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
0-3 MINUTES	1	2	1.5	3.2	3.2
3-6 MINUTES	2	14	10.7	22.2	25.4
6-9 MINUTES	3	14	10.7	22.2	47.6
9-12 MINUTES	4	12	9.2	19.0	66.7
12+ MINUTES	5	21	16.0	33.3	100.0
MISSING	9	68	51.9	Missing	
	Total	131	100.0	100.0	

Mean 3.571 Std dev 1.254 Variance 1.571

LMINGENL MINUTES REQUIRED TO COMPLETE DA FORM 3953 AT LRMC

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
0-3 MINUTES	1	4	3.1	6.2	6.2
3-6 MINUTES	2	12	9.2	18.5	24.6
6-9 MINUTES	3	13	9.9	20.0	44.6
9-12 MINUTES	4	9	6.9	13.8	58.5
12+ MINUTES	5	27	20.6	41.5	100.0
MISSING	9	64	48.9	Missing	
	99999	2	1.5	Missing	
	Total	131	100.0	100.0	

Mean 3.662 Std dev 1.350 Variance 1.821

CHKSTATA WBAMC-TIME REQUIRED TO CHECK PR&C STATUS
AFTER IFICS INSTALL AT WBAMC

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
LESS THAN ONE MIN	1	19	14.5	30.2	30.2
>1 & <5 MINUTES	2	27	20.6	42.9	73.0
>5 & <10 MINUTES	3	8	6.1	12.7	85.7
>10 &<60 MINUTES	4	5	3.8	7.9	93.7
>1 HOUR & <24 HOURS	5	2	1.5	3.2	96.8
1 OR MORE DAYS	6	2	1.5	3.2	100.0
MISSING	9	68	51.9	Missing	
	Total	131	100.0	100.0	

Mean 2.206 Std dev 1.233 Variance 1.521

CHKSTATB WBAMC-TIME REQUIRED TO CHECK PR&C STATUS
BEFORE IFICS INSTALL AT WBAMC

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
<1 MINUTE	1	2	1.5	3.2	3.2
>1 MINUTE & <5 MINUT	2	3	2.3	4.8	7.9
>5 MINUTES & <10 MIN	3	14	10.7	22.2	30.2
>10 MINUTES & <60 MI	4	19	14.5	30.2	60.3
>1 HOUR & < 24 HOURS	5	13	9.9	20.6	81.0
1 OR MORE DAYS	6	12	9.2	19.0	100.0
MISSING	9	68	51.9	Missing	
	Total	131	100.0	100.0	

Mean 4.175 Std dev 1.289 Variance 1.663

CHKSTATL TIME REQUIRED TO CHECK PR&C STATUS AT LRMC

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
<1 MINUTE	1	4	3.1	6.2	6.2
>1 MINUTE & <5 MINUT	2	12	9.2	18.5	24.6
>5 MINUTES & <10 MIN	3	15	11.5	23.1	47.7
>10 MINUTES & <60 MI	4	13	9.9	20.0	67.7
>1 HOUR & < 24 HOURS	5	11	8.4	16.9	84.6
1 OR MORE DAYS	6	10	7.6	15.4	100.0
MISSING	9	64	48.9	Missing	
	99999	2	1.5	Missing	
	Total	131	100.0	100.0	

Mean 3.692 Std dev 1.499 Variance 2.248

SBUDTRKA WBAMC-SATISFACTION WITH ABILITY TO TRACK COMMITMENTS AFTER IFICS INSTALL

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
VERY DISSATISFIED	1	2	1.5	3.2	3.2
DISSATISFIED	2	3	2.3	4.8	7.9
NEUTRAL	3	11	8.4	17.5	25.4
SATISFIED	4	19	14.5	30.2	55.6
VERY SATISFIED	5	28	21.4	44.4	100.0
MISSING	9	68	51.9	Missing	
	Total	131	100.0	100.0	

Mean 4.079 Std dev 1.052 Variance 1.107

SBUDTRKB WBAMC-SATISFACTION WITH ABILITY TO TRACK COMMITMENTS BEFORE IFICS INSTALL

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
VERY DISSATISFIED	1	9	6.9	14.3	14.3
DISSATISFIED	2	25	19.1	39.7	54.0
NEUTRAL	3	16	12.2	25.4	79.4
SATISFIED	4	6	4.6	9.5	88.9
VERY SATISFIED	5	7	5.3	11.1	100.0
MISSING	9	68	51.9	Missing	
	Total	131	100.0	100.0	

Mean 2.635 Std dev 1.182 Variance 1.397

SBUDTRKL LRMC-SATISFACTIOIN WITH ABILITY TO TRACK COMMITMENTS

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
VERY DISSATISFIED	1	11	8.4	16.2	16.2
DISSATISFIED	2	18	13.7	26.5	42.6
NEUTRAL	3	16	12.2	23.5	66.2
SATISFIED	4	19	14.5	27.9	94.1
VERY SATISFIED	5	4	3.1	5.9	100.0
MISSING	9	63	48.1	Missing	
	Total	131	100.0	100.0	

Mean 2.809 Std dev 1.188 Variance 1.411

SCONTRKA WBAMC-SATISFACTION WITH ABILITY TO TRACK CONTRACTS AFTER IFICS INSTALL

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
VERY DISSATISFIED	1	5	3.8	8.1	8.1
DISSATISFIED	2	9	6.9	14.5	22.6
NEUTRAL	3	7	5.3	11.3	33.9
SATISFIED	4	24	18.3	38.7	72.6
VERY SATISFIED	5	17	13.0	27.4	100.0
MISSING	9	69	52.7	Missing	
	Total	131	100.0	100.0	

Mean 3.629 Std dev 1.258 Variance 1.581

SCONTRKB WBAMC-SATISFACTION WITH ABILITY TO TRACK CONTRACTS BEFORE IFICS INSTALL

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
VERY DISSATISFIED	1	12	9.2	19.4	19.4
DISSATISFIED	2	18	13.7	29.0	48.4
NEUTRAL	3	19	14.5	30.6	79.0
SATISFIED	4	11	8.4	17.7	96.8
VERY SATISFIED	5	2	1.5	3.2	100.0
MISSING	9	69	52.7	Missing	
	Total	131	100.0	100.0	

Mean 2.565 Std dev 1.096 Variance 1.201

SCONTRKL LRMC-SATISFACTION WITH ABILITY TO TRACK CONTRACTS AT LRMC

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
VERY DISSATISFIED	1	12	9.2	17.9	17.9
DISSATISFIED	2	18	13.7	26.9	44.8
NEUTRAL	3	19	14.5	28.4	73.1
SATISFIED	4	14	10.7	20.9	94.0
VERY SATISFIED	5	4	3.1	6.0	100.0
MISSING	9	64	48.9	Missing	
	Total	131	100.0	100.0	

Mean 2.701 Std dev 1.168 Variance 1.364

SEXPADJA WBAMC-SATISFACTION WITH ABILITY TO RECEIVE EXPENSE ADJUSTMENT FEEDBACK AFTER IFICS INSTALL

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
VERY DISSATISFIED	1	5	3.8	8.1	8.1
DISSATISFIED	2	9	6.9	14.5	22.6
NEUTRAL	3	3	2.3	4.8	27.4
SATISFIED	4	22	16.8	35.5	62.9
VERY SATISFIED	5	23	17.6	37.1	100.0
MISSING	9	69	52.7	Missing	
	Total	131	100.0	100.0	

Mean 3.790 Std dev 1.307 Variance 1.709

SEXPADJB WBAMC-SATISFACTION WITH ABILITY TO RECEIVE EXPENSE ADJUSTMENT FEEDBACK BEFORE IFICS INSTALL

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
VERY DISSATISFIED	1	13	9.9	21.0	21.0
DISSATISFIED	2	20	15.3	32.3	53.2
NEUTRAL	3	15	11.5	24.2	77.4
SATISFIED	4	11	8.4	17.7	95.2
VERY SATISFIED	5	3	2.3	4.8	100.0
MISSING	9	69	52.7	Missing	
	Total	131	100.0	100.0	

Mean 2.532 Std dev 1.155 Variance 1.335

SEXPADJL LRMC-SATISFACTION WITH ABILITY TO RECEIVE EXPENSE ADJUSTMENT FEEDBACK AT LRMC

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
VERY DISSATISFIED	1	8	6.1	11.8	11.8
DISSATISFIED	2	22	16.8	32.4	44.1
NEUTRAL	3	20	15.3	29.4	73.5
SATISFIED	4	16	12.2	23.5	97.1
VERY SATISFIED	5	2	1.5	2.9	100.0
MISSING	9	63	48.1	Missing	
	Total	131	100.0	100.0	

Mean 2.735 Std dev 1.045 Variance 1.093

SSIGAPRA WBAMC-SATISFACTION WITH PR&C SIGNATURE APPROVAL PROCESS AFTER IFICS INSTALL

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
VERY DISSATISFIED	1	2	1.5	3.2	3.2
DISSATISFIED	2	1	.8	1.6	4.8
NEUTRAL	3	9	6.9	14.5	19.4
SATISFIED	4	21	16.0	33.9	53.2
VERY SATISFIED	5	29	22.1	46.8	100.0
MISSING	9	69	52.7	Missing	
	Total	131	100.0	100.0	

Mean 4.194 Std dev .972 Variance .946

SSIGAPRB WBAMC-SATISFACTION WITH PR&C SIGNATURE APPROVAL PROCESS BEFORE IFICS INSTALL

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
VERY DISSATISFIED	1	8	6.1	12.9	12.9
DISSATISFIED	2	24	18.3	38.7	51.6
NEUTRAL	3	16	12.2	25.8	77.4
SATISFIED	4	14	10.7	22.6	100.0
MISSING	9	69	52.7	Missing	
	Total	131	100.0	100.0	

Mean 2.581 Std dev .984 Variance .969

SSIGAPRL LRMC-SATISFACTION WITH PR&C SIGNATURE APPROVAL PROCESS AT LRMC

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
VERY DISSATISFIED	1	9	6.9	13.2	13.2
DISSATISFIED	2	18	13.7	26.5	39.7
NEUTRAL	3	16	12.2	23.5	63.2
SATISFIED	4	21	16.0	30.9	94.1
VERY SATISFIED	5	4	3.1	5.9	100.0
MISSING	9	63	48.1	Missing	
	Total	131	100.0	100.0	

Mean 2.897 Std dev 1.161 Variance 1.347

OSFNSTRA WBAMC-OVERALL SATISFACTION WITH FUNDS TRACKINGK PROCESS AFTER IFICS INSTALL

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
VERY DISSATISFIED	1	2	1.5	3.2	3.2
DISSATISFIED	2	6	4.6	9.7	12.9
NEUTRAL	3	10	7.6	16.1	29.0
SATISFIED	4	15	11.5	24.2	53.2
VERY SATISFIED	5	29	22.1	46.8	100.0
MISSING	9	69	52.7	Missing	
	Total	131	100.0	100.0	

Mean 4.016 Std dev 1.152 Variance 1.328

OSFNSTRB WBAMC-OVERALL SATISFACTION WITH FUNDS TRACKINGK PROCESS AFTER IFICS INSTALLWB-O/A SAT FUNDS TRK PROCESS BEFORE

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
VERY DISSATISFIED	1	14	10.7	22.6	22.6
DISSATISFIED	2	20	15.3	32.3	54.8
NEUTRAL	3	17	13.0	27.4	82.3
SATISFIED	4	11	8.4	17.7	100.0
MISSING	9	69	52.7	Missing	
	Total	131	100.0	100.0	

Mean 2.403 Std dev 1.032 Variance 1.064

OSFNSTRL LRMC-OVERALL SATISFACTION WITH FUNDS TRACKINGK PROCESS AT LRMC

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
VERY DISSATISFIED	1	12	9.2	17.6	17.6
DISSATISFIED	2	23	17.6	33.8	51.5
NEUTRAL	3	13	9.9	19.1	70.6
SATISFIED	4	18	13.7	26.5	97.1
VERY SATISFIED	5	2	1.5	2.9	100.0
MISSING	9	63	48.1	Missing	
	Total	131	100.0	100.0	

Mean 2.632 Std dev 1.145 Variance 1.311

SBDSTATA WBAMC-SATISFACTION WITH ABILITY TO GET BUDGET STATUS REPORT AFTER IFICS INSTALL

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
VERY DISSATISFIED	1	2	1.5	3.2	3.2
DISSATISFIED	2	5	3.8	8.1	11.3
NEUTRAL	3	5	3.8	8.1	19.4
SATISFIED	4	24	18.3	38.7	58.1
VERY SATISFIED	5	26	19.8	41.9	100.0
MISSING	9	69	52.7	Missing	
	Total	131	100.0	100.0	

Mean 4.081 Std dev 1.060 Variance 1.125

SBDSTATB WBAMC-SATISFACTION WITH ABILITY TO GET BUDGET STATUS REPORT BEFORE IFICS

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
VERY DISSATISFIED	1	12	9.2	19.4	19.4
DISSATISFIED	2	21	16.0	33.9	53.2
NEUTRAL	3	17	13.0	27.4	80.6
SATISFIED	4	12	9.2	19.4	100.0
MISSING	9	69	52.7	Missing	
	Total	131	100.0	100.0	

Mean 2.468 Std dev 1.020 Variance 1.040

SBDSTATL LRMC-SATISFACTION WITH ABILITY TO GET BUDGET STATUS REPORT AT LRMC

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
VERY DISSATISFIED	1	10	7.6	15.2	15.2
DISSATISFIED	2	16	12.2	24.2	39.4
NEUTRAL	3	19	14.5	28.8	68.2
SATISFIED	4	20	15.3	30.3	98.5
VERY SATISFIED	5	1	.8	1.5	100.0
MISSING	9	65	49.6	Missing	
	Total	131	100.0	100.0	

Mean 2.788 Std dev 1.089 Variance 1.185

SBDADJA WBAMC-SATISFACTION WITH ABILITY TO MAINTAIN
AUDIT TRAIL OF BUDGET ADJUSTMENTS AFTER IFICS INSTALL

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
VERY DISSATISFIED	1	1	.8	1.6	1.6
DISSATISFIED	2	6	4.6	9.7	11.3
NEUTRAL	3	5	3.8	8.1	19.4
SATISFIED	4	30	22.9	48.4	67.7
VERY SATISFIED	5	20	15.3	32.3	100.0
MISSING	9	69	52.7	Missing	
	Total	131	100.0	100.0	

Mean 4.000 Std dev .975 Variance .951

SBDADJB WBAMC-SATISFACTION WITH ABILITY TO MAINTAIN
AUDIT TRAIL OF BUDGET ADJUSTMENTS BEFORE IFICS INSTALL

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
VERY DISSATISFIED	1	12	9.2	19.4	19.4
DISSATISFIED	2	18	13.7	29.0	48.4
NEUTRAL	3	17	13.0	27.4	75.8
SATISFIED	4	15	11.5	24.2	100.0
MISSING	9	69	52.7	Missing	
	Total	131	100.0	100.0	

Mean 2.565 Std dev 1.065 Variance 1.135

SBDADJL LRMC-SATISFACTIOIN WITH ABILITY TO MAINTAIN
AUDIT TRAIL OF BUDGET ADJUSTMENTS AT LRMC

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
VERY DISSATISFIED	1	8	6.1	12.1	12.1
DISSATISFIED	2	18	13.7	27.3	39.4
NEUTRAL	3	21	16.0	31.8	71.2
SATISFIED	4	18	13.7	27.3	98.5
VERY SATISFIED	5	1	.8	1.5	100.0
MISSING	9	65	49.6	Missing	
	Total	131	100.0	100.0	

Mean 2.788 Std dev 1.031 Variance 1.062

SEOYFNSA WBAMC-SATISFACTION WITH ABILITY TO MINIMIZE E-O-Y FUNDS LOSS AFTER IFICS INSTALL

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
DISSATISFIED	2	6	4.6	9.7	9.7
NEUTRAL	3	14	10.7	22.6	32.3
SATISFIED	4	14	10.7	22.6	54.8
VERY SATISFIED	5	28	21.4	45.2	100.0
MISSING	9	69	52.7	Missing	
	Total	131	100.0	100.0	

Mean 4.032 Std dev 1.040 Variance 1.081

SEOYFNSB WBAMC-SATISFACTION WITH ABILITY TO MINIMIZE E-O-Y FUNDS LOSS BEFORE IFICS INSTALL

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
VERY DISSATISFIED	1	11	8.4	17.7	17.7
DISSATISFIED	2	7	5.3	11.3	29.0
NEUTRAL	3	29	22.1	46.8	75.8
SATISFIED	4	15	11.5	24.2	100.0
MISSING	9	69	52.7	Missing	
	Total	131	100.0	100.0	

Mean 2.774 Std dev 1.015 Variance 1.030

SEOYFNSL LRMC-SATISFACTION WITH ABILITY TO MINIMIZE E-O-Y FUNDS LOSS AT LRMC

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
VERY DISSATISFIED	1	12	9.2	18.2	18.2
DISSATISFIED	2	17	13.0	25.8	43.9
NEUTRAL	3	21	16.0	31.8	75.8
SATISFIED	4	15	11.5	22.7	98.5
VERY SATISFIED	5	1	.8	1.5	100.0
MISSING	9	65	49.6	Missing	
	Total	131	100.0	100.0	

Mean 2.636 Std dev 1.076 Variance 1.158

SMANBUDA WBAMC-SATISFACTION WITH ABILITY TO MANAGE-TO-BUDGET AFTER IFICS INSTALL

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
VERY DISSATISFIED	1	1	.8	1.6	1.6
DISSATISFIED	2	6	4.6	9.7	11.3
NEUTRAL	3	8	6.1	12.9	24.2
SATISFIED	4	14	10.7	22.6	46.8
VERY SATISFIED	5	33	25.2	53.2	100.0
MISSING	9	69	52.7	Missing	
	Total	131	100.0	100.0	

Mean 4.161 Std dev 1.089 Variance 1.187

SMANBUDB WBAMC-SATISFACTION WITH ABILITY TO MANAGE-TO-BUDGET BEFORE IFICS INSTALL

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
VERY DISSATISFIED	1	9	6.9	14.5	14.5
DISSATISFIED	2	14	10.7	22.6	37.1
NEUTRAL	3	17	13.0	27.4	64.5
SATISFIED	4	20	15.3	32.3	96.8
VERY SATISFIED	5	2	1.5	3.2	100.0
MISSING	9	69	52.7	Missing	
	Total	131	100.0	100.0	

Mean 2.871 Std dev 1.123 Variance 1.262

SMANBUDL LRMC-SATISFACTION WITH ABILITY TO MANAGE-TO-BUDGET AT LRMC

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
VERY DISSATISFIED	1	6	4.6	9.1	9.1
DISSATISFIED	2	14	10.7	21.2	30.3
NEUTRAL	3	20	15.3	30.3	60.6
SATISFIED	4	18	13.7	27.3	87.9
VERY SATISFIED	5	8	6.1	12.1	100.0
MISSING	9	65	49.6	Missing	
	Total	131	100.0	100.0	

Mean 3.121 Std dev 1.157 Variance 1.339

OSBUDMAA WBAMC-OVERALL SATISFACTION WITH BUDGET MANAGEMENT FUNCTION AFTER IFICS INSTALL

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
VERY DISSATISFIED	1	3	2.3	4.8	4.8
DISSATISFIED	2	4	3.1	6.3	11.1
NEUTRAL	3	9	6.9	14.3	25.4
SATISFIED	4	18	13.7	28.6	54.0
VERY SATISFIED	5	29	22.1	46.0	100.0
MISSING	9	68	51.9	Missing	
	Total	131	100.0	100.0	

Mean 4.048 Std dev 1.142 Variance 1.304

OSBUDMAB WBAMC-OVERALL SATISFACTION WITH BUDGET MANAGEMENT FUNCTION BEFORE IFICS INSTALL

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
VERY DISSATISFIED	1	10	7.6	15.9	15.9
DISSATISFIED	2	11	8.4	17.5	33.3
NEUTRAL	3	26	19.8	41.3	74.6
SATISFIED	4	14	10.7	22.2	96.8
VERY SATISFIED	5	2	1.5	3.2	100.0
MISSING	9	68	51.9	Missing	
	Total	131	100.0	100.0	

Mean 2.794 Std dev 1.065 Variance 1.134

OSBUDMAL LRMC-OVERALL SATISFACTION WITH BUDGET MANAGEMENT FUNCTION AT LRMC

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
VERY DISSATISFIED	1	11	8.4	16.7	16.7
DISSATISFIED	2	15	11.5	22.7	39.4
NEUTRAL	3	19	14.5	28.8	68.2
SATISFIED	4	19	14.5	28.8	97.0
VERY SATISFIED	5	2	1.5	3.0	100.0
MISSING	9	65	49.6	Missing	
	Total	131	100.0	100.0	

Mean 2.788 Std dev 1.130 Variance 1.277

LOCATION location of respondent

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
WBAMC	0	63	48.1	48.1	48.1
LRMC	1	68	51.9	51.9	100.0
	Total	131	100.0	100.0	

Mean .519 Std dev .502 Variance .252

JOBCAT PRIMARY JOB TYPE

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
CLINICAL WARD CLERK	1	2	1.5	1.6	1.6
CLINIC NCOIC	2	29	22.1	22.5	24.0
CLINIC HEAD NURSE	3	4	3.1	3.1	27.1
CLINIC ADMIN/ASST/SE	4	2	1.5	1.6	28.7
CLINIC DEPT ADMIN/F	5	10	7.6	7.8	36.4
CLINICAL DEPT CHIEF	6	3	2.3	2.3	38.8
ADMIN CLERICAL STAFF	8	9	6.9	7.0	45.7
ADMIN NCOIC	9	15	11.5	11.6	57.4
ADMIN ADMIN ASST/SEC	10	9	6.9	7.0	64.3
ADMIN DIV ADMIN/FC O	11	15	11.5	11.6	76.0
ADMIN DIVISION CHIEF	12	6	4.6	4.7	80.6
ADMIN SPECIAL TECH S	13	24	18.3	18.6	99.2
ADMIN "OTHER"	14	1	.8	.8	100.0
MISSING	99999	2	1.5	Missing	
	Total	131	100.0	100.0	

Mean 7.814 Std dev 4.229 Variance 17.887

PRESJOB HOW LONG IN PRESENT JOB

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
TIME CONVERTED TO MO	1	1	.8	.8	.8
	2	2	1.5	1.6	2.3
	3	1	.8	.8	3.1
	4	4	3.1	3.1	6.2
	5	2	1.5	1.6	7.8
	6	6	4.6	4.7	12.4
	7	1	.8	.8	13.2
	8	5	3.8	3.9	17.1
	9	4	3.1	3.1	20.2
	10	2	1.5	1.6	21.7
	12	13	9.9	10.1	31.8
	13	2	1.5	1.6	33.3
	14	3	2.3	2.3	35.7
	15	1	.8	.8	36.4
	16	1	.8	.8	37.2
	17	1	.8	.8	38.0
	18	7	5.3	5.4	43.4
	20	3	2.3	2.3	45.7
	24	14	10.7	10.9	56.6
	28	1	.8	.8	57.4
	29	1	.8	.8	58.1
	30	1	.8	.8	58.9
	32	1	.8	.8	59.7
	35	1	.8	.8	60.5
	36	9	6.9	7.0	67.4
	38	1	.8	.8	68.2
	40	1	.8	.8	69.0
	42	2	1.5	1.6	70.5
	48	13	9.9	10.1	80.6
	60	4	3.1	3.1	83.7
	66	1	.8	.8	84.5
	72	5	3.8	3.9	88.4
	84	1	.8	.8	89.1
	91	1	.8	.8	89.9
	92	1	.8	.8	90.7
	96	3	2.3	2.3	93.0
	108	1	.8	.8	93.8
	120	1	.8	.8	94.6
	132	1	.8	.8	95.3
	144	1	.8	.8	96.1
	156	2	1.5	1.6	97.7
	168	1	.8	.8	98.4
	252	1	.8	.8	99.2
	660	1	.8	.8	100.0
MISSING	99999	2	1.5	Missing	
	Total	131	100.0	100.0	

Mean 41.457 Std dev 67.543 Variance 4562.016

PAYGDGS PAYGRADE "GS"

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
	4	5	3.8	13.5	13.5
	5	6	4.6	16.2	29.7
	6	4	3.1	10.8	40.5
	7	1	.8	2.7	43.2
	8	3	2.3	8.1	51.4
	9	2	1.5	5.4	56.8
	11	10	7.6	27.0	83.8
	12	5	3.8	13.5	97.3
ID'd SELF AS 'GS', N	91	1	.8	2.7	100.0
DIFFERENT PAY CATAGO	0	93	71.0	Missing	
MISSING	99999	1	.8	Missing	
	Total	131	100.0	100.0	

Mean 10.378 Std dev 13.947 Variance 194.520

PAYGDE PAY GRADE ENLISTED

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
	4	4	3.1	6.8	6.8
	5	9	6.9	15.3	22.0
	6	18	13.7	30.5	52.5
	7	21	16.0	35.6	88.1
	8	2	1.5	3.4	91.5
ID'd SELF AS ENLISTE	92	5	3.8	8.5	100.0
OTHER CATAGORY	0	71	54.2	Missing	
MISSING	99999	1	.8	Missing	
	Total	131	100.0	100.0	

Mean 13.424 Std dev 24.134 Variance 582.455

PAYGDO PAY GRADE OFFICER

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
	3	11	8.4	39.3	39.3
	4	4	3.1	14.3	53.6
	5	10	7.6	35.7	89.3
ID'd SELF AS OFFICER	93	3	2.3	10.7	100.0
OTHER CATAGORY	0	102	77.9	Missing	
MISSING	99999	1	.8	Missing	
	Total	131	100.0	100.0	

Mean 13.500 Std dev 28.059 Variance 787.296

PAYGELN PAY GRADE LOCAL NATIONAL

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
	5	1	.8	20.0	20.0
	6	3	2.3	60.0	80.0
ID'd SELF AS LN, NO	94	1	.8	20.0	100.0
OTHER CATAGORY	0	125	95.4	Missing	
MISSING	99999	1	.8	Missing	
	Total	131	100.0	100.0	

Mean 23.400 Std dev 39.469 Variance 1557.800

EDLEVEL EDUCATION LEVEL COMPLETED

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
HIGH SCHOOL	2	6	4.6	4.6	4.6
SOME COLLEGE LEVEL C	3	30	22.9	22.9	27.5
2 YR COLLEGE DEGREE	4	39	29.8	29.8	57.3
4 YR COLLEGE DEGREE	5	24	18.3	18.3	75.6
MASTERS DEGREE	6	28	21.4	21.4	96.9
DOCTORATE	7	3	2.3	2.3	99.2
	9	1	.8	.8	100.0
	Total	131	100.0	100.0	

Mean 4.397 Std dev 1.305 Variance 1.703

AGE AGE

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
	22	1	.8	.8	.8
	24	2	1.5	1.7	2.5
	25	2	1.5	1.7	4.2
	27	2	1.5	1.7	5.9
	28	3	2.3	2.5	8.4
	29	5	3.8	4.2	12.6
	30	7	5.3	5.9	18.5
	31	11	8.4	9.2	27.7
	32	1	.8	.8	28.6
	33	4	3.1	3.4	31.9
	34	3	2.3	2.5	34.5
	35	3	2.3	2.5	37.0
	36	4	3.1	3.4	40.3
	37	7	5.3	5.9	46.2
	38	6	4.6	5.0	51.3
	39	7	5.3	5.9	57.1
	40	7	5.3	5.9	63.0
	41	7	5.3	5.9	68.9
	42	4	3.1	3.4	72.3
	43	1	.8	.8	73.1
	44	2	1.5	1.7	74.8
	45	4	3.1	3.4	78.2
	46	3	2.3	2.5	80.7
	47	2	1.5	1.7	82.4
	48	2	1.5	1.7	84.0
	50	6	4.6	5.0	89.1
	52	2	1.5	1.7	90.8
	53	1	.8	.8	91.6
	54	1	.8	.8	92.4
	55	1	.8	.8	93.3
	56	1	.8	.8	94.1
	57	1	.8	.8	95.0
	59	1	.8	.8	95.8
	60	2	1.5	1.7	97.5
	62	1	.8	.8	98.3
	63	1	.8	.8	99.2
	64	1	.8	.8	100.0
MISSING	99999	12	9.2	Missing	
	Total	131	100.0	100.0	

Mean 39.076 Std dev 9.216 Variance 84.935

GENDER GENDER

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
FEMALE	0	39	29.8	30.2	30.2
MALE	1	90	68.7	69.8	100.0
MISSING	9	2	1.5	Missing	
	Total	131	100.0	100.0	

Mean .698 Std dev .461 Variance .213

USABILTY

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
	2	1	.8	1.6	1.6
	2	4	3.1	6.3	7.9
	2	2	1.5	3.2	11.1
	3	3	2.3	4.8	15.9
	3	4	3.1	6.3	22.2
	3	3	2.3	4.8	27.0
	3	5	3.8	7.9	34.9
	4	8	6.1	12.7	47.6
	4	1	.8	1.6	49.2
	4	7	5.3	11.1	60.3
	5	3	2.3	4.8	65.1
	5	10	7.6	15.9	81.0
	5	12	9.2	19.0	100.0
	.	68	51.9	Missing	
	Total	131	100.0	100.0	

Mean 3.956 Std dev .955 Variance .912

CORRECT

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
	1	1	.8	1.6	1.6
	2	1	.8	1.6	3.2
	2	3	2.3	4.8	7.9
	3	2	1.5	3.2	11.1
	3	6	4.6	9.5	20.6
	3	3	2.3	4.8	25.4
	4	8	6.1	12.7	38.1
	4	6	4.6	9.5	47.6
	4	6	4.6	9.5	57.1
	4	3	2.3	4.8	61.9
	5	5	3.8	7.9	69.8
	5	9	6.9	14.3	84.1
	5	10	7.6	15.9	100.0
	.	68	51.9	Missing	
	Total	131	100.0	100.0	

Mean 3.893 Std dev .915 Variance .838

RELIABIT

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
	2	4	3.1	6.3	6.3
	2	1	.8	1.6	7.9
	2	2	1.5	3.2	11.1
	2	5	3.8	7.9	19.0
	3	6	4.6	9.5	28.6
	3	3	2.3	4.8	33.3
	3	2	1.5	3.2	36.5
	3	5	3.8	7.9	44.4
	3	4	3.1	6.3	50.8
	3	10	7.6	15.9	66.7
	3	7	5.3	11.1	77.8
	4	5	3.8	7.9	85.7
	4	6	4.6	9.5	95.2
	4	3	2.3	4.8	100.0
	.	68	51.9	Missing	
	Total	131	100.0	100.0	

Mean 3.065 Std dev .511 Variance .261

EFFICIEN

Value Label	Value	Frequency	Percent	Valid Percent	Cum Percent
	2	10	7.6	15.9	15.9
	3	6	4.6	9.5	25.4
	4	6	4.6	9.5	34.9
	4	16	12.2	25.4	60.3
	5	7	5.3	11.1	71.4
	5	18	13.7	28.6	100.0
	.	68	51.9	Missing	
	Total	131	100.0	100.0	

Mean 3.881 Std dev 1.035 Variance 1.070

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