RADAR COMMUNICATIONS NETWORK: TEST, VERIFICATION, AND TRAINING

A Report Submitted to:

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The Royal Association of Disability and Rehabilitation

29 April 2005

This project report is submitted in partial fulfillment of the degree requirements of Worcester Polytechnic Institute. The views and opinions expressed herein are those of the authors and do not necessarily reflect the positions or opinions of RADAR or Worcester Polytechnic Institute.

This report is the product of an educational program, and is intended to serve as partial documentation for the evaluation of academic achievement. The reader should not construe the report as a working document.
April 29, 2005

Mr. David Wright
Head of ICT
RADAR
12 City Forum, 250 City Road
London EC1V 8AF

Dear Mr. Wright:

Enclosed is our report entitled RADAR Communications Network: Test, Verification and Training. It was written at the RADAR facilities during the period March 14 through April 29, 2005. Preliminary work was completed in Worcester, Massachusetts, prior to our arrival in London. Copies of this report are simultaneously being submitted to Professors FitzPatrick and Salazar for evaluation. Upon faculty review, the original copy of this report will be catalogued in the Gordon Library at Worcester Polytechnic Institute. We appreciate the time that you and your staff have devoted to us.

Sincerely,

Alyssa Lopes, Daniel Pickett, and Gregary Prince
Abstract

The Royal Association for Disability and Rehabilitation (RADAR), an organization that has set out to address the adversities which affect the disabled community, endeavored to electronically transmit messages throughout their organization efficiently. This project team tested and modified the IT infrastructure introduced by a preceding group. Primary research questions focused introducing and facilitating user-acceptance of the system. To obtain user feedback, interviews and surveys were utilized. In conclusion, RADAR was provided with a fully working and implemented system designed to boost communications throughout the organization.
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Executive Summary

The Royal Association for Disability and Rehabilitation (RADAR) is an organization that has set out to address the adversities which affect the disabled community. Their mission is to change how disabled individuals are viewed as members of society by enabling them to achieve their rights. This mission has helped to realize significant legislation for the disabled members of society, such as the Disability Discrimination Act of 1995 and the Disability Rights Commission Act of 1999.

Presently, RADAR is in the process of creating a financial management data system and a means of communication electronically throughout the organization. In past instances, failed messages, contacting issues, and plain inefficiency has motivated RADAR to resolve communication issues with the introduction of a corporate intranet, or internal website. RADAR has addressed their collaborative communication needs by directing a group of American students to design a usable version of such an intranet. In result, a proposed system was delivered utilizing Microsoft® SharePoint Services™ and Microsoft® InfoPath™.

A group of consultants followed those who had created the initial design. Their primary objectives were to evaluate and implement a best-practice solution based on the findings of their predecessors. Additionally, the group intended to facilitate adoption of the system. The students utilized various qualitative methods including interviews, focus groups, and surveys to obtain a greater understanding of need, user preferences, and user skills.

Initial findings concluded that while SharePoint™ satisfied requirements, InfoPath™ left much to be desired. Further research indicated that InfoPath™ was not required as Microsoft® Access™ could provide the functionality desired without purchasing additional software licenses. Additionally, Microsoft® Access™ was found to be a better solution as it had more flexibility. Also utilizing Access™ allowed the system to be expanded upon. InfoPath™ was found to be more focused on presentation rather than having the ability to maintain and query data.

Upon modification and transitioning between software programs, managerial interviews were conducted to confirm the system’s development. As development
progressed, early versions of the software were presented to project sponsors in order to ensure the fulfillment of RADAR’s needs. During these meetings, ideas for modification and improvement were discussed.

      Once the system’s requirements were fulfilled, the software was deployed throughout the organization. In order to connect RADAR’s promotions office in Croydon to its main office on City Road, Citrix, a terminal client, had to be installed on each PC in the office. The WPI students were successful in connecting the two offices for the first time via Citrix terminal services. After software was deployed, the WPI team observed select users on how they interacted with the system. From these findings, they created a training framework to teach employees in the organization how to utilize SharePoint Services to best fit their needs.

      After the staff had been introduced and trained on the system, the team conducted a survey. The purpose of the survey was to evaluate the employee’s views on how the software could impact the organization. Finally, the team made modifications to the system according to staff feedback. The analysis and modification of this communication system has helped RADAR to ultimately achieve its goals and to operate more efficiently.
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Introduction

In a world becoming increasingly more aware of human rights, disabled individuals in the United Kingdom continue to struggle for a better quality of life. In the spring of 2003, of all those able to work in the UK, approximately seven million have long term disabilities; this is 11.8% of the total population. However, only half of this disabled population was employed. However, merely half of this disabled population is employed (LFS, 2003). This large fraction of society fights harder every day for equal opportunities and rights, which they are not always provided due to their disabilities. Disabled individuals face hardships in transportation, employment, education, and personal endeavors (RADAR, 2003).

The Royal Association for Disability and Rehabilitation (RADAR) is an organization that has set out to address the adversities which affect the disabled community. Their mission is to change how disabled individuals are viewed as members of society by enabling them to achieve their rights (RADAR, 2005). With an ambitious and noble purpose, RADAR, formed in 1977, has established high standards to accomplish anticipated goals in spite of a limited staff and infrastructure. One of management’s objectives was to create strong communication network amongst its global membership using information technology. RADAR wished to broadcast diverse and important messages throughout the organization more efficiently. Additionally, RADAR sought a better system for financial related tasks within the establishment.

Introducing a communication system into an organization requires that the effectiveness of it outweigh the difficulties of adaptation and resistance. Simply put, the team wished to ensure that the implementation was adopted and utilized to improve information flow. RADAR desired to have a communication system implemented which facilitated collaboration amongst employees. Additionally, the based guideline was that the system allows sharing with the entire staff core messages such as announcements, members’ names and their respective email addresses, archived documents, and more. Proprietary software packages such as Microsoft SharePoint, InfoPath, and Access were selected as the tools to be used to implement these needs. As a result of the team’s efforts, RADAR is now able to continue to campaign its mission despite the dissolution.
of the Enabling Partnership (EP), which was an umbrella organization for four disabled advocacy groups.

Worcester Polytechnic Institute (WPI) had previously provided the Enabling Partnership with a document sharing mechanism. Now that the partnership and this system are nonexistent, one can infer that long term technology strategy for RADAR has changed. The development of a similar communication system was essential to properly inform employees of current issues concerning the disabled community; therefore the proposed solution to this issue was to develop an information technology-based efficient communication system. The communication system’s purpose was to provide a means of managing documents and financial transactions within the organization. Additionally, part of this system’s purpose was to fill the void created by the disbanding of the EP.

Previous WPI projects have established a solid framework for the team to implement a web-based communication system for RADAR (Gilmore, Hassie, Hart, Zugic, 2004). The group had identified three core objectives: evaluating communication needs, determining an optimal infrastructure based on those needs, and ultimately designing a solution based on their findings. With a well performed analysis, the prior group working with RADAR in 2005 had successfully determined the organization’s needs and then developed a prototype to fulfill these needs.

Initially, this team’s task was to evaluate technically the communication framework provided by the previous group. After close inspection and technical review, improvements were made and the proposed system was then implemented on employees’ workstations. Training and facilitating user acceptance were the final concerns of this project.

In order to properly address these concerns the team established the following project objectives: verification of its functionality, proper implementation of workflow, and determination of whether the correct data was produced and stored. Training and user acceptance were then later addressed. Ensuring that the system was adopted into daily workflow was ultimately the primary objective for this project. Lastly, evaluation of the system was performed to determine whether it improved the quality of workflow in comparison to past practices.
In this project, the team examined the proposed system and found that the document management system was comprehensible and reliable. The financial control system, however, was determined to be partially impractical for RADAR’s situation. Although, the Microsoft® Access™ database was appropriate, using Microsoft® InfoPath™ to produce the required financial forms was superfluous, simply due to the fact that Access™ could also produce these forms with no additional cost. Modification of the infrastructure introduced by the prior group was addressed to fulfill the shortcomings of the InfoPath™ solution. Moreover, additional needs were introduced to the team by the head of administration; these were incorporated into the modified Access™ solution as well. After the desired changes were executed, a study was conducted to evaluate the overall benefit of the implementation. The analysis and modification of this communication system will help RADAR to achieve its goals and to operate more efficiently.

This report was prepared by members of the Worcester Polytechnic Institute London Project Centre. The relationship of the Centre to RADAR and the relevance of the topic to RADAR are presented in Appendix A.
Background

Before pursuing a course of action for the project, the team was required to understand the needs and technical requirements for the evaluation and modification of the web information system. Having an initial understanding of RADAR, the societal issue it faces, and the practical problem at hand helped to ensure a successful project, (one can view Appendix A for more detail). Establishing best practice solutions and managerial strategy to support the solution provided a great foundation.

Current Challenges in Existing Practices

RADAR has been lacking an information technology based financial, manuscript, and membership connectivity, intranet system. Consequently, they have been faced with complexities managing their budgetary issues, controlling and exchanging manuscripts, as well as informing the community within of important information central to RADAR’s mission. Addressing these needs shall prove to be beneficial to RADAR for they will be able to correct the problems that have arisen from the inability to transmit and store data efficiently. Messages which are not correctly received nor conveyed can result in a mass of confusion or misinterpretation. This can greatly affect the performance and presentation of the group. Staff members will therefore have a more concentrated sense of community for they will all be connected via the RADAR network.

Document Management

Like many non-profit organizations, RADAR does not have a large staff, and this impedes their ability to efficiently organize documents, both archived and new. These documents include but are not limited to campaign manifestos, publications, newsletters, and booklets. RADAR has recently become aware of this problem’s existence through the preliminary effects and its impact on the organization. At this time, failed messages, issues regarding contacting people and plain inefficiency are only some of the ramifications caused by this poor system for communicating and storing information.

With the influx of technology based businesses, “traditional approaches to records and document management are failing miserably” (Sutton, 1996). There is an organizational need to modernize document management processes to utilize electronic
means of transmitting information within RADAR. RADAR recognized this need and hoped to obtain a solution which could facilitate document management. The provided electronic document management system allows the organization to backup important documents, file and organize according to project, person or time, and track the changes made on a document. Additionally, this aspect of the system provides a common area where documents can be found and accessed by the staff members. Sutton states, “the goal of document management is to share critical corporate information resources by making them secure, accessible, retrievable, and interchangeable” (1996), which is in line with RADAR’s wants and needs from this document management system.

Establishing a protocol for document management amongst the organization would be a wise decision. However, “the majority of voluntary sector leaders do not have the skills they need to plan and budget for strategic Internet projects. In addition, most organizations do not have the in-house technical skills necessary to implement these projects,” and therefore RADAR faced challenges to undertake this type of project (Surman, 2001).

Communication

In addition to a document management system, the staff at RADAR is also looking for a better way to communicate with one another. Currently the organization depends on email and telephone conversations, which have in the past been unreliable. Moreover, since RADAR has two offices, the staff members in each often feel disconnected or isolated from one another. In fact, the two offices are not even on the same computer server. Therefore, another objective the IT system seeks to accomplish is the joining of the two sites through improved communication, thereby strengthening the organization as a whole.

Additionally, having members who are unaware of the present issues facing the organization can be troublesome. Not only does this lead to an uninformed collection of individuals in broad-spectrum sense, but may also lead to a loss of active members. Affiliates could lose interest in the group after witnessing its inefficiencies to be proactive with current events. This would be devastating to the crux of the organization, and could cause its members to slowly decrease in magnitude. Keeping the interest of the
community is essential in order to further the organization’s mission. Rather than leaving this current concern unattended, RADAR has identified its needs and has addressed the will for change.

Financial Management

Besides document management and improved interoffice communication, the new system will also facilitate financial purchase orders. RADAR is facing problems involving staff members keeping track of their own individual budgets when ordering supplies for projects and placing and tracking these orders in a systematic manner. The new financial purchase order system aims to provide a solution to this problem by producing a final purchase order form and providing each user with their purchase order history.

Lacking a centralized means of tracking financial activity is destructive to an organization such as RADAR. Non-profit organizations are able to operate by the use of the donations and contributions sent to them from not only members, but persons who share the view of the organization’s mission. Having an inability to document where funds are located and how much individuals have spent are issues that must be addressed. Budgetary issues are further complicated due to the fact that employees making purchases are not necessarily knowledgeable of existing resources (Gilmore, Hassie, Hart, Zugic, 2004). The prior group determined the needs of RADAR, specifically the central storage of documents, interoffice communication, and financial purchase order control.

Past Work

A prior project group had implemented a CID (Corporate Information Database) for the Enabling Partnership (EP), an umbrella organization of which RADAR was a constituent until the EP’s demise. The team members documented their results and implementation very well (Chu, Jones, Parekh, Russo, 2004). This study addressed the notion of future modification. “A third goal was to lay out a plan for future development beyond the scope of our project. The CID/Intranet needed to be scalable and easily maintainable for the future as more organizations join the Enabling Partnership and their
needs grow. This roadmap for future development consisted of the requirements
document, a training manual, training guide (how to conduct a training session), and
system installation guide” (Chu, Jones, Parekh, Russo 2004). These future modification
included donation tracking and financial reporting. Thereby alleviating the budgetary
concerns addressed previously. Their project was closely related to the current work in
the sense that a new system was also implemented and the staff was trained to make use
of the system in their daily workflow.

Another group from WPI worked with RADAR directly during the past two
months and assessed the organization’s needs. It determined the most feasible
technologies of which RADAR will make use (2005). That group utilizing surveys,
interviews, and focus groups, first extracted the employees’ needs regarding document
management and financial control. Next an evaluation of several different possible
solutions was performed. They concluded that Microsoft SharePoint, InfoPath, and
Access would be the most feasible solution for RADAR, fulfilling the established needs
and being the most cost efficient. Their final step was to establish a proposed framework
employing these software packages.

**Best Practice Solutions**

This study also alluded to the compliance with established standards provided by
professional organizations (Chu, Jones, Parekh, Russo, 2004). A widespread
programming language (PHP) was established by last year’s team as a standard for
development of the Intranet for the CID. MySQL, a Structured Query Language, was the
database used for data storage. Usability issues were handled by complying with the
international standards developed by the World Wide Web Consortium (W3C) (Chu,
Jones, Parekh, Russo, 2004).

For this project, being knowledgeable of “industry standard” techniques ensures a
globally uniform implementation and will facilitate modification if the organization
requires it. Inter-membership communication should prove to be invaluable to an
organization such as RADAR; its mission will hopefully have the ability to expand across
the globe to inform persons everywhere, both current and prospective members of
donations, fundraisers, group activities, and governments of the issues concerning the disabled. Standards exist for this purpose of uniformity.

**Managing Change**

In order for an Information Technology project to really have significant impact, it is inherently crucial to have all stakeholders interested and personally invested in its outcome. It is thus important that everyone involved feel as though they have an ongoing contribution to its result. Employees and membership, perhaps the largest stakeholders in the project, must feel as though their needs are being fulfilled with the introduction of a new system. Having a goal-oriented strategy for overcoming change will ultimately keep everyone focused and committed to the objective (Mack, 2004).

Any new element of change brought upon a company or organization is often accompanied by resistance. Change interrupts the norms and daily routines experienced by employees, and this may cause people to feel uncomfortable with the new situation (Geller, 2000). Usually, in order to adjust to an unfamiliar situation, a leader is looked upon for guidance. In a non-profit organization, management would assume this responsibility. Therefore, management plays a key role in the adoption of a new policy or in the case of RADAR, the new communication system. In order to make the transition easier for RADAR when the system is implemented, the management should inform the employees why the change is necessary, how the change will help the organization, and fully explain the specific objectives (Marshall, 1999). Marshall states, “management designs the preferred future and then …moves the group into that future.” While change may be positive for all parties involved, it remains true that “how easily the adaptation is accomplished depends on the attitudes employees have toward the change” (Aiken, Hodgson, 1998).

Understanding that “attitudes toward computers or computerization have been directly associated with age, locus of control, cognitive style, and education; gender, job involvement, organizational commitment” (Aiken, Hodgson, 1998), implies each user has a different perception of the implementation. Establishing management practices to reinforce the benefit of introducing technology is important to a project’s success. If a system is crucial to operations, there must be procedures in place to
ensure utilization to the desired level. It is important to have employees understand why the change is occurring and how it will help the organization as a whole. While it is rare that an information system makes someone’s job harder, adoption of new procedures is not always well received by the stubborn employee or the member that prefers phone correspondence rather than e-mail. Everyone involved must form “a collaborative effort to achieve utilitarian satisfaction (Gilmore, Hassie, Hart, Zugic, 2004).

Ultimately, to achieve success in implementing new technology, maintaining open communication and soliciting feedback will help to benefit all stakeholders. As a team member, it is important to provide stakeholders with contact information and the ability to easily communicate with the team should they have any concerns. Even if their input does not effect the specification or implementation, at least they will feel like their concerns are being received and contemplated.

The management plays a crucial role in RADAR’s ability to become familiar with the current technologies available which could facilitate their daily processes. Accomplishing this, however, is rather difficult. Introducing an entire foreign means by which an organization operates creates issues which are not always desired. Management staff must support the system by keeping their employees informed and understanding the need for change; therefore managing change is perhaps more significant than implementing the solution itself. For instance, before having the system become central to the organization’s operation, management should reveal why the change would be beneficial and why this particular scheme was preferred (Gilmore, Hassie, Hart, Zugic, 2004).

Evaluating Effectiveness

Any Information Technology initiative must have a specific purpose in order for it to be ultimately successful. In order to maximize effectiveness, one must first understand the goals and objectives of the organization. Additionally, this is crucial to evaluating a project’s contribution to the overall organization. Thus fundamentally, one must first be aware of the general business strategies and objectives of the client organization before a project’s achievement can be measured. Once one has established a purpose, one can
then proceed with defining performance metrics in line with the purpose of the project.

Evaluating the fulfillment of that purpose, however, is not necessarily easy. In fact:

“although there is a thriving research community that offers answers to questions about new information technologies (IT), new ways to manage IT, and new ways of designing and building new IS [information system], there are few guidelines about how [the] effectiveness of IS investment should be assessed” (Pather, 2003).

Initially the team focused on post-implementation procedures in terms of evaluating effectiveness. According to Seddon (2000), performing an audit of the work of the prior project group was desirable because:

- It would help RADAR make realistic estimates for future projects
- It would enable corrective action to take place if required
- Optimistically, it would build confidence in the professionalism and business orientation of RADAR’s IT Department

In establishing criteria for this audit, Scott states that six major categories of Information System effectiveness should be covered (1995):

- **System quality** – investigate how well the system performs overall. Is all of the information easily accessible? How have the needs of users been met? How does the organization perceive the system to benefit them in general?
- **Information quality** – investigate how much of the information is actually relevant. Is the data entered absolutely necessary for operations? Is the information organized well?
- **User satisfaction** - determine how much users actually appreciate the introduction of the system. Does it make their jobs easier? Is it easy to use?
- **Individual impact** – determine how the new information system impacts individual work processes. Essentially, it should make things easier and more efficient
• **Organizational impact** – determine the overall value that the system has with regards to the organization. Does it provide more information or better reporting methods? The system should provide the entire organization with improved or added capability.

• **Level of use** – determine how much of the system is actually being used. Are employees entering all of the data necessary? Are managers running all reports designed? All aspects of added functionality should be utilized.

In order to conduct an objective and complete study, it is recommended that “…a task force of IT and user managers, plus a catalyst” (Seddon, 2000) be formed. Thus, a panel of professional managers within RADAR is desired. Additionally, research shows that a user satisfaction study is common amongst effectiveness studies and can directly benefit its outcome (Pather, 2003). Interview questions should be structured to eliminate objectivity and bias. While these questions should cover the overall improvement introduced by implementation, they should “…avoid being vague, ambiguous, and tautological, and consistency is required between the content of items to be used as measures of evaluation” (Seddon, 1998).
Methodology

The issue at hand is to assess user acceptance and modification of a proposed communications framework for RADAR. Initially, the team familiarized themselves with the previous group’s framework, both verifying it as a suitable solution and testing it to ensure it was useable. Additionally, the group began to address the existing problems that were encountered in the system. After conducting a computer literacy survey, a training session was held to introduce users to the system. Then, in order to determine what problems users of the system may encounter, the team decided to utilize focus groups and interviews. After obtaining a more concrete knowledge of these issues, a survey was generated and distributed amongst RADAR’s staff. Upon completion of data gathering and analysis, modification of the system and correcting withstanding issues was addressed.

The group established the following objectives:

- Verifying established objectives and core specifications for a successful infrastructure;
- Determining methods that are appropriate to facilitate adaptation with a change in operations;
- Optimizing an infrastructure towards established objectives, more specifically ensuring that the core specifications are met and address staff desires and concerns;
- Issuing recommendations as to what should be modified after implementation and assessment.

Verifying Objectives

The prior group assessed RADAR’s communication needs and proposed a framework. The needs analysis, which the prior team had compiled, served as a means of defining core specifications. This analysis was required to address initial alterations of the system framework. This project group met with and interviewed the head of
administration, Robert Saunders, to clarify a few ambiguities with respect to these established specifications. Additionally, a small informal gathering with the RADAR promotions employees was held to determine their impressions of what the system should entail were.

The team took all of this information to perform an analysis and verification of the system suggested by the prior group. Cost, ease of use, and scalability were of high importance in making the assessment. Additionally, user testing and software research helped to aid in the determination of an appropriate solution. Once the team had reached conclusions regarding the technology, a meeting was conducted with the IT staff to express the findings and issue recommendations for the future course of the project.

**User Acceptance**

Having developed software which would provide communications among all the employees of RADAR, including those at City Road and those at Corydon, the employees had to learn the intricacies of the new system so that they would be able to fully utilize it in their daily workflow. The team held training sessions as well in order to acquaint them with the new communication system, using a “hands-on” learning approach. “The purpose of any training program is to translate knowledge into action—to provide new information and show how to use that information on the job. It also creates expertise—in this case, the expertise that permits the accomplishments that move a business toward its objectives.” (Marshall, 1999).

To facilitate independent learning and exploration, a training manual was published which outlined methodically how to perform various tasks e.g. uploading, downloading, scheduling meetings, announcement postings etc. This ensured that all of the employees would be able to learn to use the system, even if they were unable to attend one of the upcoming training sessions. The training manual can be found in Appendix D.

To get an understanding of computer literacy throughout the organization, the team conducted a survey asking the employees how comfortable they were with various pieces of software. A question was also included to determine how employees prefer to
become educated in various computer technologies. This information helped to build the training session’s framework and to tailor the implementation to users’ needs.

While training, the group considered both the content of the session as well as the process of presenting the material (Charles, Clarke-Epstein, 1997). An interactive classroom setting was determined to be the most beneficial and efficient means of training, due to the fact that it allowed for interaction with the instructors. A formalized outline was produced previous to the training session to ensure there was an organized agenda. It was essential to incorporate into the plan the useful and beneficial aspects of the system while introducing the specifics of the functionality. Initially instructive sessions explained for what tasks the system would be applicable and how to use the system to perform these tasks. After this introduction, the staff was separated into smaller groups to work with the system itself. This interactive aspect of the training session was emphasized to promote open discussion regarding the system’s features. A few small tests were given to the training participants to evaluate the effectiveness of the sessions.

Optimization

After employees were exposed to the new communication system through training, the team expected to be present unresolved questions or issues concerning the new system. Hence, interviews and focus groups were conducted with some employees to address these issues. The objective of the interviews and focus groups was to determine what problems existed or what difficulties the staff were experiencing. Note that interviews were used in addition to focus groups to avoid groupthink, or the uncritical acceptance of a group due to conformity or fear of saying things with which colleagues might not agree. Sample focus group/interview questions can be found in the Appendix B

Rubin (1995) expressed that, “the purpose of an interview is to hear and understand what the interviewees think and give them a public voice.” To obtain useful and accurate feedback, the following criteria were considered when selecting individuals to interview: the employees should have a willingness to express their opinion and also a diverse sampling should be selected so that various points of view are represented
Obtaining a diverse range of employees, both departmentally and with regards to computer skills was essential to obtaining assorted opinions about the SharePoint Services™ system. Prior to selection, the team had each employee rate him or herself in terms of their computer expertise. After interpreting the results, a few individuals of varying computer literacy from each department were selected to participate.

Interviews conducted in groups are known as focus groups. When planning a focus group, it is important that the environment is comfortable, as focus groups should be “…informal, but somewhat controlled by the questions the researcher poses” (Sullivan, 1991). Moreover, conducting the group interview in an open environment is important to finding user opinion. Eliminating a management presence within the meeting provided the team with an unhindered perspective of how each user perceives the system. Recording the proceedings ensured that no details were missed. Allowing participants to expand on their thoughts seemed to provide further discussion regarding various aspects of the system. After coding for desired changes and negative aspects of the system, the team then used this data to compile a user acceptance survey.

Surveys were used after initial feedback from interviews and focus groups. The questions were formulated to address issues which had surfaced with staff members. Also, the needs analysis performed by the previous project team was utilized to devise questions regarding the system’s core specifications. The survey was distributed to the entire staff of RADAR. While constructing the survey, it was carefully ensured to structure the questions in simple terms. Also, the questions were worded in a neutral fashion, so that the phrasing did not imply one answer is preferable (Buckingham, Saunders, 2004). The survey’s structure was closed, however answers attempted to represent all possible responses. The survey questions can be found in the Appendix I.

The surveys were then analyzed by looking for trends in frequency of response. The team was careful to not completely disregard outliers. If necessary, the team considered follow-up interviews to be conducted in order to address problems occurring with only a small portion of the staff, however this was not necessary.
Modification

Once the data were gathered from the group’s various qualitative methods, technical recommendations followed in order to properly differentiate wants and critical needs. Data analysis, however, began while the interviewing was still under way (Rubin, 1995). While analyzing these data, it was highly likely that conflicting views on a certain matter would be encountered. Rubin (1995), states that these conflicts should surface if one obtains a balance of interviewees to represent all divisions within the area of study. The team met with the Information Technology Staff (IT) to decide on an appropriate balance.

The communication system must meet all core specifications, or needs. The Information Technology (IT) staff was the primary source for prioritizing the desired changes that have been found from the team’s previous research. The IT staff should have the knowledge of what is absolutely essential to the communication system as opposed to features. However, there was not an imposed set of answer categories. Simple agree/disagree responses would not have allowed the team to determine what the IT staff thinks and would have only portrayed the opinion partially (Rubin, 1995). These data were crucial as one cannot remove a need, but only alter it to meet the core specifications.

The implementation of the system, which met all core specifications and feasible feature requests, required that the data gathered was relevant to the four main objectives mentioned previously: establishing objectives, user acceptance, optimization, and modification. As mentioned above, focus groups, interviews, and surveys were the primary tools for gathering the data required. However, the resulting data would only be valid if and only if biases were not imposed with the research, sampling, or reactivity while gathering information. Using these research practices as criteria while bearing the objectives established in mind, the group ensured a successful realization and fulfillment of RADAR’s communication desires.
Results and Analysis

Evaluation of Proposed System

The first matter addressed was the functionality of the proposed communication system. There were two primary software components to evaluate, Microsoft® SharePoint Services™ and Microsoft® InfoPath™. The preceding WPI team had assessed RADAR’s organizational and financial needs and determined that using these software packages would not only meet these needs but also provide the least expensive implementation. However, subsequent findings did not entirely agree with their assertions. SharePoint Services™ worked very well to meet RADAR’s document management needs with a user-friendly environment. InfoPath™, however, was not the appropriate solution for providing the forms used to manage their purchase orders. Microsoft® Access™, the software to which RADAR owned rights, could not only provide the database but also provide the forms required to manage the purchase orders. InfoPath™ was therefore determined to be unnecessary in the design of the system.

The initial contact with the team’s liaison, David Wright, entailed a brief meeting in order to meet other staff members, learn some of RADAR’s general policies, and discuss the expected outcomes of the project. He expressed primary objectives to be addressed while working with RADAR.

- Implementation
- User Acceptance/Adoption
- Modification
- Attempt to integrate Croydon staff into framework

Communication and Document Management

The software SharePoint Services™ managed documents effectively and provided RADAR with additional tools to further expand their communication. An announcement board, collaborative calendar, and a discussion board are amongst the many features provided by SharePoint Services™. These software features provided a link between RADAR’s two offices, City Road and Croydon. Prior communication relied heavily on
interpersonal meetings, phone, and e-mail, all of which were not the most efficient or convenient means, as expressed by employees, by which to exchange information. A primary objective for both sites was to digitize documents such as: organizational history, campaign manifestos, member magazines, booklets, and other documents the organization may wish to post. SharePoint Services™ provided the ability to satisfy all of these desires. Moreover, the striking factor was that utilization of this software was of no additional cost to RADAR for they already had a Microsoft Small Business Server.

The Croydon site desired more capabilities than currently provided with Microsoft Exchange Server, which RADAR is currently using, can offer. Although SharePoint Services™ offered a collaborative calendar, the Croydon staff wished to have access to both sites’ individual calendars, which is currently unavailable. Microsoft® Exchange™, RADAR’s e-mail service, currently provides personal calendars which can only be viewed by staff of that site. Expanding these calendars to be viewable on their intranet would require that RADAR upgrade to Microsoft® Office SharePoint Portal Server 2003™. Table 1 outlines the additional features SharePoint Portal Server 2003™ offers (Microsoft, 2004). The cost for carrying out this software update would be £25 for the server installation CD, £755 for server licenses, and £16 for each client access license for approximately 30 users, totaling £1260. The upgrade provides this capability, but the expenditure was not justified when prioritizing the established core requirements. After conferring with David Wright, the group’s initial recommendation for simply utilizing the current SharePoint Services™ was confirmed.

After being informed that there were difficulties maintaining reliable communication between the City Road and Croydon offices, the team conducted a focus group at the Croydon site to assess their expectations of the new communication system. Presently, the Croydon staff accesses the network of RADAR’s main site, City Road, via a terminal client called Citrix. The staff expressed their frustrations with Citrix and its unreliability. In order to better understand their frustrations, the team tested the Citrix client on one workstation and it seemed to operate rather fluidly. During discussion, it became apparent that the frustrations lay in accessibility to the terminal client, as most users did not have the client installed on their workstations. Additionally, Mr. Wright had mentioned that the present throughput of the Citrix client was 1.5Mbps

- 18 -
(Megabits/second) downstream, bits received, and 256Mbps (Megabits/second) upstream, bits sent, which can constrain multiple access due to bandwidth limitation. It was noted that a possible upgrade in data transfer rates was something Mr. Wright was considering, to hopefully alleviate frustrations with sluggish multi-user responses with the current infrastructure.

As an alternative to throughput improvement, it was suggested that the system be available via the internet rather than through a networked intranet. However, an internet implementation is complicated by security issues. Rather than further complicating the communication system by introducing security threats, it seemed more feasible to provide users with access to the terminal client and double the throughput and increase available bandwidth.

After discussing latency concerns, the staff then proceeded to express their expectations and desires of the new system. A principal concern of the staff was managing documents such as: historical information, company newsletters, campaign manifestos, member’s magazines, and booklets. Many of the staff expressed frustrations while trying to find and access various information. They also expressed concerns regarding user friendliness, simplicity, and future expandability.

More concrete concerns were also discussed. Two, in particular, were important, inter-site calendars and an instant messaging client. Further discussion with Mr. Wright led us to the conclusion that these “features” were not essential to the core baseline implementation. However, these desires could be added after primary objectives were met.
<table>
<thead>
<tr>
<th>Feature</th>
<th>Windows SharePoint Services</th>
<th>SharePoint Portal Server 2003</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alerts</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Browser-based customization</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Discussion boards</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Document libraries</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Document Workspace</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Meeting Workspace</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Lists</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>BizTalk integration</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Microsoft FrontPage integration</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Microsoft InfoPath™ integration</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Surveys</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Templates</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Web Part pages</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Automatic categorization</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Audiences</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Topic areas</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>News</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Personal sites</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Shared services</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Single sign-on</td>
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<td>Yes</td>
</tr>
<tr>
<td>Site Directory</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>User profiles</td>
<td>No</td>
<td>Yes</td>
</tr>
</tbody>
</table>

Table 1. Comparison of SharePoint Services and SharePoint Portal Server
A preliminary survey was conducted in order to determine the staff’s technological competencies and preference in learning style. The survey can be viewed in Appendix G. The team was able to collect eight survey responses out of 24 staff members, approximately 33 percent. From those responses, most staff members rated themselves as intermediate to proficient computer users. Each person spends at least 6 hours per day at his or her workstation. The responses varied greatly regarding how often one would log into RADAR’s network from an outside location. Also, even though each person evaluated teaching methods differently, several were interested in a quick reference sheet. Additionally, many staff members valued one-on-one help sessions. Because of this, after the training sessions the team was available to answer questions or any concerns RADAR’s staff may have been experiencing. The team also wanted to express their availability to the staff while in London. Figures 1 through 4 below show the results from this survey.
Figure 1. Computer Knowledge

Figure 2. Time spent at Workstation
**Figure 3. Using Remote Access**

**Figure 4. Preference of Learning Methods**
Experimentation Results

Two members of RADAR’s staff volunteered for preliminary beta experimentation with the document management system. During this time they were encouraged to maneuver within the SharePoint communication system environment. The team worked with the staff members separately, where each person was briefly guided through the system and then was asked to use it on their own. After, they were asked to fill out a brief questionnaire. Four prepared open-ended questions were distributed to both staff members, asking what features of the system they found most useful to RADAR, what would not be applicable to the organization’s needs, and what they found easiest and most difficult. This gave the team a better idea of what to modify and what functions of the system should have been emphasized before the training sessions.

While the team was working with the staff members, some relevant issues surfaced. Bethan Collins was the first participant in the experiment. She rated herself as an intermediate computer user and is a parliamentary coordinator for RADAR. In general, she showed an interest in how SharePoint’s features could be effectively applied to RADAR’s needs. The team explained that the discussion board could be used instead of emails when consulting with various people on the same subject. With the discussion board, there would be no need to “reply all” and no hassle involved with finding all of the previous emails relating to a particular subject. Bethan also liked the idea of the announcement feature but was not sure what it would be used for. At RADAR, the receptionist sends out a daily email to the entire staff. The team suggested that an alternative to these emails could be posting on the announcement board. She was interested in the survey feature. The team was not sure how relevant this would be to the organization’s work.

Bethan brought attention to a few other issues. She asked what the filter feature was in the document section of SharePoint. By selecting this feature, the user can sort the documents by author, type, or date. The team realized that this was not mentioned in the training manual, so it was added and also addressed in the training sessions. She had concerns about the saving of documents within the system. The system currently is configured so that in order for one to modify and save a document, the user must save it
to their computer and then upload it to the SharePoint system. It would be easier if when saving, the document would automatically be changed on the SharePoint system. In order for this to occur, RADAR needs to upgrade to Microsoft® Office 2003™.

Additionally, the team observed that Bethan was not interested in the administrative settings, such as adding new or modifying folders, calendars, or display settings. She appeared to be fairly computer savvy, so she did not have problems maneuvering through the system.

The second volunteer was Rachel Ellis, who is the receptionist at RADAR. Earlier she had rated herself as an intermediate computer user as well. She showed more concern for the actual content of the system, as opposed to the functionality. Rachel seemed to like the discussion board and thought it would be a good alternative to emails. Also, she explored the Alert Me feature and seemed to be very interested in this. Rachel looked at the documents already in the system and seemed to like this feature as well. She mentioned that it was working a bit slow, however that was when she was opening a very large document.

Both volunteers used the Back button on Internet Explorer often to get back to the main page. This can be accomplished easier by clicking on links within the site; however this is also a good indicator that they are familiar and comfortable with using Internet Explorer. The team also observed that the staff members found the lists on the main page constrictive. During training the team emphasized the flexibility of the system.

Training

The first training session was held at RADAR’s City Road site. The team expected to have eight staff members present, but unfortunately only four attended. The following session took place at the Croydon site. Again there was a poor attendance of only five out of eleven staff members. This was discouraging, since it was thought that this resulted in a lack of interest regarding the new system. Later feedback and interaction with staff led the team to believe the attendance problem stemmed mostly from scheduling conflicts, either from sickness or being on vacation leave. In order to provide an opportunity for all of the staff members to be exposed to SharePoint, the team made themselves available for further training sessions, one executive training at City
Road and one additional staff training session at Croydon. Also a few individual meetings were scheduled with select staff members.

**Croydon Training and the Implementation of Citrix**

A second training session was conducted in Croydon for SharePoint in order to allow for those who missed the first training session to attend. The team was able to train every staff member in the Croydon office. Due to schedule conflicts, two personal training sessions were conducted with staff members who were unable to attend the scheduled group session later that day. Amongst the staff attending the group session, a few had already attended the previous Croydon training session and desired to gain more knowledge or confirm their initial understandings.

While comprising the training plan it was imperative that the concepts and their benefits to the organization be the focal point. The flexible nature of SharePoint services allowed for addressing issues that arose at the prior City Rd. and Croydon gatherings, such as: creating a member directory, changing cultural dialog, and changing the help desk format. Moreover, the staff learned that SharePoint has the capabilities to be manipulated to benefit them. The staff members seemed receptive to the system. Several questions were asked, fostering an interactive and comfortable atmosphere.

In order for the Croydon site to access the SharePoint system, they needed to be connected to the City Road server. The team explored several connection solutions such as exposing SharePoint to the Internet, creating a VPN, and using their current connection through Citrix. An outline of these options’ advantages and disadvantages are shown in Table 2.

<table>
<thead>
<tr>
<th></th>
<th>Citrix</th>
<th>VPN</th>
<th>Internet</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ease of Use</td>
<td>Poor</td>
<td>Good</td>
<td>Great</td>
</tr>
<tr>
<td>Ease of Client Installation</td>
<td>Poor</td>
<td>Good</td>
<td>Great</td>
</tr>
<tr>
<td>Ease of Server Installation</td>
<td>Good</td>
<td>Poor</td>
<td>Great</td>
</tr>
<tr>
<td>Security</td>
<td>Great</td>
<td>Great</td>
<td>Poor</td>
</tr>
<tr>
<td>Reliability</td>
<td>Good</td>
<td>Great</td>
<td>Great</td>
</tr>
</tbody>
</table>

*Table 2. Connection Solutions*
After much consideration and discussion with management, Citrix was decided upon. Citrix was installed on each staff member’s computer. Unfortunately, there were problems in the connection process initially. When Citrix was run, the connection process would initialize and then shut down after a few minutes. The team researched possible causes for this problem and then presented this information to David Wright. Mr. Wright decided to consult with Richard Bowman, a former co-worker in the Information Communications Technology department of the Enabling Partnership. He advised to set up another connection to a terminal, Enham, in Andover. After this was connected, the City Road location was accessed. Once this was performed on each computer initially, the process did not need to be repeated. The users could make further connections simply by accessing the City Road terminal.

Training Test

A total of four training sessions were conducted in both City Road and Croydon. In order to test the effectiveness of these sessions, the group created three small tests for the participants. The tests were set up within the SharePoint system, utilizing the document, calendar, and discussion board features.

The document test allows the user to open a file, save it to their hard drive, modify the document, save the changes, and then upload the new document onto the SharePoint server. The test asks the user to type their name to record that they found the document and then load their version onto the server. If the user completes this successfully and correctly, a document with their name would be filed in the document library. This enabled the team to track each staff member’s progress. They are asked to select the overwrite file feature so they may see the progression of the document versions, which was emphasized during the training session. The test can be viewed in Figure 5.
Figure 5. Training test to read, open, save, and upload documents

The discussion board test asks the user to read the starting discussion thread and reply to it with their name and favorite ice cream flavor. This tracks each user who was successfully able to access and reply to the test message. This is possible through the internal features of SharePoint, which record the user making comments. This test can be viewed below in Figure 6.

Figure 6. Training test to post and read comments on discussion board
The final test involved the calendar feature. A birthday calendar was created. The team requested each user to enter his or her birthday. This tests the user’s ability to create a new posting on the calendar. Also, they are encouraged to browse the calendar for others’ birthdays. This test can be viewed in Figure 7.

Only a few staff members have taken the training tests, however the team has not been able to determine whether this results in not understanding how to use the system, lack of interest in the system, or not finding enough time in their work schedule. Of the staff members who did participate, they seemed to understand the system very well and were very enthusiastic as well. However, in order to rally interest with the other staff members, the team met with managers.

Survey

A survey was generated based on the needs analysis and results from the training sessions. These surveys were aimed to evaluate the entire staff’s opinions on the system and how it fulfils the core needs previously established. The survey questions can be found in Appendix H. The team utilized the survey feature which SharePoint™ offers by
making the survey available on the newly implemented company intranet. Realizing that some staff members may still have problems adjusting to the new IT system, detailed instructions explaining how to access the survey were provided.

Out of five responses, four staff members had reported using the system several times after the training sessions and found that overall the SharePoint™ system seemed easy to use. Additionally, for the most part the respondents felt as though they had a good understanding of the system’s various features. The remaining survey participant had not used the system much at all and therefore did not have a good understanding of the features. All of the respondents agreed that most of the features of SharePoint™ would be useful for RADAR. The only element that they found may not be useful was the photo album. Also, the survey asked for any modification or customization suggestions that the staff would like to see done to the system in order to further help the organization. No definitive responses were received, but the team agreed that this question was still important in order to reemphasize the customizable nature of SharePoint™ for the future. The entire data collected from the survey can be found in Appendix H.

As mentioned earlier, the survey received only five responses from staff members. Much like the training sessions attendance problem, the team was unaware of the exact reason for the small number of responses. Several possibilities included: lack of interest in the new IT system, lack of knowledge with SharePoint™ that discouraged taking of the electronic survey, or lack of time in the staff members’ workday. Keeping this in mind, the team considered that the data collected from the survey could be slightly bias, reflecting the opinions from staff who are possibly more accustomed to using computers and enjoy using the system. So even though this data seems to show an overall satisfaction with the SharePoint™ system, the results cannot be applied to the entire organization because of this bias and the small sample of responses received.

Financial Management

Although SharePoint Services™ was the appropriate solution for document management, InfoPath™ could not facilitate the financial aspect of the desired communication system. Discovering this was critical to the development of a baseline
implementation. InfoPath™ did not provide the capability for users to assume different user roles e.g. administrator, user, and manager. Moreover, InfoPath™ could not retain data nor report it in an intuitive and scaleable manner. The team found that Microsoft® Access™, the software used to provide the database structure, could also provide the forms that InfoPath™ was able to generate. Any solution to the financial ordering aspect would entail customized programming. After research, InfoPath™ was seemingly more arduous to code than Access™, as it required the incorporation of an external development tool, the .NET Framework. Lastly, RADAR already has Microsoft® Access™ 97 installed on their workstations and would pose no additional cost to the organization, whereas InfoPath™ 2003 would require £660 to obtain 30 licenses. After presenting these findings to management, it was determined that an Access™ solution was more practical and appropriate for RADAR’s financial ordering needs. However, upgrading to Access 2003 or any future version will require additional programming which unfortunately cannot be avoided.

Robert Saunders, the head of administration at RADAR, provided an explanation that allowed the team to understand the financial ordering system’s requirements. Financial ordering required a more structured procedure, where employees were confined to expenditure limits. Departmental managers are allocated a certain budget of which they must be aware. They would organize and submit their transactions using the purchase order forms created in Microsoft® Access™. A sample form may be seen in Figure 8 below.
Once all pertinent data has been entered into the appropriate form, a purchase order number is assigned sequentially to each request. The orders are automatically processed unless the department manager exceeds his/her allocated budget. When this scenario arises, senior manager authorization is required in order to validate the purchase order request. The purchase orders are initially based on a quote rather than the actual price; therefore the option to modify the quote to the actual price in the purchase order was provided. The purchase orders, after generated, may be printed and filed as desired by management. This process is summarized in Figure 9 below.
While maneuvering within the environment, users may view their past purchases and current balance remaining in their budget. Additionally, project expenditures may be viewed to determine how much funding has been put towards each project. (However, senior managers are only given this permission.) The system provides a list of products and projects from which to choose. Since the projects are continually changing, the administrator is able to modify the list as needed. Two required data fields are provided in order to determine the project with which the purchase is associated. One field requires the project, however, if a purchase is not actually relevant to a specific project, a default “operations” category should be selected. The user should note that some purchase orders do not always have to relate to a project and this is the reason for the “operations” category. The second field requires a general category with which the purchase is associated, e.g. computers, stationary etc. All of these features aided in ensuring more structure in the financial ordering process. These categorizations and extra fields help facilitate future reporting mechanisms.

Since a completely new software package was used for the financial management system, the team focused its time on redesign and modification. A functional financial management system was successfully produced in Access. However due to time restraints, training sessions were unable to be held for the entire staff. Alternatively, the team thoroughly taught the head of administration, Robert Saunders how to use the system. Also, a training manual was constructed for future instruction and reference.
Summary

In summary, the team first evaluated the proposed system and concluded that SharePoint was appropriate for RADAR’s document management and interoffice communication needs. However, as further specifications were made for the financial purchase order system, InfoPath™ became less applicable. After a new financial system was made in Access™, training sessions were conducted for both SharePoint Services™ and Access™. Also, training manuals and quick reference sheets were produced. Next the team solicited feedback from the staff through interviews and surveys. These results were used to make final modifications for the communication system. This process is outlined below in Figure 10.
Figure 10. Flowchart of Project Decision Making
Conclusions and Recommendations

After an in-depth evaluation of the framework provided by the C-Term group, a functional and fully implemented organizational intranet was established. Additionally, the finance department was presented with functional software based in Microsoft Access for managing purchase orders. The Croydon office was connected to the intranet via Citrix terminals, which were installed at every employee’s desktop. In result, a fully functional communication system was provided bridging the geographical gap between two offices.

After meeting with Financial and Information Technology management, it appeared that the system had fulfilled all of the organizational requirements. After confirming the system’s ability to meet core specifications previously formulated, the technical implementation was deemed a success. Getting users on the system was the next hurdle to overcome.

Perhaps the team’s greatest challenge was to help the RADAR staff adapt and accept the new document management and financial purchase order system. From this main objective stemmed several issues which the team addressed during the course of the project, including: analyzing the previous project group’s proposed system, making modifications to the system, training and exposing the staff to the new system, and soliciting feedback from the staff by conducting interviews and distributing surveys.

While proceeding with this course of action, the team struggled with complete participation from the staff at RADAR. Challenges with scheduling arose, caused by many of the staff members being on leave for vacation. However, the team worked through these problems. Since there were so many scheduling conflicts, the team provided the staff with several options for attending a training session, adjusting to everyone’s previously scheduled appointments. In the hopes of getting more involvement, the team offered an additional training session for those that missed the scheduled two. During the training sessions, the team put emphasis on how the system could benefit RADAR as an organization. Specific examples were used, such as newsletters and other publications being posted in the document management section of the SharePoint system. Toward the end of each training session, the team asked the
participants what they would like to see specified or changed in the system to benefit RADAR. In doing so, the team hoped to ensure that they knew the system was to primarily benefit them and the team was there to aid in their transition process. Suggestions for changes were fielded. With employee input, the team added a staff directory for both the Croydon and City offices. Additionally, some of the wording was rearranged to facilitate better understanding the function of the system. For example, *vacation calendar* was changed to *holiday calendar*.

Additionally, when experiencing problems involving participant response, the team decided to approach the staff members personally instead of relying on email correspondence. Meetings with managers were also scheduled regularly so that they were made aware of any issues. The team requested the managers encourage the use of the system as much as possible by staff. With their backing, the transition to the new system became easier.

Although the team wished that at the conclusion of the project all of RADAR’s staff would be comfortable with the system and ready to use it in their daily workflow, it is realized that the project’s scope may have been overly optimistic. Some staff members might have needed to learn more about the system and others may have needed additional training. With this in mind, the team developed training manuals for both SharePoint’s document management system and a quick reference sheet, which highlights the main aspects RADAR’s staff will most likely be using. In addition to these references, the team ensured that the liaisons, David Wright and Robert Saunders, were well versed in the system, primarily to serve as a personal help reference for staff members. Additionally, two staff members were trained on how to administer and maintain the system. In order for the document management and communication system to be a success, the creation of folders, modification of the site, and further organization of files must be maintained by an administrator.

In the future the administrator will be able to expand the SharePoint system to further benefit RADAR. There is the ability to create separate subpages for select members of RADAR’s staff, such as the senior management. This would enable only members of senior management to access certain confidential documents. Also this
feature to create a subpage may be utilized by select group members working on a project together.

Some staff members, specifically at the Croydon site, expressed interest in accessing the SharePoint system from outside of the network. There was consideration to make this part of the system accessible from the Internet or provide remote access. However, it was determined that this was outside of this project’s scope. Many security issues exist with exposing a system such as this to the Internet and an in-depth study would have to take place.

For the future improvement of RADAR’s infrastructure, the team recommends that RADAR upgrade to Microsoft Office 2003. With this upgrade, the SharePoint system’s features could be fully utilized, such as:

1. The users would be able to create a document within the SharePoint area. After completion they could save it and have it automatically uploaded onto the system.
2. Shared pictures would be able to be edited or sent via email through the SharePoint portal, using Microsoft Office Picture Manager (which comes with Office 2003).
3. Lists could be edited in a datasheet form, enabling easier access.

The persons primarily responsible for managing and administrating the purchase order system, David Wright and Robert Saunders, were trained how to make use of the system. In addition to their training, a detailed training manual was created and distributed to management for use at their discretion. The SharePoint training manual can be found in Appendix D. Following these training efforts, it was suggested that management have a complete and immediate transition to the new purchase order system. This would require employees to use the new system, thus incorporating it into daily workflow.

Expanding and updating the purchase order system as needs evolve would require RADAR to obtain up-to-date software packages, specifically Microsoft® Access 2003™. A few programming alterations will be required for the Access 97™ system to be functional within the upgraded Access 2003™ package. Like all software upgrades, however, addressing this transition now would facilitate likely changes required in the
future. The system, presently, could have additional features added if desired. Some of these features include but are not limited to the following:

1. A warning system which alerts the user when the project total is about to exceed the purchase order request;
2. A layout of how much has been ordered per project;
3. An option to change the quoted purchase order request amount to the actual charged amount.

The above were not required in the baseline beta version, but Robert Saunders expressed a strong desire that these features be capable of being added.

**Baseline Computer Literacy**

Establishing baseline computer literacy requirements for the RADAR staff is vital to the expansion of the Information Technology Systems in place. There should be a core set of expectations for new staff members so they can quickly become oriented with existing software. Additionally, this baseline will allow IT staff to determine when additional training is necessary should expansion require more advanced computer knowledge.

**Virtual Private Networking (VPN) Solution**

After observing users in Croydon, it became apparent that an alternative to the Citrix solution was desired. With the Citrix Terminal Client, a user in Croydon must login to an intermediary computer to access server resources. In utilizing a VPN solution, a user at Croydon would be able to access City Road LAN resources without the need of an intermediary system. As shown below in Figure11, the VPN allows a user in Croydon to access all network resources with only their personal computer. This will be less confusing and more efficient for all of the clients in the Croydon location.
Figure 11. Comparison of Citrix and VPN connectivity solutions
Appendices

Appendix A – RADAR Background Information

Disability in the UK

According to the Disability Discrimination Act of 1995, a disabled person is someone who has “a physical or mental impairment which has a substantial and long-term adverse effect on his ability to carry out a normal day-to-day activity.” The disabled community therefore is a widespread community of individuals, each personally struggling with different hardships. However, together they face a larger issue: the way in which society perceives and treats them.

In the past the disabled were forced into “special” schools, labor markets, and residential accommodations (Cooper, 2000). This type of segregation will never enable people with disabilities to gain equal rights and it is morally bankrupt. Additionally, this type of treatment has been known to cause false labeling of incompetence.

In the past decade, strides have been made to improve the treatment of the disabled in society. In 1995, the British government passed the Disability Discrimination Act, which addressed the access of services and employment of the disabled. Shortly thereafter in 1999, the Disability Rights Commission Act was passed. The Disability Rights Commission was established in order to enforce the Disability Discrimination Act and promote equality of opportunity (RADAR, 2003). Currently, new steps are being made by the government to further progress with regards to disabled individuals being able to lead “ordinary lives”. The government has recently announced a 20-year plan, which aims to improve the quality of life for disabled people. Some of the established goals include: increasing the ability to live independently and maintain their own residence and work; enabling children with disabilities to live "normal" lives by providing access to childcare, education and family support; and increasing the amount of disabled people in the workforce (“Government plans,” 2005).

Even though much progress has been made, much more must be accomplished. Disabled people are still facing many barriers daily, such as job discrimination,
accessibility, insurance discrimination, and local prejudice. A psychological study was performed in the U.S., which evaluated the effect of disability on hiring decisions (Gouvier, 2003). Conclusively, the study found that job discrimination still exists in the workforce (Gouvier, 2003). Moreover, disabled people are five times more likely to be unemployed than non-disabled people (RADAR, 2003). Accessibility is a big issue for many disabled individuals. Physically, transportation and buildings' structure cause restraints. Some progress is being made in this area. According to the Disability Discrimination Act, all new buses and trains must be accessible to the disabled, and buildings must have a means of access, parking, and sanitary facilities available. However, this process of revamping the current conditions is a slow one and therefore still provides many difficulties (RADAR, 2003).

RADAR

The Royal Association for Disability and Rehabilitation, known as RADAR, is a national organization for disabled people run by disabled people, which represents over 8.7 million disabled people throughout the United Kingdom. It was founded in 1977 and now consists of over 500 supporters which include both individuals and organizations in both corporate and public-sectors (RADAR, 2004).

RADAR's mission is to remove the challenges that disabled people face and influence the way they are viewed in society (RADAR, 2005). The organization works to promote the equal rights and opportunities which need to be provided to disabled individuals by “campaigning, explaining, informing, and supporting” (RADAR, 2003). Even though they acknowledge the progress the government has made in the past, many obstacles continue to exist for the disabled community and their quest for equal treatment and opportunity is still not complete.

RADAR is relatively small as it is comprised of 6 Senior Management Team (SMT) members, 26 staff members, and 12 board members. In previous years, over 90 percent of the committee has been disabled, implying that both able and disabled individuals are working together for a common goal. One of their main focuses is to have the organization run primarily by disabled individuals so that they are the ones who have key roles in the decision making process (RADAR, 2005).
Appendix B - Focus Group Questions

1. How will this system help you in your role at RADAR?

This is an important question that establishes the impact of the system for employees. It is also important to understand what the employees’ general perceptions of the system’s purpose are.

2. Before the introduction to this system, did you find it difficult to share documents?

This question precedes the next to understand the needs and frustrations of employees. While asking the next question would be sufficient for purposes of evaluating system effectiveness, our objective is to obtain more information about employee needs to share documents.

3. Does this system sufficiently provide a solution to this problem of sharing documents?

One of RADAR’s specific objectives for the framework is that it gives employees the capability to share documents easily. Inquiring about the system’s effectiveness in fulfilling this objective is important. If the employees don’t like it, then the utility it provides is useless.

4. Generally, do you find the system easy to use? If not, what makes it difficult?

A system must be user-friendly in order for employees to adopt it without resistance. If the system does not cater to the user, then it must change to facilitate a positive on operations.

5. Was the documentation provided helpful to learning the specifics of the program?

Evaluating the training manual and instructions is essential to ensuring sustainability of the system. If new employees are not provided documentation on the system, it could seriously degrade the long-term success of the introduced framework.

6. What would you like to see changed within the system?

As a conclusion to the interview, this question serves as a method to extract any further qualms with the system’s functionality. It’s important to ask this question last as it will ensure people have become comfortable with the setting and the people conducting the interview.
Appendix C – SharePoint Quick Reference Sheet

To Login:
1. Launch Internet Explorer
2. Type “companyweb” into the URL address field and press ENTER

To Access a Document:
1. Click on “Documents” link in the left-hand column.
2. Click on the category you would like to view (e.g. Archived Documents, General Documents, etc.)
3. Click on the title of the document you would like to view.

To Upload a Document:
1. Follow steps 1 and 2 from “To Access a Document”
2. Click on “Upload File”
3. Click on “Browse” to locate the file you would like to add to the library.
4. If a previous version of the file is already in the library, you can select to replace the file by checking the box next to “Overwrite existing file(s)”
5. Click on “Save and Close”

To Post on a Discussion Board:
1. Click on “Discussions” link in the left-hand column
2. Select the discussion board you would like to access and click on it (General Discussion)
3. Click on “New Discussion”
4. Type in the Subject and Text boxes
5. Click on “Save and Close”

To Reply to a Post on a Discussion Board:
1. Follow steps 1 and 2 from “To Post on a Discussion Board”
2. Click on “Collapse/Expand”
3. Click on the subject of the post to which you would like to respond
4. Click on “Post Reply”
5. Type in the Subject and Text boxes
6. Click on “Save and Close”

To Post on the Calendar:
1. Click on “Vacation Calendar” link in the left-hand column.
2. Click on “New Item”
3. Fill in the appropriate information
4. Click on “Save and Close”
Appendix D – SharePoint Training Manual

Login

The first steps in accessing RADAR’s SharePoint web space are the following:

1. Launch Internet Explorer
2. Type “companyweb” into the URL address field and press ENTER
3. http://companyweb/default.aspx should appear and the homepage will load as seen below
Features

Announcements

The Announcement section is viewed in the top of the screen. Its purpose is to post information that may be important to the entire group and also to draw attention to that information.

Reading Announcements:

The main page will display each announcement’s heading, content, date, time and author. Thus each message can be read in its entirety from here.

<table>
<thead>
<tr>
<th>Author</th>
<th>Message Content</th>
<th>Date &amp; Time</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

However, if you want to see more details regarding an individual announcement, click on the heading. From here you have options to delete the message, edit the message, or send yourself an alert when the announcement is modified.

RADAR

Announcements: Welcome to your new team web site!

Title: Welcome to your new team web site!

Body: Windows Small Business Server provides your company with this internal Web site, where you can share documents and information with co-workers. You also have new features for e-mail, faxing, and Internet access. To learn more, click Information and Answers.

Expires:  

Created at 10/04/2004 16:07 by RADAR\Administrator
Last modified at 18/04/2004 16:07 by RADAR\Administrator
To edit an announcement:
1. Click on Edit Item
2. Modify the title, body, or expiration date by clicking in the field and typing desired changes. There is also an option to attach a file.
3. When complete, click on Save and Close

To Delete Announcement:
1. Click on Delete Item
2. An alert box appears to confirm request. Click on OK.
To Send Yourself an Alert:

1. Click on Alert Me
2. A new web page will open.

Send Alerts To - In this section you can view what email account will receive the alert and change your email address if needed.

Alert Frequency - Specify whether you want to be alerted immediately when there is a change, or if you would rather receive a daily or weekly summary message. Select immediately, daily, or weekly options with the tabs on the right.

3. Click on OK and it will return you to the main page.

To Compose an Announcement:

1. On the main page, click on Add new announcement
2. A new web page will open
3. Enter text for the title, body of content, and expiration date. Also a file may be attached by clicking on Attach File. Then click on Save and Close when complete. This will bring you back to the main page.

**Help Desk Discussion Board**

Submit requests for technical help to the Help Desk. This discussion board allows your question and the response to be viewed by others.

**To access help requests:**

1. Click on the title of the help request you would like to open

2. A new web page will open
3. Here details can be viewed including:
   - Title
   - Description of the request
• Author of request
• Date and time the request was filed

4. Similarly described in the Announcements section of this training manual, a help request may be edited or deleted and an alert of changes may be requested via email by clicking on the links at the top of the page.

To add a new help request:

1. Click on Add new discussion under Help Desk on the main page. A new page will open.

2. Enter the title and description of your request. Make sure you provide as many details as possible. Enter the title and description of your request.

3. Click on Save and Close.

To answer a help request:

1. Open the help request you would like to answer (see above “To access a help request”)

- 50 -
2. Click on Post Reply. A new page will open.
3. Enter the title and your reply similarly to when submitting a request.

4. Click on Save and Close.

To View a Help Request Response:

1. Click on Help Desk Discussion Board on the main page. A new page will open.
2. The title of each help request should appear. Click on the +/- button to the left of the title to expand the discussion. By expanding it, you will be able to see the main text of the question as well as the subjects of any answer responses.

3. To view the main text of the reply, click on the +/- button to the left of the reply’s title.

Alternatively, click on Expand/Collapse to view all help requests (title and full text) and replies. This option will show all of the discussions. To minimize these help requests to show only the titles of the original request, click on Expand/Collapse again.

Member Directory

The member directory section displays a list of current members using the system. Also, each person’s email address and telephone number may be accessed. Two directories were created, one for the City Road site and one for the Croydon site.
To add a new member:
1. Click on Add new item on the bottom of the member directory on the home page. A new page will open. Enter the appropriate information in the prompted fields.
2. When complete, click on Save and Close.

To view more details about a member:
1. On the main page, click on the member’s last name from whom you desire more information.
2. A new page will appear with all of the information that is currently provided for that member.
3. Here you may also edit information about this member by clicking on Edit Item.

Links

The links section provides various web pages that may be useful to the group. On the main page, you can view a list of the web pages by their titles. Click on the title to open the web page.
Here you can find Notes entered about the website or a general description. The notes are entered to the right of the web page’s title.

To edit a link:

1. Click on the icon to the left of the web page’s title (under Edit column)
2. A new web page will open

3. Here you can modify the web address, the title (shown as “description”), or the notes. Click in each box to change.
4. Click Save and Close when you are completed with changes.
5. Also, to delete a link, click on Delete Item and a pop up box will ask you to confirm by clicking OK
To add a new link:

1. On the main page, click on Add new link under the Links section

2. A new web page will open. Here you can enter the title, web address, and notes about the link. This is done similarly when editing.

3. Also you may test the link’s address by clicking on Click here to test. A new web page will open in a separate browser. If the web address is correct, the new web page will be the corresponding web site to your link.

4. Click on Save and Close when complete.

Documents

Several important files and information can be found in the Documents section. On the main page, some subcategories can be found. These include:

- General Documents
- Projects
- Presentations
- Archived Documents

These four categories can be directly accessed from the main page by clicking on their links.
For more options or to see all of the subcategories within Documents, click on Documents.

Click here for complete subcategory list of documents

This new web page lists all of the subcategories of Documents (or libraries), the description of each, the number of files or items in each, and the date each was last modified.

### RADAR Documents and Lists

This page shows all the document libraries in this Web site. Click the name of the document library to view its contents. To create a new document library, click Create Document Library.

<table>
<thead>
<tr>
<th>Document Libraries</th>
<th>Description</th>
<th>Items</th>
<th>Last Modified</th>
</tr>
</thead>
<tbody>
<tr>
<td>Archived Documents</td>
<td>You can use this document library to store your company’s archived documents.</td>
<td>4</td>
<td>3 weeks ago</td>
</tr>
<tr>
<td>General Documents</td>
<td>Share a document with the team by adding it to this document library.</td>
<td>15</td>
<td>27 hours ago</td>
</tr>
<tr>
<td>Incoming Faxes</td>
<td>This document library stores the faxes your company receives. You can view your faxes, print them, and save them to your computer.</td>
<td>1</td>
<td>2 days ago</td>
</tr>
<tr>
<td>Presentations</td>
<td>You can use this document library to store your company’s presentations. You could create a library for each type of presentation or for each person who gives a presentation.</td>
<td>1</td>
<td>2 days ago</td>
</tr>
<tr>
<td>Projects</td>
<td>You can use this document library to store your company’s proposals. You could create a library for each type of proposal or for each person who creates a proposal.</td>
<td>1</td>
<td>2 weeks ago</td>
</tr>
</tbody>
</table>
Archived Documents

This library can be used as a tool to store the organisation’s archived documents.

To view documents in the library:

1. Click on the folder which the file is located (i.e., Current Year or Previous Year)
2. A new web page will open. The files available in this folder will be listed. Click on the file Name that you wanted to open. Note that the file will open in the web browser.

To save document to desktop:
1. Right click on the document title Name. Click on Save Target As…
2. A pop up box will open. Find the location where you would like to save the file and click on Save.

To edit a file:
1. Open Microsoft Word
2. Open a previously saved file from SharePoint which was saved on your computer.
3. Save changes to the file on your computer and then proceed to upload the file (further instructions shown below).

To add files into this library:
1. Locate which folder you would like the document to be filed. Shown here in the illustration above there are two options: Current Year and Previous Year. Select the appropriate folder by clicking on it.
2. A new web page will open. To add a new file to this folder, click on Upload File.
A new web page will open. Click on **Browse** to locate the file you would like to add to the library.

3. Find file to be added and click on it. Then click on **Open**.

4. If a previous version of the file is already in the library, you can select to replace the file by checking the box next to **Overwrite existing file(s)?**

Then click on **Save and Close**
More options with opening documents:

1. Drag the mouse on top of the file you are interested in (but do not click on the file).
2. Click on the arrow to the right for a drop down menu

Click here for drop down menu options

To delete the document:
Click on Delete. A pop-up box will appear to confirm the deletion. Click OK.

Check version history:
Click on Version History. A new web page will open with a list of the file versions by modification date. Here you may access previous versions by clicking on their modified date and time. This feature allows for backing up of previous documents so information is not lost.

Alert:
You may choose to be alerted when the document is changed. Click on Alert Me. More information about Alerts can be found in Announcement section of this training manual.

General Documents
This library can be used to share documents with the team members. In order to add, create, and view files, please follow the directions from Archived Documents in this training manual.

Creating a New Folder:

When sharing documents in the General Documents library, the files may need to be organised into different categories. One way of doing so is creating folders.
1. Click on Create Folder
2. A new web page will open. Type in the name of the folder.

3. Click on Save and Close when complete. You will be brought back to the General Documents page.

Incoming Faxes

This document library stores the faxes your company receives. You can view your faxes, print them, and save them to your computer.

To view, save or delete faxes follow the directions described for Archived Documents found in this training manual.

To send a fax:
Perform any of the following tasks to send a fax.
- Print to the fax printer from any Windows-based program, such as Microsoft® Word 2003.
- Use the Send Fax Wizard.
- Send an e-mail message to a fax contact in Microsoft® Outlook 2003.

Presentations
This document library can be used to store your organisation’s presentations.

New folders can be created to organise the presentations by either the type of presentation or each person who gives a presentation. To create new folders, follow the directions provided under the General Documents section of this training manual.
Also, presentation documents can be added, created, deleted, edited and opened similarly to as described in the Archived Documents section.
Creating a New Document Library

On the main page, click on Documents
1. A new web page will open. Click on Create Document Library

2. A new web page will open. Three types of libraries are available to create: Document, Form, and Fax.

3. Select which type of library you would like to create and click on the name (i.e., Document Library, Form Library, or Fax Library)

**Document Library**

Several options are available for a new document library.
1. Type the name of the new library and then provide a description

   **Name and Description**

   Type a new name as you want it to appear in headings and links throughout the site. Type descriptive text that will help site visitors use this document library.

   **Name:**

   **Description:**

2. Select the whether or not you would like a direct link to this library to be displayed on the main page.
3. Select whether or not you would like a backup or previous version to automatically be saved each time a document is edited.

4. Select a document template to be used. In other words, select which type of file this document library will support.

5. When complete, click on Complete at the bottom of the screen.

Fax Libraries

Follow the directions (where applies) found in the previous Document Library section.

Pictures

The organisation’s photos can be stored and organised here.

To view a picture:
1. On the main page, click on Pictures on the left
2. A new web page will open. Select which folder the picture is located

3. A new web page will open. The pictures in this folder can be displayed in three different ways: Details, Thumbnails, and Filmstrip. On the left you can click on which viewing option you would like
Details View shows the pictures’ file names in list form and also displays their picture and file size. To view picture, click on the name of the photo you would like to display.

<table>
<thead>
<tr>
<th>Type</th>
<th>Name</th>
<th>Picture Size</th>
<th>File Size</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>all.jpg</td>
<td>700 x 500</td>
<td>51 KB</td>
</tr>
<tr>
<td></td>
<td>Sample</td>
<td>283 x 212</td>
<td>10 KB</td>
</tr>
</tbody>
</table>

Thumbnails View shows the pictures displayed in smaller versions. To view the full sized picture, click on the picture you would like to display.

Filmstrip is another way to view the pictures in smaller thumbnails. However when you click on the thumbnail, it is shown in a larger version at the bottom of the screen. To view the full sized picture in its own window, click on the bottom picture.
To delete a picture:
1. While viewing pictures (in any of the three modes), check the box corresponding to the picture(s) you want to delete by clicking in the box.
2. Click on Delete
3. A pop-up box should appear. Confirm the deletion by clicking OK.

To add a picture:
1. From the main page, select Pictures. Select the specific folder you would like the picture to be placed. Click on that folder.
2. Click on Add Picture
3. A new web page will open. Click on Browse to find the file you wish to add.

4. Locate the file, click to highlight it, and click on Open
5. Note, if an existing file is in this folder already, and you would like to replace it, click the box next to Overwrite existing file(s)?
6. Click on Save and Close. You will then be brought back to the web page containing the folder of pictures.

Lists

Click on Lists on the main page. From here you can access Announcements, Help Desk, Links, and Vacation Calendar.
For information about Announcements, Help Desk, and Links, refer to previous sections in the training manual.

Vacation Calendar

The vacation calendar feature is ideal for recording vacations and other time off from work. However, it can also be used to post important events.

1. Click on Vacation Calendar under Links
2. The calendar can be viewed in three different modes: monthly, weekly, and daily.
   When loaded, the calendar defaults to monthly. However, it can be changed by clicking on View by Day or View by Week. It can also be changed back to monthly by clicking on View by Month.
To add a new event:
1. Click on New Item
2. A new web page will open. Fill in the various fields.
   - Title – This will appear on the calendar. If this is for vacation time, make sure you indicate your name and the word “vacation.”
   - The beginning date and time if applicable – your first day of vacation
   - The ending date and time if applicable – your last day of vacation
   - You may add a description if desired
   - Optional location. For vacations it is not necessary you note where you will be on vacation, but if you were to put a scheduled meeting on the calendar the location could be used to indicate which room it was to be held.
   - The recurrence feature allows the event to be repeated. Click if necessary.
   - You may create a new workspace if the event is a large one that needs much planning and organising. This would not be appropriate for vacation time.
3. Once complete, click on Save and Close.

Discussions

This directory holds various discussion boards, which employees can use to talk about different issues.

To access the discussion boards:

1. From the main page, click on Discussions.
2. A new web page will open. This page shows all the discussion boards. It lists the discussion boards by their name. Also it provides a description, the number of responses, and the last time it was modified.
3. Click on the name of the discussion board you would like to access.

To read the discussions:
1. Each discussion will be outlined and shown according to the subject. Also, who posted it, how many replies to the original discussion, and the date and time it was last modified will be shown.

2. Click Expand/Collapse to show the subject and content of the message as well as the subject and content of any replies. Click on the subjects to view the entire message in a new page.

To create a new discussion:
1. Once you are viewing the discussion board that you are interested in, click on New Discussion.
2. A new web page will open. Compose the subject and content text.
3. Also if desired, you can add a file. Click on Attach File. Click on Browse. Locate the file you were interested in. Click to highlight the file and click on Open. Click OK.
4. Once complete, click Save and Close.

To create a new discussion board:
1. From the main page, click on Discussions.
2. A new web page will open. Click on Create Discussion Board.
3. A new web page will open. Click on Discussion Board.
4. A new web page will open. Here you can enter the title of the discussion board and a description for the discussion board. Also, decide whether or not you want a link to the discussion board to be placed on the main page.

5. Once complete, click on Create.

Surveys

A survey may be created and distributed amongst the group using the SharePoint pages. This is a valuable tool to collect opinions from the members of a group.
To take a survey:

1. From the main page, click on Surveys shown on the left.

2. A new web page will open. This page will list all of the surveys available. The title of the survey, a description, the number of survey questions, and the date it was last modified are listed. Click on the title of the survey you would like to take.

3. A new page will open. Click on Respond to this Survey to take survey.

4. Answer the questions (questions may vary in response by multiple choice, several answers may apply, or open-ended).
5. When complete, click on **Save and Close**.

To create a survey:

1. On the Surveys main page, click on **Create Survey**
2. A new web page will open. Click on **Survey**
3. A new web page will open. Enter the title and description in the specified areas.

   **Name and Description**
   Type a new name as you want it to appear in headings and links throughout the site. Type descriptive text that will help site visitors use this survey.

4. Next decide whether or not you would like this survey to have a link on the main page. Click on **Yes** if you would like the link to appear. Click on **No** if you do not want it to appear.

   **Navigation**
   Specify whether a link to this survey appears in the Quick Launch bar on the home page.

5. The next options for your survey involves the survey participants. First decide if you want the survey to be anonymous or if the survey should show each participant’s name. Select **Yes** if you would like the names to be recorded and shown. Select **No** if you want it to be anonymous. The next question asks if you will allow users to take the survey more than once. Click on **Yes** if you want the users to be able to take the survey multiple times, and click on **No** if you would like them to only take the survey once.

   **Survey Options**
   Specify whether users' names will appear in survey results and whether users can respond to the same survey multiple times.

6. Click on **Next** to continue
7. A new page will open. Type your question as you want it to appear in the text box.
8. Select which type of response you would like to be available.

9. The next option will vary by what type of response you select. First select whether the question is mandatory for the user to take. Then make specifications for the answer (such as selecting responses for multiple choice or selecting how many characters are allowed for a single line of text response.

10. If you would like to add another question, click on Next Question. Continue this process until complete.

11. Click on Finish.

12. A new page will open. This will show a confirmation of the title, description, and whether or not it’s linked to the main page. Also, the web address is given.

13. Below the questions are listed.
To view the results of a survey:

1. Click on the survey name you would to access result information about.

2. To view the responses in a graphical (bar format), click on either Graphical Summary on the left or Show a graphical summary of responses below the general information.

3. To view all of the responses, click on All Responses on the left or Show all responses below the general information.
Appendix E – Financial Purchase Ordering System Training Manual

Login

1. Open the program by double-clicking on the icon on your desktop
2. A login screen will prompt you for your email address and password. Enter this information and click on the Sign In button.

3. A new screen will appear. This brings you to the main menu.

Purchase Orders

Submitting a Purchase Order
1. On the main page, click on the Submit a PO Request button. A new form will open.
2. The ID number corresponding to the request will be automatically generated, so this may be left blank (it will say “AutoNumber” in the box)
3. Enter the Date of the request, formatted DD/MM/YYYY
4. Enter the name of your purchase in the box named PO Title
5. Select from the drop down menu your Department
6. Select from the next drop down menu your Supplier. Note: See below on how to add a new supplier.
7. Select from the next drop down menu what Project is related to this order request. If no specific project is related to your purchase order, select the Operations category.
8. Disregard the Person category of the form. This is made for bookkeeping purposes.
9. Type in any notes or comments that are relevant to your purchase in the space provided below Submission Notes.
10. Select what Category your purchase order falls into from the drop down menu.
11. Enter the item name, description, unit cost and quantity into the section at the bottom of the form.
12. When complete, click on the box below Person and then click on the Done button below.

Printing a PO Request
1. If your order is above the maximum purchase order budget, wait for approval on the order.
2. Otherwise, you may print the purchase order.
3. Go to the main menu and click on Print a Purchase Order
4. A new form will appear which displays all of the submitted purchase orders. Select and highlight the one you would like to print by clicking on it.
5. Click on the Select button
6. Click on File and then Print… in the upper left hand corner of your screen OR click on the printer symbol

Adding a New Supplier or Editing a Supplier’s Information
1. Click on the Add button next to the Supplier drop down menu found in the PO Request Form.
2. The Add/Edit Suppliers form will open. Enter the Company Name, Phone number, Address, Town or City, Zip code, and Contact Name in the appropriate spaces.
3. Click on Done when complete.

Viewing Your Purchase Order History
1. On the main menu, click on View My PO History.
2. A new form will open which will list all of your purchase orders. They are listed in numerical order (and also by date). Also information such as the department corresponding to the order, the name of the purchase order, the supplier name, the cost centre, and that order’s total is listed. The bottom of the form displays the total amount of spending to date.
If needed, this form can be printed. Follow the directions in how to print a purchase order.

Editing User Information

Changing personal information
1. On the main menu, click on Edit my Info.
2. A new form will appear. Here you may edit your Email Address, First Name, Last Name, and Phone Number (Work).
3. Once changes are complete, click on Done.

Changing your password
1. On the main menu, click on Edit my Info.
2. On the new form, click on Change Password.
3. Enter your New Password and then type it again in the next box to confirm it.
4. Click on Change.
5. If you do not want to submit these changes, click on Cancel and you will be brought back to the main menu.

Management

**Reviewing Purchase Orders**
1. On the main menu, click on Review PO Requests
2. A new form will open. Select a department that you manage from the drop down menu.

3. A list of submitted purchase orders awaiting review will appear below. Select a purchase order to review by clicking and highlighting that item and clicking on Select.
4. The purchase order acceptance form will open. Here the following information will be displayed:
   - Title or name of the purchase order
   - Department to which the purchase order corresponds
   - Staff member who submitted the purchase order request
   - Supplier
   - Date which the purchase order request was made
   - Item name
   - Description of the item
• Unit cost
• Quantity
• Subtotal cost

5. If you approve the request, click on the Approve box to the right of the item.
6. Any notes about this review can be added in the space provided (indicated by Review Notes)
7. When complete, click on the box above Review Notes (I am finished reviewing this purchase order)
8. Click on Done

Viewing Subordinate Purchase Orders
1. On the main menu, click on View Subordinate PO’s
2. Here you can access the purchase order history for each individual in your department(s).

Printing a Subordinate Purchase Order History
1. Follow the directions found under Printing a PO Request on found in this training manual.
Appendix F – Financial System Technical Documentation

After careful research and evaluation, it was determined that Microsoft InfoPath was not an appropriate solution to fulfill the needs of RADAR and its purchase order workflow. We arrived at this conclusion for the following reasons:

- Lack of advanced querying and simple user-based permissions
- Lack of reporting mechanisms
- Lack of special case handling (programming scalability)
- Associated cost (InfoPath would require RADAR to upgrade their current Office Software)

InfoPath is used primarily for the exchange of information between employees, and not for recordkeeping or reporting purposes. While InfoPath is a feasible solution for simply submitting Purchase Orders to management, it does not provide for the storage and querying RADAR views as necessary to a successful financial management system.

In result, Microsoft Access ’97 was selected to complete the specification as extracted from David Wright and Robert Saunders. Below (Figure 1) you will find the specification in the form of a workflow diagram.

While the C term group had outlined a preliminary database schema for the system, an optimized infrastructure was created. Adjustments were made to include the aggregation of transactions and to relate them to individual purchase orders. This allowed each individual purchase order to be titled and associated with projects, cost centres, departments, and the users that submit them. This normalized data structure
provides for easy maintenance of information, allowing users to change individual relations on the fly. For example, changing a user’s phone number will change it for all of Purchase Orders associated with that user. Below (Figure 2) you will find the relational schema for the Microsoft Access database.

In terms of programming, there are 3 modules that were creating using the Access ’97 version of Visual Basic for Applications (VBA). While the specifics of the code are not discussed in this document, you may find them in the comments of the code within the application. Basically, these modules check permissions of users ensuring they are given authorization to be in various parts of the application. Additionally, the user’s identification number (assigned by the system) is often extracted using these functions.

In order to ensure flexibility and lack of reliability on proprietary systems, a custom user authentication system was created. This system generally has 3 classes of users with certain roles:

1. Users (Dept. Managers)
   a. Submit Purchase Orders
   b. Print Purchase Orders
   c. View Personal Purchase Order History
   d. Edit Personal Information

2. Purchase Managers (Senior Management)
   a. Approve Purchase Orders that exceed user limits
   b. View Subordinate Purchase Order History

3. Administrators
   a. Add/Edit Users
b. Add/Edit Projects

c. Add/Edit Departments

d. View Organization-Wide Reports

These roles are secured by forms providing checks at the form_load() event (VBA) to ensure the user has appropriate privileges to access the resource.

Currently, purchase managers only need to approve transactions if employees exceed their allocated spending limit on individual purchase orders. For example, if John Smith has his purchase order threshold set at £500 and submits an order for £600, the purchase order will require authorization from the manager assigned to the department of which the purchase order has been filed with. On the Purchase_Order_Review_close() event (VBA), a function runs to check the sum of the current PO against the user’s set PO threshold (personPOThreshold field in the UserInfo table). Functionality does exist to track annual spending limits (personSpendingLimit field in the UserInfo table) of individuals, but it has been disabled as requested. Note that spending limits are associated with individual users while managers are associated with individual departments as based on the specification provided by Robert Saunders. This is not optimal. Departments should have a budgetary allocation that is approved by an associated departmental manager, as these two fields would correspond to a single department.

**Current Reporting Mechanisms**

1. Users can view their personal, approved purchase orders by project and cost centre.
2. Managers can view departmental, approved purchase orders by project, cost centre, and by users (that have filed PO’s in their department).

3. Administrators can view organization-wide, approved purchase orders by project, cost centre, and by user.

Recommendations

- **Upgrade MS Office – Office ’97 is quite out of date.** There might be some transitional programming required to upgrade this database to a higher Access version. David has been made aware and has accepted this as a necessary evil.

- **Expansion – This framework is scaleable to handle the addition of further functionality.** Inventory tracking, etc, could certainly be handled through this system. Implementing new portions of the system, however, was unfortunately not within the scope of our project.

- **Reporting – Many reporting mechanisms are possible for this database.** Unapproved transactions, pending transactions.

- **Project Budgets – After meeting with Robert, a desirable feature was to limit spending on a given project or cost centre.** This was not specified as a core requirement, and therefore does not qualify as necessary functionality.
Appendix Figure 1: RADAR Purchase Order Workflow.
Appendix Figure 2: Project-Employee Relationship Tree
Appendix G – Preliminary Survey Questions

1. Name:

2. Title:

3. Email:

4. How would you rate your computer knowledge?
   - No computer knowledge
   - Novice
   - Intermediate
   - Proficient
   - Very proficient

5. How much time, on average, do you spend at your workstation per day?
   - 0 – 2 hours
   - 2 – 4 hours
   - 4 – 6 hours
   - 6 – 8 hours
   - more than 8 hours

6. If possible, how frequently do you think you would log in to RADAR’s network/server from an outside location?
   - Never
   - 1-2 times per week
   - 3-5 times per week
   - 6-10 times per week
   - more than 10 times per week

7. Please rate your proficiency involving the following programs:
   (0 = no experience, 1 = novice, 3 = intermediate, 5 = very proficient)
   - Microsoft Word  0 1 2 3 4 5
   - Microsoft Excel  0 1 2 3 4 5
   - Microsoft Outlook 0 1 2 3 4 5
   - Microsoft PowerPoint 0 1 2 3 4 5
   - Internet Explorer 0 1 2 3 4 5
   - Adobe Acrobat   0 1 2 3 4 5
   - Instant messenger clients (e.g. MSN, AIM, ICQ, Yahoo!) 0 1 2 3 4 5

8. Please list any other program(s) in which you are proficient:
9. How would you rate each of the following teaching methods with regards to learning new software?
   (1 = not effective, 3 = somewhat effective, 5 = very effective)
   □ Detailed manual  1   2   3   4   5
   □ Online help 1   2   3   4   5
   □ Helpdesk 1   2   3   4   5
   □ A quick reference sheet 1   2   3   4   5
   □ Group training sessions 1   2   3   4   5
   □ One-on-one sessions 1   2   3   4   5
Appendix H – Preliminary Survey Results

How would you rate your computer knowledge?:

<table>
<thead>
<tr>
<th>No computer knowledge</th>
<th>Novice</th>
<th>Intermediate</th>
<th>Proficient</th>
<th>Very Proficient</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>5</td>
<td>3</td>
<td></td>
</tr>
</tbody>
</table>

How much time, on average, do you spend at your workstation per day?:

<table>
<thead>
<tr>
<th>0-2 hours</th>
<th>2-4 hours</th>
<th>4-6 hours</th>
<th>6-8 hours</th>
<th>more than 8 hours</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>3</td>
<td>4</td>
<td>1</td>
</tr>
</tbody>
</table>

If possible, how frequently do you think you would log in to RADAR’s network/server from an outside location?

<table>
<thead>
<tr>
<th>Never</th>
<th>1-2 times per week</th>
<th>3-5 times per week</th>
<th>6-10 times per week</th>
<th>more than 10 times per week</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>

Please rate your proficiency involving the following programs:

<table>
<thead>
<tr>
<th>Program</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Microsoft Word</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td><img src="https://example.com" alt="1" /></td>
</tr>
<tr>
<td>Microsoft Excel</td>
<td><img src="https://example.com" alt="1" /></td>
<td><img src="https://example.com" alt="2" /></td>
<td><img src="https://example.com" alt="1" /></td>
<td><img src="https://example.com" alt="2" /></td>
<td><img src="https://example.com" alt="1" /></td>
</tr>
<tr>
<td>Microsoft Outlook</td>
<td><img src="https://example.com" alt="2" /></td>
<td><img src="https://example.com" alt="3" /></td>
<td><img src="https://example.com" alt="2" /></td>
<td><img src="https://example.com" alt="2" /></td>
<td><img src="https://example.com" alt="1" /></td>
</tr>
<tr>
<td>Microsoft PowerPoint</td>
<td><img src="https://example.com" alt="1" /></td>
<td><img src="https://example.com" alt="2" /></td>
<td><img src="https://example.com" alt="1" /></td>
<td><img src="https://example.com" alt="2" /></td>
<td><img src="https://example.com" alt="1" /></td>
</tr>
<tr>
<td>Internet Explorer</td>
<td><img src="https://example.com" alt="1" /></td>
<td><img src="https://example.com" alt="1" /></td>
<td><img src="https://example.com" alt="2" /></td>
<td><img src="https://example.com" alt="2" /></td>
<td><img src="https://example.com" alt="1" /></td>
</tr>
<tr>
<td>Adobe Acrobat</td>
<td><img src="https://example.com" alt="1" /></td>
<td><img src="https://example.com" alt="2" /></td>
<td><img src="https://example.com" alt="2" /></td>
<td><img src="https://example.com" alt="2" /></td>
<td><img src="https://example.com" alt="1" /></td>
</tr>
<tr>
<td>Instant Messenger</td>
<td><img src="https://example.com" alt="3" /></td>
<td><img src="https://example.com" alt="1" /></td>
<td><img src="https://example.com" alt="1" /></td>
<td><img src="https://example.com" alt="3" /></td>
<td><img src="https://example.com" alt="1" /></td>
</tr>
</tbody>
</table>

Please list any other program(s) in which you are proficient:

- telemagic
- GoLive
- Adobe Photoshop
- Microsoft Access

How would you rate each of the following teaching methods with regards to learning new software?

<table>
<thead>
<tr>
<th>Teaching Method</th>
<th>not effective</th>
<th>somewhat effective</th>
<th>very effective</th>
</tr>
</thead>
<tbody>
<tr>
<td>Detailed Manual</td>
<td><img src="https://example.com" alt="1" /></td>
<td><img src="https://example.com" alt="3" /></td>
<td><img src="https://example.com" alt="2" /></td>
</tr>
<tr>
<td>Online Help</td>
<td><img src="https://example.com" alt="1" /></td>
<td><img src="https://example.com" alt="5" /></td>
<td><img src="https://example.com" alt="1" /></td>
</tr>
<tr>
<td>Helpdesk</td>
<td><img src="https://example.com" alt="1" /></td>
<td><img src="https://example.com" alt="4" /></td>
<td><img src="https://example.com" alt="1" /></td>
</tr>
<tr>
<td>A quick reference Sheet</td>
<td><img src="https://example.com" alt="1" /></td>
<td><img src="https://example.com" alt="2" /></td>
<td><img src="https://example.com" alt="3" /></td>
</tr>
<tr>
<td>Group Training Sessions</td>
<td><img src="https://example.com" alt="4" /></td>
<td><img src="https://example.com" alt="3" /></td>
<td><img src="https://example.com" alt="1" /></td>
</tr>
<tr>
<td>One-on-one sessions</td>
<td><img src="https://example.com" alt="1" /></td>
<td><img src="https://example.com" alt="3" /></td>
<td><img src="https://example.com" alt="4" /></td>
</tr>
</tbody>
</table>
Appendix I – Post Training Survey

1. What office do you work at?
   a. City Road
   b. Croydon

2. Rate the features of SharePoint that you may find helpful:
   (1 = low, 3 = average, 5 = high)
   a. Document Management 1 2 3 4 5 N/A
   b. Calendar 1 2 3 4 5 N/A
   c. Announcements 1 2 3 4 5 N/A
   d. Links 1 2 3 4 5 N/A
   e. Member directory 1 2 3 4 5 N/A
   f. Photo album 1 2 3 4 5 N/A
   g. Survey 1 2 3 4 5 N/A
   h. Discussion board 1 2 3 4 5 N/A
   i. Help desk 1 2 3 4 5 N/A

3. How would you rate your understanding of the following features?
   (1 = do not understand, 3 = intermediate understanding, 5 = completely able to
   understand and use in daily routine)
   a. Document Management 1 2 3 4 5
   b. Calendar 1 2 3 4 5
   c. Announcements 1 2 3 4 5
   d. Links 1 2 3 4 5
   e. Member directory 1 2 3 4 5
   f. Photo album 1 2 3 4 5
   g. Survey 1 2 3 4 5
   h. Discussion board 1 2 3 4 5
   i. Help desk 1 2 3 4 5

4. How would you rate the user-friendliness of the SharePoint system?
   a. Very difficult
   b. Somewhat difficult
   c. Indifferent
   d. Easy
   e. Very easy
   f. I have not used the SharePoint System
5. How do you think the SharePoint system will increase communication amongst City Road and Croydon (Circle all that apply)?
   a. The discussion boards will help interoffice communication regarding project work or other issues
   b. The announcement section will inform both offices of important issues concerning the organisation
   c. The member directory will make it easier to reach other staff members
   d. The document management system will allow for interoffice collaboration on documents or projects
   e. Other

6. What do you think will be the best way to receive help regarding this system?
   a. Help desk discussion board
   b. Training manual
   c. Microsoft Help area
   d. Other

7. What did you find was most effective in the training session?
   a. Examples of what each feature could be used for in RADAR
   b. Technical procedure of how to use the system
   c. General overview of the features
   d. Questions and answers proposed by staff members
   e. I did not attend any of the training sessions
   f. Other

8. How many times have you logged into SharePoint since the training session?
   a. 0
   b. 1-2 times
   c. 3 – 5 times
   d. 6 – 8 times
   e. more than 9 times

9. Since SharePoint can be customisable, is there anything that you would like to see change or be added to the system to suit RADAR’s needs?
Appendix J – Post Training Survey Results

1. What office do you work at?:
   - City Road: 5
   - Croydon: 0

2. Rate the features of SharePoint that you may find helpful:

<table>
<thead>
<tr>
<th>Feature</th>
<th>Low</th>
<th>Average</th>
<th>High</th>
</tr>
</thead>
<tbody>
<tr>
<td>Document Management</td>
<td>1</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Calendar</td>
<td>2</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Announcements</td>
<td>1</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>Links</td>
<td>3</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Member Directory</td>
<td>2</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Photo Album</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Survey</td>
<td>2</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Discussion Board</td>
<td>2</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Help Desk</td>
<td>1</td>
<td>2</td>
<td>1</td>
</tr>
</tbody>
</table>

3. How would you rate your understanding of the following features?
   (1 = do not understand, 3 = intermediate understanding, 5 = completely able to understand and use in daily routine):

<table>
<thead>
<tr>
<th>Feature</th>
<th>Low</th>
<th>Average</th>
<th>High</th>
</tr>
</thead>
<tbody>
<tr>
<td>Document Management</td>
<td>1</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Calendar</td>
<td>1</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Announcements</td>
<td>1</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Links</td>
<td>1</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Member Directory</td>
<td>1</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Photo Album</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Survey</td>
<td>1</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Discussion Board</td>
<td>1</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Help Desk</td>
<td>1</td>
<td>2</td>
<td>2</td>
</tr>
</tbody>
</table>

3. How easy is the SharePoint system to use?:
   - Very difficult
   - Somewhat difficult
   - Indifferent
   - Easy: 2
   - Very easy: 2
   - I have not used the system: 1

4. How do you think the SharePoint system will increase communication amongst City Road and Croydon (Circle all that apply)?:
   - The discussion boards will help interoffice communication regarding project work or other issues: 3
The announcement section will inform both offices of important issues concerning the organisation.

The member directory will make it easier to reach other staff members.

The document management system will allow for interoffice collaboration on documents or projects.

Other

5. What do you think will be the best way to receive help regarding this system?:

- Help desk discussion board
- Training manual
- Microsoft help area
- Other

Other

6. What did you find was most effective in the training session?:

- Examples of what each feature could be used for in RADAR
- Technical procedure of how to use the system
- General overview of the features
- Questions and answers proposed by staff members
- I did not attend any of the training sessions

Other

7. How many times have you logged into SharePoint since the training session?:

- 0 times
- 1 - 2 times
- 3 - 5 times
- 6 - 8 times
- more than 9 times

8. Since SharePoint is customisable, is there anything that you would like to see change or be added to the system to suit RADAR’s needs?:

I think it is a superb system, really easy and clear to use. I think the only thing that could be added would be it being able to interface with our Outlook in terms of checking our calendars.

I don't think so at the moment. Once the system is being used by everyone on a regular basis I am sure we will think of something though!
Don't know, will need to use for a while to see what seems useful

Not yet
References


