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RADAR: Designing a Communication System

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ABSTRACT:

The Royal Association for Disability and Rehabilitation (RADAR) is a non-profit organisation which serves as a hub and political advocate for a number of disability-specific member charities. RADAR has solicited a team of students from the American university, Worcester Polytechnic Institute, to assess the organisation's collaborative communication needs and to design a solution to address these needs. The team was able to provide RADAR with a customised solution to assimilate technology into the organisation's collaborative communication scheme. It is the hope of the team that this customised technology solution will be implemented, user- tested, and continually developed.

EXECUTIVE SUMMARY

The Royal Association for Disability and Rehabilitation (RADAR), a national non-profit organisation, is an influential political advocate for social inclusion of the disabled. An umbrella organisation of 400 disability-specific charities, RADAR's mission is "to remove architectural, environmental, economic and social barriers that restrict disabled people's lives" and serves to unite each of these specific charities under one unified front. RADAR has helped achieve significant legislation for the disabled community, such as the Disability Discrimination Act of 1995 and the Disability Rights Commission Act of 1999.

Presently, employees at RADAR interact using basic means of collaborative communication, which include face to face meetings, telephone calls, and email. The assimilation of computer-based technology as a method for improving collaborative communication within the organisation has yet to occur at RADAR due to organizational changes resulting from the dissolution of the Enabling Partnership. Since disbandment of this conglomerate, RADAR has been operating as an individual charity. An effect of this has been the restructuring of the organisation's information technology department, reducing the number of IT staff, thus limiting the amount of time that can be dedicated to the research and implementation of new technology systems. However, RADAR's IT staff has recognised the importance of addressing collaborative communication needs within the organisation and has solicited a team of students from the American university, Worcester Polytechnic Institute, to assess these needs and design a solution.

Our team evaluated employee needs through the use of interviews, surveys and focus groups, and concluded that collaborative communication could be enhanced at RADAR through the use of technology in two major areas - - document management and financial control. Document management refers to the system by which information is

accessed, retrieved, and shared by an organisation's employees while financial control involves basic bookkeeping activities. The following table presents the employee needs in each area of collaborative communication that the system was designed to address.

Document Management	**Financial Control**
Central Storage of Documents	Purchase Power
Digitalisation of Documents	Budget Control
Diffusion of Documents	Order Numbers
Document Workflow	Financial Workflow

Installed on the Microsoft Small Business Server® 2003 that RADAR uses as a platform for its network operations is Microsoft Sharepoint Services®. We evaluated this software in combination with Microsoft Office® 2003 against two primary themes-- the collaborative communication needs expressed by RADAR's employees and the features of a number of technical solutions on the market-- Tokairo TokOpen®, CFM Team Flow®, and OnBase® by Hyland Software. The combined features of Sharepoint Services® and Office® withstood these comparisons, and we were able to customise the system to RADAR's unique situation.

The system selected and customised by the team is a best-fit solution to integrate technology into RADAR's collaborative communication scheme. The system we designed and customised uses Microsoft Sharepoint Services® as a main user interface. This interface provides RADAR with a central location for document storage, the ability to digitally upload documents to the shared area, the ability to diffuse documents among employees, and a document workflow among the hierarchy within the organisation. We were also able to customise a financial control system which we created using the Microsoft Office® 2003 programs Microsoft Access® and Microsoft® Infopath® integrated into Sharepoint®.

Using these programs, we designed and customised a database through which users can input purchase information using forms created via Infopath®. Users or managers can then query the database to produce individual purchase order histories or create reports to display total spending of a whole department. This system provides RADAR users with purchase power, the ability to control spending and budgets, the generation of individual order numbers per purchase, and a financial workflow among users and managers. The combination of these systems addresses the needs expressed by RADAR's employees and successfully assimilates computer-based technology into RADAR's collaborative communication.

The customized system that we designed was demonstrated to many of RADAR's employees as a method of launching the system. The launch also served to familiarise many of RADAR's employees with the features of the system and helped to gain support for a full-scale implementation. While the system we customised fulfilled RADAR's employee needs, we recommend that RADAR take steps to upgrade its current technology, implement and evaluate the customized system, and further develop the system.

	Recommendations
Technology	Upgrade to 2003 version of Microsoft Office Perform Bandwidth Evaluation Address Security Issues and User Permissions
Implementation	Implement Customised System Perform Usability Testing Evaluate User Accessibility Evaluate Technology Acceptance
Development	Integrate Shared Calendar Space Design Inventory Control System Integrate Project Manager

It is our hope that the solution we customised will serve as a basis for future technology development within RADAR and become a routinely used tool for communication within the organisation.

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INTRODUCTION

The Royal Association for Disability and Rehabilitation (RADAR), a national non-profit organisation, is an influential political advocate for social inclusion of the disabled. An umbrella organisation of 400 disability-specific charities, RADAR's mission is "to remove architectural, environmental, economic and social barriers that restrict disabled people's lives" and serves to unite each of these specific charities under one unified front. RADAR has helped achieve significant legislation for the disabled community, such as the Disability Discrimination Act of 1995 and the Disability Rights Commission Act of 1999.

To carry out RADAR's mission, its staff must be able to interact easily and take part in collaborative communication to share knowledge and information. Presently, employees of RADAR interact using basic means of collaborative communication, which include face to face meetings, telephone calls, and email. The assimilation of computer-based technology as a method for improving collaborative communication within the organisation has yet to occur at RADAR due to organizational changes resulting from the dissolution of the Enabling Partnership. As a member of the Enabling Partnership, RADAR shared basic business necessities such as fundraising, communication, human and financial resources, and information technology with six other charities in the United Kingdom. Since the disbandment of this conglomerate, RADAR has been operating as an individual charity. The restructuring of the organisation's information technology department has been an effect of this, reducing the number of IT staff, and thus limiting the amount of time that can be dedicated to the research and implementation of new technology systems. However, RADAR's IT staff has recognised the importance of addressing collaborative communication needs within the organisation and has solicited a team of students from the American university, Worcester Polytechnic Institute, to assess these needs and design a solution.

Our team evaluated employee needs through the use of interviews, surveys, and focus groups and we concluded that collaborative communication could be enhanced at RADAR through the use of technology in two major areas - - document management and financial control. Document management refers to the system by which information is accessed, retrieved, and shared by an organisation's employees. Employee defined needs in this area included central storage of documents, digitalisation of documents, diffusion of documents, and document workflow. Financial control involves basic bookkeeping activities such as inventory control, purchase power, budget control, order numbers, and financial workflow. The solution we customised addressed each of these employee-defined needs utilising software RADAR already owned.

Installed on the Microsoft Small Business Server® 2003 that RADAR uses as a platform for its network operations is Microsoft Sharepoint Services®. We evaluated this software in combination with Microsoft Office® 2003 against two primary themes-- the collaborative communication needs expressed by RADAR's employees and the features of a number of technical solutions on the market-- Tokairo TokOpen®, CFM Team Flow®, and OnBase® by Hyland Software. The combined features of Sharepoint Services® and Office® withstood these comparisons and we were able to customise the system to RADAR's unique situation.

The customised system addressed RADAR's collaborative communication requirements in both the issues of document management and financial control. The system spoke to RADAR's document management needs through the creation of a central site in which to store, organise, and access documents. This system also provided the ability to convert paper documents into digital form and allowed these documents to be routed into workflows. RADAR's financial regulation needs were addressed through the creation of a series of forms for purchasing management that could be routed to financial supervisors

and then summarised to view budgets and spending histories. By customising the system we have created the groundwork upon which subsequent teams can implement the system among RADAR's employees. We believe that the customised system will serve as a basis for future revisions and afford RADAR with an updated technical solution for its collaborative communication.

CURRENT SITUATION AT RADAR

RADAR is an influential advocate for societal change on behalf of the disabled community, comprised of a diverse network of employees, trustees, and members. This section introduces RADAR as an organisation while addressing the collaborative communication issues of document management and financial regulation as they apply to the current situation at RADAR and to the non-profit sector in general. We examine the topic of implementing new technologies by considering employee motivation and employee resistance, with special focus given to technology implementation among persons with disabilities.

RADAR

Created in 1977, the Royal Association for Disability and Rehabilitation (RADAR) is a national charity organisation that provides assistance to the disabled community through numerous publications as well as nationally directed programs that assist disabled people in many facets of daily life. RADAR defines itself as an umbrella organisation and serves as an advocate for 400 individual organisations that comprise its membership. Through representation of these disability-specific organisations, the disabled community has the ability to act as a united front in the British political forum. Also at the heart of RADAR's mission is the creation of an advisory disability body that promotes social inclusion, disability services, legislation, and regulation. Of equal importance to the organisation is the philosophy that the disabled are at the forefront of their own cause (Royal Association of Disability and Rehabilitation, 2004).

For the past decade RADAR has been a leader in the fight for improving the lives of disabled people. Largely as a result of its political efforts, the Disability Discrimination Act (DDA) of 1995 was passed along with its sister act of 1999, the Disability Rights

Commission Act (DRC). Due to these acts, legal statutes were placed on access for the disabled to services and employment and a Commission was created to reinforce these rights, eliminate inequality, and promote parity of opportunity (Seven Year Itch, 2002, 6). Although these pieces of legislation provided a solid foundation for the rights of the disabled community, issues such as supplemental legislation, environmental changes, and the attitudes of individuals toward the disabled are at the vanguard of RADAR's current goals (Seven Year Itch, 2002, 4). At present, RADAR hopes to achieve this auxiliary legislation through the disability bill which is currently in its drafting stages (RADAR, 2004).

A body of Trustees, elected by the organisation's membership, dictates the organisational pursuits and direction of RADAR. "In RADAR's constitution it states that at least 51 percent of the Trustees must be disabled people (i.e. in the majority), although for many years the actual figure has been well in excess of that (currently 80 percent are)" (RADAR, 2004). This clause relates to the mission of the organisation and ensures that disabled people control RADAR's efforts. RADAR's Trustees are supported by a network of dedicated employees that control the day to day functioning of the organisation. "At present, 75 percent of [the] RADAR team are disabled people" (RADAR, 2004), again supporting the notion that the disabled are at the heart of the work at RADAR. This small staff of approximately 30 employees is managed by RADAR's director and is located within two greater London sites, Croydon and Central London.

RADAR has recently experienced organisational changes arising from the dissolution of the Enabling Partnership. As a member of the Enabling Partnership RADAR shared basic business necessities such as fundraising, communication, human and financial resources, and information technology in an economy of scale practice with the six other charities involved. The dissolution of this Partnership has caused restructuring within RADAR,

specifically with its use of information technology. The results include a reduction of the number of IT personnel and shift in their field of expertise as well as a change in the organisation's workflow structure technical server configuration.

The complexity of the current technological situation at RADAR is further compounded due to the fact that RADAR's employees are divided between two locales in greater London, the City Road office in Central London and the Sales office in Croydon. Presently, collaborative communication between these two sites is inadequate, especially in document management. Additionally, the City Road Office experiences financial control issues. These problems are not as prominent at the Croydon office because of fewer departments and the use of the complex Sales software Telemagic®.

COLLABORATIVE COMMUNICATION

The idea of collaborative communication is central to understanding RADAR's communication issues. We have created a working definition of collaborative communication by merging the two ideas-- collaboration and communication-- as they apply in an organisational setting. Inter-organisational collaboration is a "process in which organisations exchange information, alter activities, share resources and enhance each others' capacity for mutual benefit and a common purpose by sharing risks, responsibilities and rewards" (Nøkkentved, "Collaborative Planning in e-Supply Networks", www.bbriefings.com). Similarly, Boone offers an explanation of communication within an organisation. He suggests that successful communication is able to be achieved if one is "able to connect, inform, and engage between, with and among the employees of an organisation" (2000). Combining these two concepts establishes a working definition of collaborative communication as the mutual interaction between employees. This definition is contingent on two principles, the ability to unite and engage employees as well as the

ability to share knowledge and information among them. If one of these ideas is absent in an organisation, collaborative communication can not be fully achieved and successfully integrating the different facets of an organisation will be jeopardised.

DOCUMENT MANAGEMENT

As defined by Sutton in Document Management for the Enterprise, "The goal of document management is to share critical corporate information resources by making them secure, accessible, retrievable, and interchangeable. Documents must be shareable regardless of the authoring or publishing medium—paper or electronic" (1996). Document management is central to the concept of collaborative communication. It enables members of an organisation to mutually interact on the creation and revision of a document containing any type of organisational information. By then making these documents available to any number of employees, information and knowledge are more widely spread throughout an organisation.

RADAR's current document management system makes it difficult for documents to be easily shared, accessed, retrieved and interchanged among RADAR's employees. This has been the result of an outdated document management system, the different formats in which documents are created (paper and electronic) and the accumulation of disorder over time. This outmoded system has created a number of concrete needs within RADAR as they are defined by the organisation's employees:

- *Central storage of documents*: Documents need to be contained within a central organised location to allow for easy access among RADAR's employees.
- *Digitalisation of documents*: Paper hardcopies of documents need to be converted into digital format to prevent redundancy and enable improved storage and searching.

- *Diffusion of documents*: Documents within RADAR need to be shared among any number of employees for collaboration and revision.
- *Document workflow*: Documents need to be shared among RADAR's hierarchy of employees, receiving validation as they move up the chain of command.

These needs must be addressed before RADAR can more effectively manage document creation, storage, and flow within the organisation and thus enable collaborative communication.

FINANCIAL CONTROL

Financial regulation is a conglomerate of the fields of financial planning, financial analysis, financial reporting, as well as basic bookkeeping activities such as financial transaction tracking, budget tracking, and account categorisation (McNamara, 1999). While a complete overhaul of RADAR's financial regulation system was beyond the scope of this project, the creation of a financial control system for basic bookkeeping activities can be addressed.

At RADAR there is currently no financial regulation system for the organisation's many bookkeeping functions. As a result, no relationship exists between employee spending and available budget, orders and invoices cannot be married once purchases are made, and inventory stocks are unknown. These issues create collaborative communication problems by limiting the interaction of employees with managers and result in a number of needs a financial control system must address:

- *Purchase power*: Employees making purchases within RADAR need to be able to charge to specific cost centres and have knowledge of available budget.
- *Budget control*: Budgets within RADAR need to be kept up to date and revised when purchases are made.

- *Order numbers*: A specific order number needs to be created for each purchase made to allow purchases to be married with invoices.
- *Financial workflow*: The financial director needs to be notified when orders are made and have the ability to veto or accept the order.

These financial needs must be met before RADAR employees can be united and successfully share financial information and responsibilities.

TECHNOLOGY AND NON-PROFITS

Because organisational changes have prevented the implementation of technology at RADAR, the modes of new digital communication that are in use by the organisation's employees are outdated and ineffective. The under-utilisation of technology in non-profit organisations like RADAR is common because "the majority of voluntary sector leaders do not have the skills they need to plan and budget for strategic Internet projects. In addition, most organisations do not have the in-house technical skills necessary to implement these projects" (Surman, 2001, 3). This has certainly been the case at RADAR, as the diminished numbers of the organisation's IT staff have been unable to implement technology in the areas of document management and financial regulation. However, as Burt and Taylor (1999) contend, information flow in a non-profit is no less integral to the organisation's success as in a for-profit company:

> Across the diversity of organisations which characterise the voluntary sector…information is continually being gathered, processed, and disseminated. As the sector engages with the information society – its complex networks, its customer focus, its emphasis on service quality, and its increasingly competitive nature – the capability of voluntary organisations, not just to move information around existing

channels, but actively to exploit information flows and to innovate around these, becomes crucial (Burt and Taylor, 1999).

Furthermore, a well-organised financial control system to manage budgets and spending is pivotal because "resources [of the non-profit] will be used to meet public needs rather than for personal gain" (Frumkin and Keating, 2001, 5). Merging a technological solution into these fields is expected to result in a positive change in RADAR's collaborative communication.

RADAR currently operates using a Microsoft Small Business Server® 2003 and basic Microsoft Office® software. Although this platform has been adequate for RADAR's daily business functioning, the software associated with the server has several features that have not been fully utilised. The implementation of a technological solution to fulfil RADAR's communication wishes must address many technological needs, including

- *Remote access*: RADAR's employees need to be able to remotely access server information offsite.
- *User accessibility controls*: There is a need to limit accessibility to select users, and different permission settings must be available for each employee.

Both of these needs must be considered when applying technology to RADAR's current collaborative communication situation.

IMPLEMENTING TECHNOLOGY

Implementing the features of the server or implementing a new technology must consider not only the technical requirements of RADAR as an organisation but also satisfy the needs of RADAR's employees as users of the technology and also as disabled individuals. As discussed by Subhashish Dasgupta in Chapter 1 of *Managing Internet and Intranet Technologies in Organizations: Challenges and Opportunities* (2001), there exists

six stages of information technology implementation which arise from a technological application of the organisational diffusion process that has been studied since the early 1980's. Dasgupta goes on to define each of these stages:

- Initiation: the active or passive scanning of organizational problems and opportunities, together with IT solutions.
- Adoption: rational and political negotiations to gain organizational backing for the implementation. During the adaptation stage organizational procedures may be altered and developed due to the information technology, and organizational actors are trained both in terms of the technology and new procedures.
- Acceptance stage: the technology is employed in organizational work and actors are encouraged to commit to using the technology.
- Routinization stage: the information technology becomes a normal part of the organizational activity.
- Infusion stage: increased organizational effectiveness results from use of the information technology.

Dasgupta's outline offers a method for understanding how technology implementation will proceed at RADAR. We have paid specific attention to the technology acceptance stage, however, due to the fact that the success of any implementation process is largely determined by its acceptance among an organisation's employees. Two issues, employee resistance and motivation, are important to consider in successful technology acceptance. A third issue, technology accessibility, is important to consider in interfacing technology among persons with disabilities.

EMPLOYEE RESISTANCE

As Jiang and his colleagues describe in "User resistance and strategies for promoting acceptance across system types", there are three main reasons that prompt employee resistance of new technology implementation; people oriented; system-oriented; and interaction theories (2000, 26). People oriented resistance refers to internal factors inherent to a user or a group that affect how technology is viewed or used and include categories such as age, gender, background, value and belief systems (Jiang et. al, 2000, 26). Conversely, system-oriented resistance originates as a result of external factors that are inherent to the system including system performance and system requirements (Jiang et. al, 2000). Interaction theories define the modes in which employees interact with a new technology. Resistance to this interaction from employees is frequently the result of unfamiliarity or complexity.

EMPLOYEE MOTIVATION

A second aspect of Dasgupta's (2001) fourth stage of employee acceptance is motivation. Employee motivation is concurrent with the effects of employee resistance and is defined by Bruce and Pepitone (1998) as "the drives that move us to do what we do" (p. 1). Although organisational motivation is most effective when it stems from a position of power, a manager cannot "motivate other people [they can] only influence what they are motivated to do" (Bruce and Pepitone, 1998, 1). At RADAR, there has been a strong motivation by the project's sponsors and employees to successfully implement new technology.

The foreseen benefits of technology implementation can also be a motivating factor among employees. Technology has the ability to change lives. However, this can only occur if people are willing. These changes and benefits are evident when

implementation occurs in a largely disabled workforce. Technology can serve as an equalising force by helping to value the merit of an individual's ideas rather than the methods they have in communicating them. It is this promise that can effectively motivate disabled employees to use implemented technology.

TECHNOLOGY ACCESSIBILITY

The accessibility of technology for those with disabilities is lagging behind the rate at which new technology reaches the consumer market. As a result, although "most people with difficulties and impairments use computers today... individuals with mild or severe difficulties/impairments are less likely to use computers than are individuals with no difficulties/impairments" (Microsoft, 2004). This discrepancy creates a 'digital divide' between computer users with no disabilities and those with mild or severe disabilities which can hinder successful technology implementation.

A 2003 Microsoft Corporation commissioned study performed by Forrester Research, Inc. measured the impact disability and impairments have on the use of computers in the workforce. The findings of the study concluded that;

- 85% of working-age adults with no disabilities use computers.
- 80% of working-age adults with mild disabilities use computers.
- 63% of working-age adults with severe disabilities use computers.

The significance of these results suggests that steps must be taken to increase the accessibility of computer technology to the disabled sector of the workforce and suggests that these precautions must be taken into account when implementing new forms of technology.

There are many options available to those with disabilities to make technology more accessible and easier to adapt to. A number of these technologies exist as options

and utilities that are built into most current operating systems and include features such as display options, mouse options, keyboard options, and sound options. These features can alter options such as screen magnification, screen readers and on-screen keyboards which can be extremely useful for those with disabilities. Assistive technology products can also be extremely helpful in accessing technology for those with disabilities. "Assistive technology products are specially designed hardware and software products that are chosen specifically to accommodate individuals with visual, dexterity, hearing, speech, and cognitive difficulties and impairment" (Microsoft, 2004). These products include devices such as Braille embossers and refreshable Braille displays as well as voice recognition softwares and alternative keyboards (Microsoft, 2004).

Although built in and assistive technologies are available to make technology more accessible, both are under-utilised in the disabled community, especially for use in the workforce (Microsoft, 2004). The availability of specially designed products is a significant aspect of the accessibility of technology for the disabled and must be considered while implementing new technology. At RADAR, although only a small number of employees experience problems with collaborative communication as a result of their disabilities, the presence of these accessibility issues still exists. As a result, the implementation of new technology must successfully interface with existing accessibility technologies and afford all of RADAR's employees the ability to collaboratively communicate more effectively.

CONCLUSION: CURRENT STATE

Employee resistance and motivation, in addition to technology accessibility, are influential factors in technology implementation. These ideas play important roles in how employees view systems of collaborative communication and affect the degree of

motivation with which employees approach newly implemented technology. Without high levels of employee support, the implementation of any business practice, technological or otherwise will be unsuccessful. By understanding the organisational needs in technology and in the collaborative communication subsets of document management and financial regulation as defined by RADAR's employees, we have been able to explore the possible benefits a newly implemented technology can have on the organisation. The combination of these employee-defined opinions with knowledge of differences that are common in implementations among those with disabilities has created a strong foundation for the team to approach providing a solution to RADAR's collaborative communication and technology issues.

ESTABLISHING EMPLOYEE NEEDS

A number of factors were involved in the design of the customised system we created to help bring about more effective collaborative communication and address the technology needs of RADAR in the areas of document management and financial control. We followed a series of steps to select the best fit technology for RADAR. First, we assessed of the technological needs of RADAR and familiarised ourselves with the current technological situation within the organisation. Next, we evaluated the technology currently available at RADAR against technologies available on the market to ensure that these needs were addressed. Finally, we concluded with a customisation of the technology that would provide a best fit solution to RADAR's requirements. In this first section, we present our findings of the needs of employees at RADAR based on interviewing, surveying, and focus group methodologies. Then in the following sections, we establish the line of reasoning we used to select the most appropriate technology solution and discuss the steps that we took in customising this selected solution to best address the needs expressed by RADAR's employees.

To gain better insight into the states of document management and financial control within the organisation, we gathered the opinions of RADAR's employees regarding the current state of collaborative communication by means of interview, survey, and focus group. The opinions that were expressed allowed the team to select and customise a technology solution specific to the unique requirements of RADAR's employees. Additionally, employee opinions provided the team with important information regarding how the system would be used by RADAR's employees and how it would function within the organisation.

The methods we used corroborated the findings of the previous stage allowing us to probe deeper and become more familiar with the problem after each successive step.

Interviews helped to limit the objectives of the project; surveys helped to limit the objectives of the technology to be implemented; and focus groups helped to limit the objectives of the system's features. Through combination of the information gathered with each of these successive methods, we were able to customise a software solution that would best address the concerns of RADAR's staff.

GENERATING PRIMARY OBJECTIVES THROUGH INTERVIEWS

We conducted interviews with each of the project's two liaisons, Mr. David Wright, Head of ICT, and Mr. Robert Saunders, Head of Administration. (For interview questions see Appendix A.) These interviews provided us with information on collaborative communication at RADAR from different vantage points within the organisation and on the general features of the customised technology solution. Interviews also allowed us to formulate more knowledgeable questions for the survey that would later be distributed to all of RADAR's employees. The results generated from interviewing Mr. Wright and Mr. Saunders were instrumental in directing the focus and features of the customized solution.

Highlighted Results from Interviews

Mr. Wright's Interview	**Mr. Saunders' Interview**
Organisational changes since dissolution of Enabling Partnership Current technical situation at RADAR o Current technical configuration o Level of technical expertise of RADAR's employees Document management concerns	Implementation of technology Financial control system

The main points highlighted through interviews with our liaisons enabled the definition of the two main objectives that the solution would be designed to address- - document management and financial control.

VERIFYING EMPLOYEE NEEDS THOUGH SURVEYS

Although Mr. Wright's and Mr. Saunders' interviews provided us with useful information about the project's main objectives, it was important to us to gather the opinions of other RADAR employees who would be using the solution once implemented. These opinions also helped to verify the general attitudes of the staff towards implementation and the level of support the implemented technology would receive. Employee attitudes were gathered through the use of surveys. (See Appendix B for questions.) Questions for these surveys were formulated based upon the objectives established as a result of the preliminary interviews, and the surveys were administered electronically to the RADAR staffs at Central London and Croydon.

Highlighted Results from Surveys

Summarized Question	Majority Result
Would improved communication with others potentially make your [the employee's] day easier and more efficient?	Over 70% responded "Definitely, yes"
Do you have problems searching for and finding documents and data?	Over 50% responded in the affirmative
How many of your documents are stored online?	All replied that at least some of their documents were stored online

The responses of RADAR's employees to our surveys questions allowed us to conclude that collaborative communication is seen as a problem among RADAR's employees. The surveys also helped to ascertain and refine important project objectives that were not highlighted

in the interviews. One example of this was remote access. Remote access was a point expressed but not emphasized in the liaison interviews. However, half of RADAR's employees responded that they would utilize this feature at least 2-5 times per week. Using the results of the survey, the team was able to produce questions for the focus groups that were indicative of employee opinions and that would prompt extensive discussion.

DETERMING SYSTEM REQUIREMENTS THROUGH FOCUS GROUPS

We conducted two focus groups, one at each of the organisation's sites, to help better establish the specific features of the technology solution that we planned to propose based on employee opinions on the current systems at use at RADAR. Focus group questions were created and participants were selected via the results of our employee surveys and it was our aim in these discussions to better understand the opinions of those who would benefit most from the new system. Although most of the general opinions were similar among employees at each of the sites, there were some differences.

Highlighted Results from Focus Groups

Unique Opinions: City Road	**Shared Opinions**	**Unique Opinions: Croydon**
Use of a financial control system	Prolific use of e-mail as primary method of collaborative communication ○ Employee Frustrations ○ Used too frequently Shared workspace for document management ○ Multiple revisions ○ Limit accessibility via permissions Accessibility of technology to those with disabilities	Inability to use a financial control system (overlap with currently used software)

Many of the opinions expressed through focus groups corroborated the opinions expressed in interviews and in surveys. Common to both focus groups, however, were opinions expressed regarding the accessibility of the technology to those with disabilities. These opinions were consistently considered while our solution was being evaluated and customized.

CONCLUSION: ESTABLISHING EMPLOYEE NEEDS

Through the three methodologies that were utilized, we were able to gather blanket organisational opinions in addition to individual opinions about the current state of RADAR's collaborative communication. Interviews were important for generating the main objectives of the project. Surveys helped to definitively establish the presence of a communication problem within RADAR and helped to establish a broader support base among all of RADAR's employees. The use of focus groups provided us with more details as to the nature of RADAR's communication problems and helped to gather the specific opinions and feedback of a select group of RADAR's employees. With this information the team was able to begin evaluating technical solutions that would meet the needs of RADAR's employees as they were defined by the methodologies.

EVALUATING TECHNOLOGY SOLUTION

Based on the opinions of RADAR's employees, we were able to characterise the current state of collaborative communication within the organisation and come to the conclusion that new technology would help to make this communication more effective. The selection of the proper technology to best achieve this improvement was of great importance to us, as it would define the amount of impact our project would have on RADAR's collaborative communication. To initiate the software selection process, we began by evaluating RADAR's current inventory of software. We then evaluated the compatibility and performance of these softwares with on-the-market technologies. This comparison was made against categories of employee opinions, features, and cost. From this assessment, we were able to rationalize our selection for a best-fit solution for RADAR's collaborative communication needs. This section follows the line of reasoning of our solution evaluation and the selection of the best possible solution.

DETERMINING RADAR'S SOFTWARE INVENTORY

RADAR uses a Microsoft Small Business Server as a platform for its network operations. Installed on this server is the Microsoft software Sharepoint Services®. Sharepoint® is commercial software that acts as a platform allowing users to create web sites for information storage and document management. These preconfigured, web-based shared areas can be easily modified to employee specifications and use interfaces similar to those of an internet website, making it familiar to most users. Documents can be easily uploaded, organised and maintained by individual users and permissions can be granted to allow for other employees to access these pieces of information; thereby allowing any document to be shared within the network.

A slightly outdated version of Microsoft Office® is used at RADAR for its basic features. We chose to customise the system, however, using the 2003 version of this software due the presence of the components Microsoft InfoPath® and Microsoft Access®. These programs are used less commonly then the features Microsoft Word or Microsoft Excel®. However, they can easily be integrated with Sharepoint® and customised to create a financial control system. Financial tracking forms and reports can be easily created within InfoPath and supported by databases created in Access®.

Although both of these softwares, Sharepoint® and Office®, are currently installed in systems at RADAR, their features are not being utilised to the fullest extent. With some configuring and customization, these programs can be combined into a system designed to address RADAR's needs in the collaborative communication areas of document management and financial control.

COMPARING PROPRIETARY SOLUTIONS

A technology solution that combined the Sharepoint® and Office® softwares, for which RADAR already owns licenses, would be a cost effective solution to implement technology into RADAR's collaborative communication. We wanted to ensure, however, that this was the best solution available to RADAR. Therefore, we compared this solution against a trio of other solutions to ensure that the Sharepoint®-Office® system matched most of the features of the on-the-market softwares allowing it to address the largest possible number of RADAR's needs.

There are two software types which we could theoretically implement at RADAR, proprietary and open-source. Proprietary software is commercial software that "refers to code that is privately owned and controlled" (Weissman, 2003, 2) and as a result "is distributed under commercial license agreements, usually for a fee" (Murrain, 2004, 2).

Open source software, conversely, is "the process of systematically harnessing open development and decentralised peer review to lower costs and improve software quality" (Murrain, 2004, 3). Although open source software can be acquired by an organisation for relatively low cost, the open nature of the source code requires a dedicated and highly skilled technical staff to customise, implement, and support it. Due to the technical limitations of RADAR's IT staff and the proprietary-based configuration which RADAR currently operates on, an open source solution was not an option. Therefore, we evaluated our Sharepoint®-Office® combined software against a number of proprietary softwares to ensure that the features of this customised system would meet market standards.

We evaluated a trio of different proprietary software solutions against the Sharepoint®- Office® solution specifically; Tokairo TokOpen®, CFM Team Flow®, and OnBase® by Hyland Software. We made a comparison of each of their features against the employee needs we gathered from our use of interviews, surveys, and focus groups. Because the Sharepoint-Office solution could be designed and customised in-house for essentially no cost, feature evaluation was the most important aspect of the comparison. The following table compares each solution in terms of the collaborative needs of RADAR's employees and approximates the expected cost of each solution.

		SharePoint/ Microsoft Office 2003	TokOpen	Team Flow	On Base
Document Management	Central Storage of Documents	Y	Y	N	Y
	Digitalisation of Documents	N	Y	N	Y
	Diffusion of Documents	Y	Y	N	Y
	Document Workflow	Y	Y	Y	Y
Financial Control	Inventory Control	N	N	N	N
	Purchase Power	Y	Y	Y	Y
	Budget Control	Y	Y	Y	Y
	Order Numbers	Y	Y	Y	Y
	Financial Workflow	Y	Y	Y	Y
Technology	Remote Access	Y	Y	Y	Y
	User Accessibility Controls	Y	Y	Y	Y
	Cost	~£ 0	£ 15,000	£ 2500	£ 20,000

Figure 1: Software solution evaluation

Figure 1 indicates that all the solutions we evaluated had similar features. As a result, through this comparison we ensured that the Sharepoint®-Office® combination matched the software technology available on the market. Also displayed in Figure 1 is the estimated cost of each solution. The three market softwares are very costly when compared to the Sharepoint®-Office® combination that can designed and customised for relatively no cost. As a result of this comparison, we concluded that the combination of Microsoft Sharepoint® and Microsoft Office® was the best possible solution to address RADAR's collaborative communication issues.

CONCLUSION: EVALUATING TECHNOLOGY SOLUTION

The combination of Microsoft Sharepoint Services® and Microsoft Office® 2003 was selected as the best fit solution to address RADAR's communication issues. After comparison with three other softwares currently on the market, the Sharepoint®- Office®

combination not only matched the features of these softwares, it can be customised at relatively no cost to RADAR. The customisation of the software also has the ability to ensure that all of the needs of RADAR's employees are addressed and that extraneous features are not included.

CONFIGURING AND CUSTOMISING SOLUTION

Following the selection of a best-fit solution, we designed a customised solution that we hope will later be implemented throughout the organisation: Microsoft Sharepoint Services® integrated with the Microsoft Office® features (Microsoft Infopath® and Microsoft Access® systems). The creation of the designed system allowed us to demonstrate to RADAR's employees the features of the system and show how its implementation would be able to improve the organisation's collaborative communication scheme. We customised and configured this solution to address the needs of RADAR. Microsoft Sharepoint Services® required a small amount of reorganisation of the default settings, such as creating additional and appropriate document folders. Microsoft Access® and Infopath®, however, were largely customised within our system and utilised to create new custom forms and a database. This section serves to introduce each aspect of our solution customisation and highlights specifically how these features can be used to address RADAR's needs.

The integration of Sharepoint® and Office® 2003 created a customised solution to address RADAR's document management and financial control issues. This figure shows a map of how we combined these two packages into a unified system.

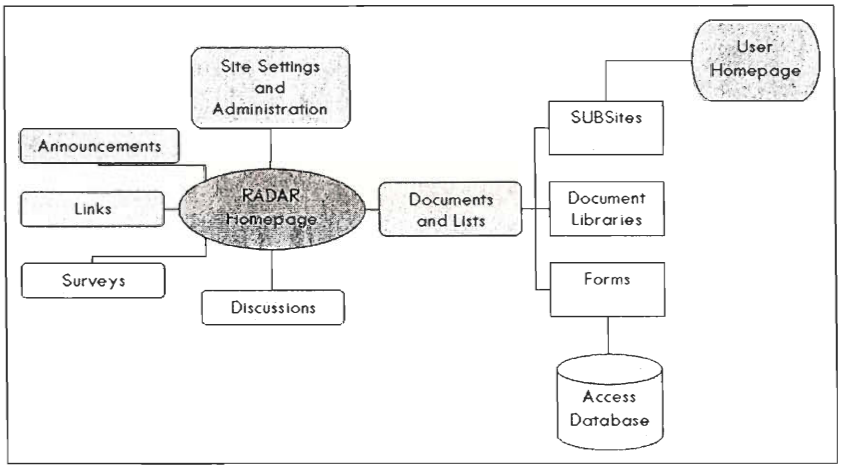

Figure 2: Map of Customised System

The RADAR homepage we created in Sharepoint® creates a central interface through which users can access the rest of the customised system and provides a location for users to communicate with each other en masse via discussions and announcements. Through this page users can also access surveys and links uploaded to the system by other users. Additionally, users can connect to department- and project-specific sites as well as personal subsites, assuming they are given permission to do so through site administration. The most important aspects of this central page are links to document libraries and lists. From these, users can access all documents that are centrally stored on the system. Furthermore, users can retrieve forms which link to the Access® database and provide RADAR with a means of financial regulation. These InfoPath® forms have been published to the Sharepoint® interface to make them easily accessible to users. The aggregate system will allow RADAR's employees to communicate in a more effective manner and will address many of the needs voiced by RADAR's employees.

CUSTOMISING MICROSOFT SHAREPOINT SERVICES®: DOCUMENT MANAGEMENT

Microsoft Sharepoint Services® provides the main framework for the customised system and enables users to access its features through a simple, straight-forward interface which is similar to a web browser. Sharepoint® also provides any RADAR user with the ability to access any feature of the system from one centralised location. The homepage, which is shown in the figure on the next page, enables this accessibility.

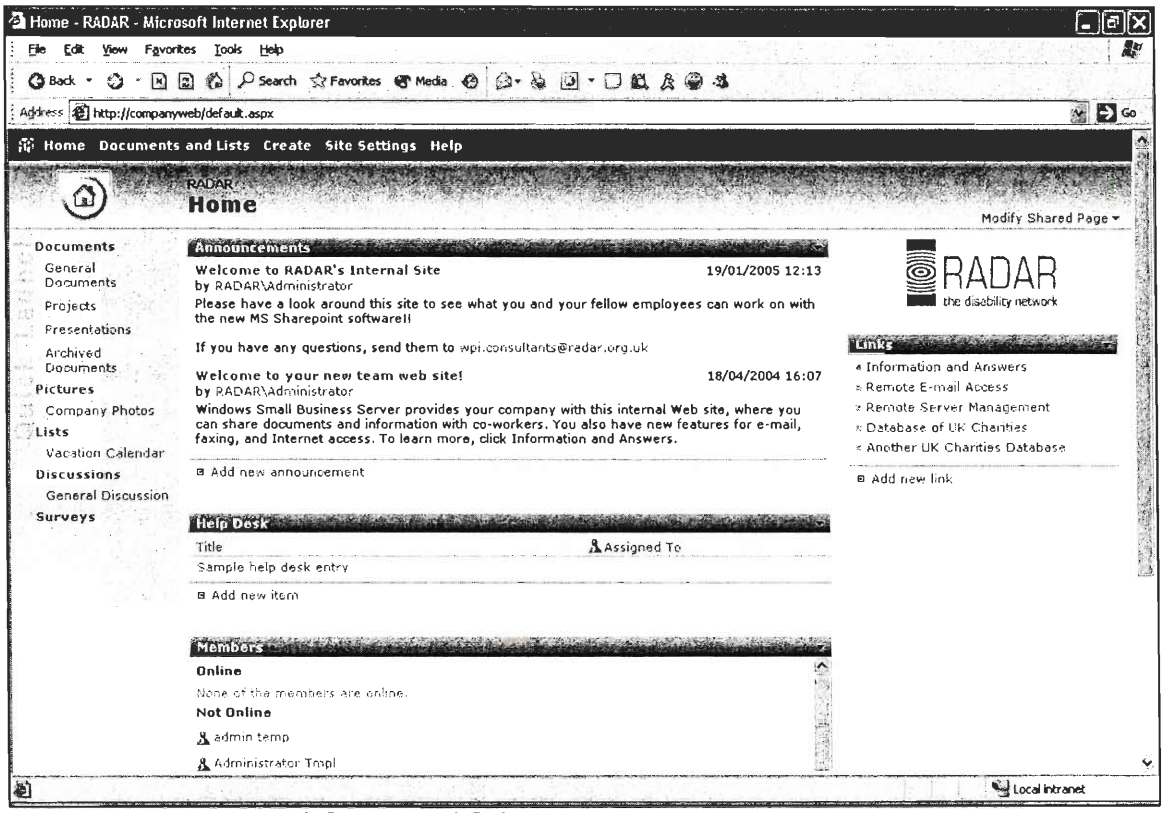

Figure 2: Homepage of Customised Solution

The homepage demonstrates the simplicity of the solution we have customised. From this page RADAR's employees have the ability to post organisation wide announcements and contact other members within the network. The Links section on the right of the page allows users to access website links such as homepages of frequently used sites or the homepages of RADAR's member organisations. The Quick Launch section on the left hand margin allows users to access customised folders such as document folders and libraries, lists, or sub-sites. Clicking on each of these links sends the users to other pages within the site. Therefore, the homepage acts as a central interface which provides access to the rest of the system.

A quintessential feature of the homepage is the document link. By clicking on this link, users can view document folders and libraries which have been uploaded to the system by other users, as shown in the figure below.

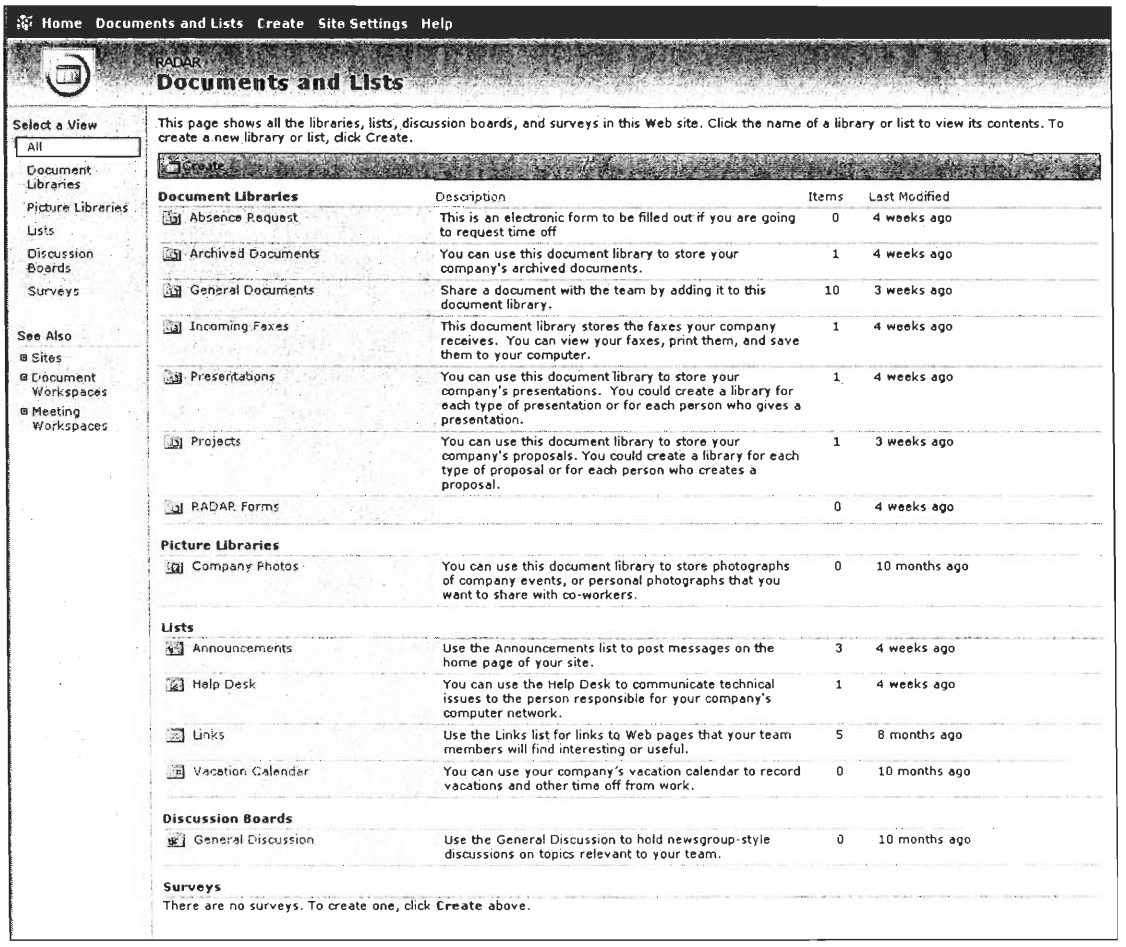

Figure 3: Documents and Lists page accessed from homepage

This page provides RADAR with a means of creating a central location for all documents belonging to the organisation and allows any user to search or access these documents. Any type of document can be digitalised from paper copy and then uploaded to the system, stored and then accessed from this site including word processed documents, publications, or forms. Folder titles and group names can be customised by the administrator. Clicking on a document folder links the user to a specific document library. The following figure is an example of a library that can be accessed from one of the document library folders contained on the central folder page.

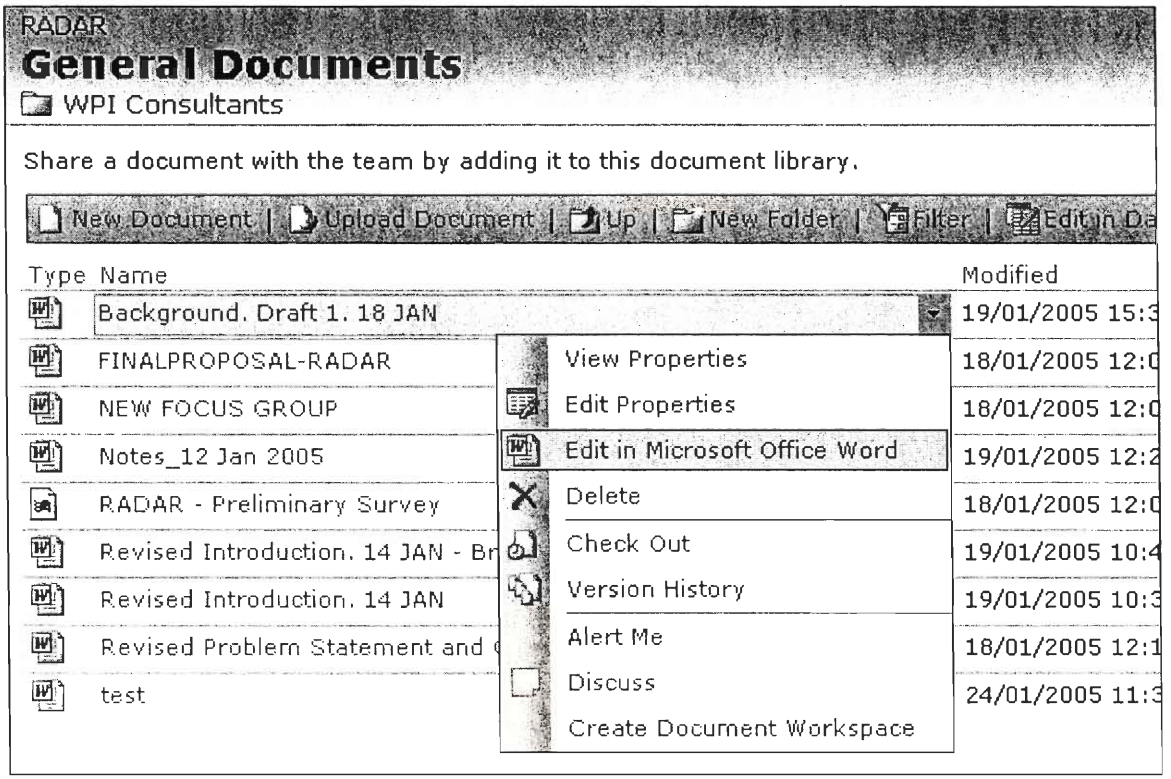

Figure 4: Document Library accessed from centrally stored document folders

This figure shows how the user can specifically view and access each of the documents contained within the centrally located document folder. From this page users can upload additional documents into the library, arrange documents in folders, or filter documents already contained in the library. Users can also view each document and choose to check out the document for editing, view the document's version history, or discuss the document with other users. A user can also create a central workspace to enable multiple employees to collaborate on and revise a document as a group. This library enables document diffusion through the sharing of documents and also creates a document workflow where revised documents can be viewed and accepted by the hierarchy of RADAR's employees.

An additional feature of the Sharepoint® systems software is the ability of users to create a department-specific site or even their own unique site. This site can be accessed from the main homepage and contains all of the features of the central site but can be customised for each individual user, project group, or department. These sites allow for the

setting of user permissions, enabling the administrator of the site to control those allowed to access or modify it. Figure 5 shows an example of such a site.

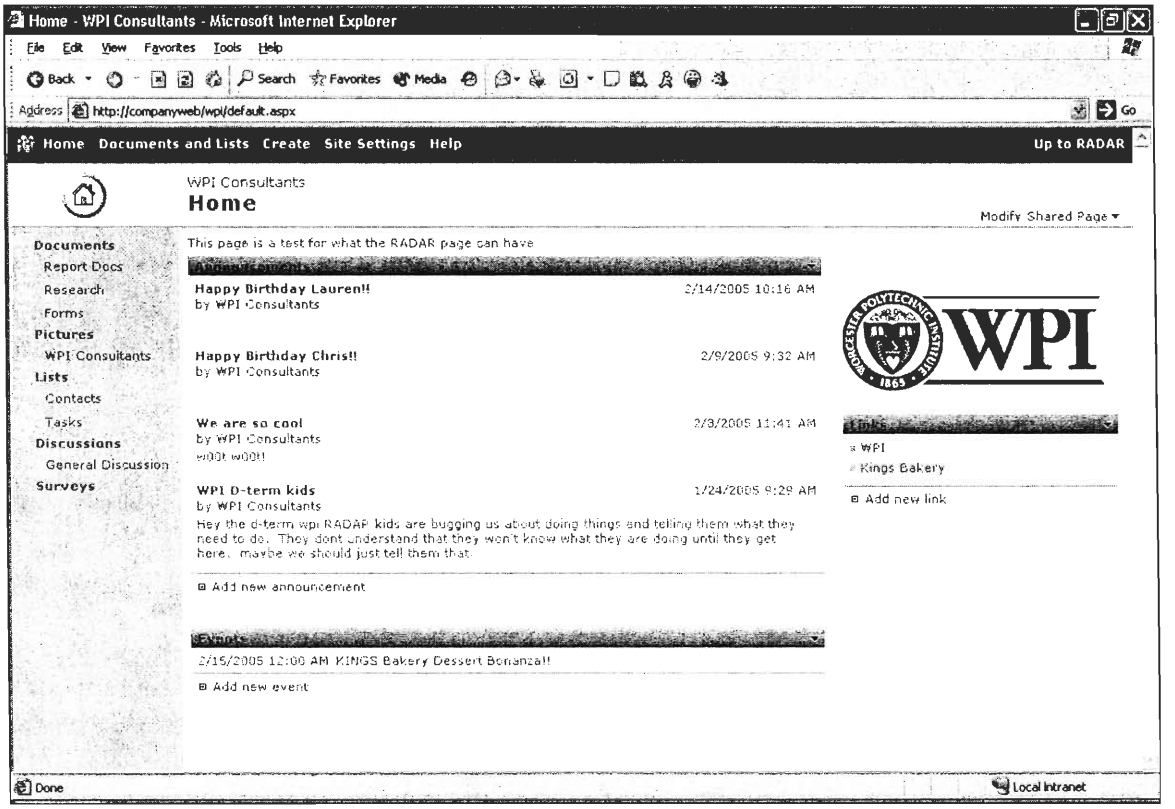

Figure 5: Individual User site

As the figure shows the homepage of these user sites contains all of the features of the main site including links, announcements, and document libraries that are accessed in the same manner as the main homepage. Within these document libraries, the user or group of users can upload specific documents and control the access to these documents via user permissions.

CONCLUSIONS: CUSTOMISING MICROSOFT SHAREPOINT SERVICES®

The customised version of Sharepoint® allows each user to log onto the network and access a main homepage which functions as a simple interface with the rest of the system and enables users to communicate with other employees via announcements and

discussion. Users can also access documents which are centrally stored within the document libraries and lists of Sharepoint®. Users can easily upload documents into these libraries therefore providing an area where documents can be easily viewed and retrieved by employees. Clicking on specific document libraries enables users to view versions of each document, check out documents for revision, discuss documents with other employees, or create a document workspace where a document can be worked on by multiple employees. Users can also create specific user sites unique to an individual user or group where the features of the main page can be mimicked and unique user privileges can be assigned. The customised version of Sharepoint® addresses all of the employee needs that were defined via the three methodologies and can be accessed in a simple, user-friendly interface.

CUSTOMISING MICROSOFT OFFICE® 2003: FINANCIAL CONTROL

Another feature that has been integrated into the customised Sharepoint® system is a financial control system. This system uses two key components of Microsoft Office® 2003, Microsoft Infopath® and Microsoft Access®, in tandem to specifically address the employee needs of purchase power, budget control, order numbers, and financial workflow that were defined via our three methodologies. These needs are addressed by allowing users to easily input purchase and user information into a customised database and then query this database to access up-to-date budgets and departmental spending. We created this system within Infopath® and Access® and located it within the documents and lists section of Sharepoint® therefore making it easily accessible to all of RADAR's employees.

Microsoft Access® was used to create a custom database for the storage of purchase orders and the personal information of the user creating the order. The

database includes the following tables and fields which allows purchase information to be linked via department and user:

- Departments
- Transactions (Purchase Orders/ Deposits)
- Personal/User Information
- Department Members/Users

The *Departments* table serves as a simplifying means of relating the purchase orders to employees as department members and includes budgetary departmental information in a many-to-many relationship. The *Transactions* table holds information concerning all of the purchase orders and deposits and includes an email field that is related to the *Personal/User Information* table as well as the *Department Members/Users* table. In this manner, all four of these tables are connected and allow for a method of tracking user-based as well as department-based spending. We also used Microsoft Access® to create reports and queries that link to Infopath® and are ultimately viewable and retrievable from the Sharepoint Services® interface.

In order for users to write to and modify the database in a user-friendly and straight forward manner, we customised Microsoft Infopath® to act as the user interface to the Access® database. Infopath® forms were easily customisable to employee specifications and allow users to input data directly into the Access® database due to the direct linkage of fields in Infopath® forms to entries in the Access® database. As a result, entries may be created or queried through the use of buttons and customised rules (for the buttons). The forms we created in Infopath® are published to a document library we created specifically for forms within Sharepoint®, similar to any other document. The simplicity and flexibility associated with Infopath® compliments the Sharepoint Services® system extremely well thereby creating a seamless transition between the two softwares.

We have created and customised a number of forms within Infopath® that allow users to enter personal information and purchase orders into the Access® database. The form in Figure 6 allows users to easily be entered into the Access® database.

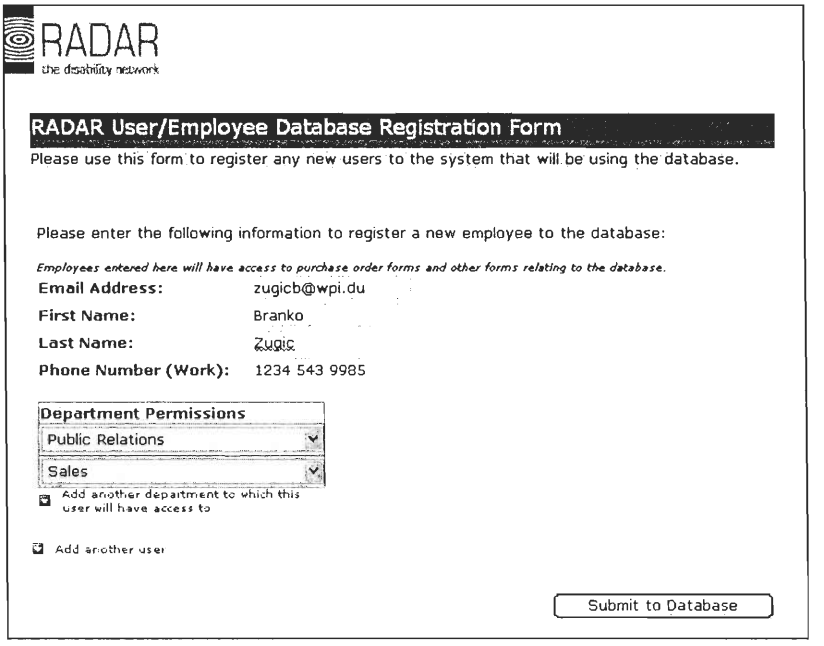

Figure 6: Data Base Registration Form

The user is identified via e-mail address, name and phone number. Department permissions can be selected to give users access to only the specified departmental funds. Once entered in the database, the purchase history of each employee is maintained. Employees can access their purchase history or make new orders via the purchase order forms.

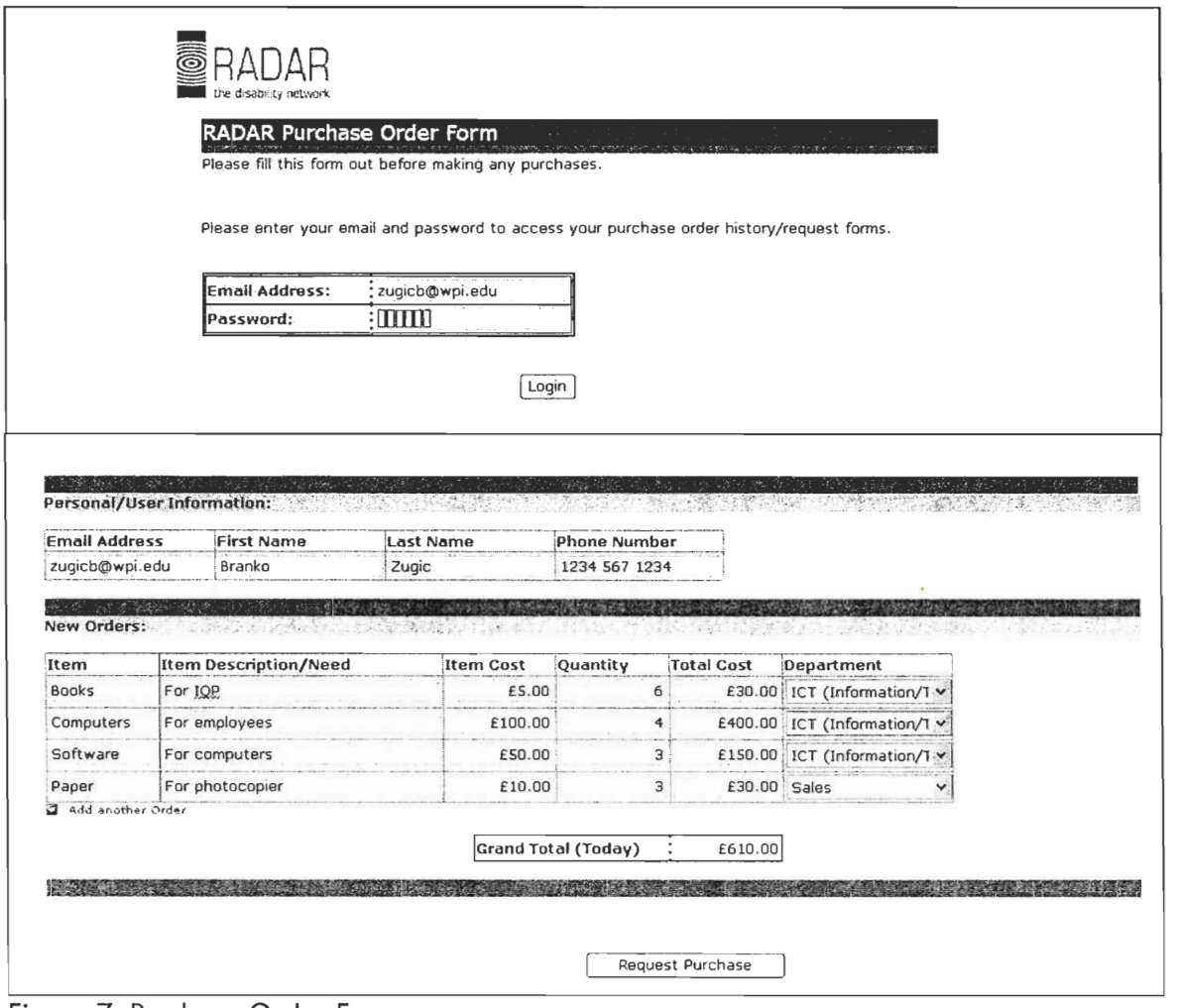

Figure 7: Purchase Order Form

This figure shows the user log-in and the purchase order form that allow users access only to their own purchase order request forms. Once logged-in, the second part of the figure provides an interface through which employees can make purchases, which can be charged to specific departments to which users have been granted access through the Database Registration Form, providing a means of purchase power for each individual user. The user can then submit these purchase requests to the database which creates a unique order number for each purchase. Submitting these forms writes the purchase information to the database which is viewable through the Manager Acceptance Forms that are accessible to the manager of the given department, thereby creating a financial workflow through which purchases are approved or denied.

Financial workflow is created through managerial review of pending purchases made by users. The following figure shows how the manager is able to review pending orders.

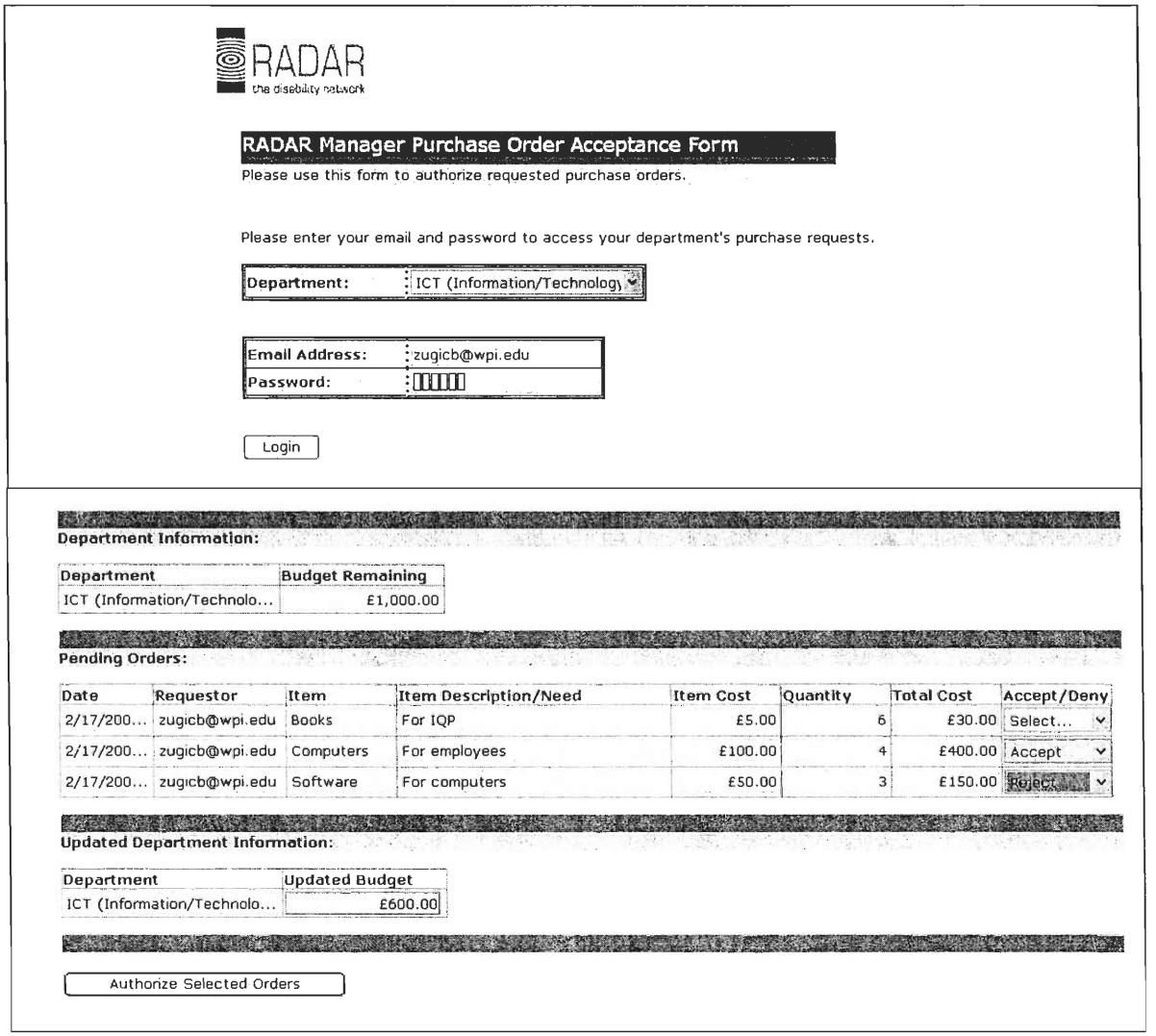

Figure 8: Manager Purchase Order Form

This figure shows the user log-in page and the manager purchase order acceptance page, accessible only by the department manager. After logging in, the manager can view the available budget per department and the pending orders for that department. The manager can then review the pending orders and chose to accept or reject the purchases. In a similar manner the manager can log into a deposit form which allows him/her to add to the department's budget. As the manager makes choices to accept or decline purchases,

the budget is automatically updated to reflect the changes thereby enabling RADAR up-to-date budget control. The manager can then authorise these selected orders which automatically updates the user purchases in the database.

The state of an employee's purchases is updated in the user's purchase history which is viewable by RADAR's employees. The following form shows a user's purchase history displaying both pending and confirmed orders.

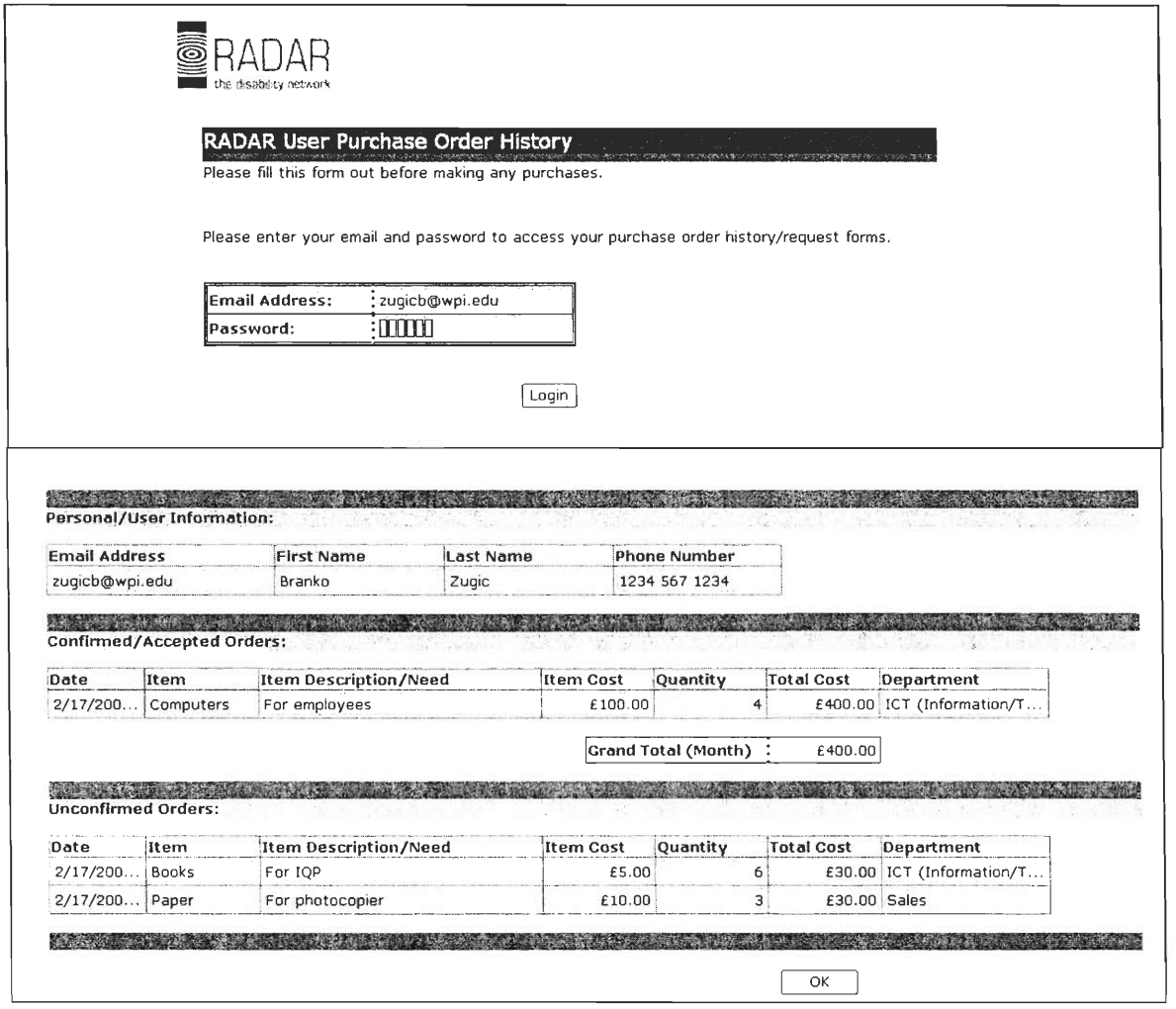

Figure 9: User Purchase History

This form shows the user log-in and a summary of confirmed and outstanding orders for an individual user. The form displays monthly purchasing totals allowing users to keep track of their spending and available budget.

Similar to user purchase history forms, we created transaction reports within Access® to provide managers with the ability to report all budgetary information within a department. The following figure is an example of this report.

RADAR
the disability network

RADAR Transaction Report

Date	ID number	Name	Department	Item	Unit Cost	Quantity	Total
20/02/2005	1	Gilmore, Christopher	Public Relations	Jaffa	$1.00	5	-£5.00
Description: Test!							-£5.00
20/02/2005	2	Zugic, Branko	Sales	Deposit	$500.00	1	£500.00
Description: WOW test							£495.00
20/02/2005	3	Hart, Alison	Public Relations	Deposit	$400.00	1	£400.00
Description: fdfkdl							£895.00
20/02/2005	5	Zugic, Branko	Sales	TEST	$4.00	1	-£4.00
Description: testing							£891.00
20/02/2005	6	Hassie, Lauren	Sales	Oyster Card	$160.00	1	-£160.00
Description: Tube pass							£731.00
20/02/2005	8	Trimbur, John	Sales	Pizza	$12.00	4	-£48.00
Description: Pizza to make us fat							£683.00

Figure 10: Manager Transaction Report

This form shows a summary of budgetary information for a single department that can be accessed by a department's manager. This report can be queried by any of the table's variables to create specialised reports. The report also queries specific transaction ID numbers for each purchase accepted by the manager or each deposit the manager makes to the database.

CONCLUSIONS: CUSTOMISING MICROSOFT OFFICE® 2003

The financial control system designed using Microsoft Office® 2003 affords RADAR the ability to better control their financial affairs. The system allows purchases to be charged to specific cost centres via database registration forms and purchase order forms. Also, budgets are simply displayed for each departmental manager as well as per each individual user. Order numbers are generated for each unique purchase requested. The system also creates a financial workflow where the manager is notified when an order

is submitted for approval. Reports can also be generated by the manager to provide up-to-date budgetary accounts for a given department. This system is easily integrated with Sharepoint® allowing for these forms to be easily shared and accessed from the general document libraries contained within Sharepoint®.

CONCLUSION: CONFIGURING AND CUSTOMISING SOLUTION

The solution selected and customised by the team is a best-fit solution to integrate technology into RADAR's collaborative communication schemes. The system we designed and customised uses Microsoft Sharepoint Services® as a main user interface. This interface provides RADAR with a central locale for document storage, the ability to digitally upload documents to the shared area, the ability to diffuse documents among employees, and creates a document workflow among the hierarchy within the organisation. We were also able to customise a financial control system which we created using the Microsoft Office® 2003 programs Microsoft Access® and Microsoft Infopath® and integrated into Sharepoint®. Using these programs, we designed and customised a database through which users can input purchase information using forms created via Infopath®. Users can then query the database to produce purchase order histories. This system provides RADAR users with purchase power, the ability to control spending and budgets, the ability to create individual order numbers per purchase, and creates a financial workflow among users and managers. The combination of these systems addresses the needs expressed by RADAR's employees and successfully assimilates computer-based technology into RADAR's collaborative communication.

NEXT STEPS: RECOMMENDATIONS AND FUTURE DEVELOPMENT

Through the combination of three Microsoft softwares - Sharepoint®, Infopath®, and Access® - we were able to create document management and financial control systems that addressed the needs expressed by RADAR's employees. These frameworks successfully assimilated computer-based technology into RADAR's methods of collaborative communication allowing the organisation to take full advantage of the benefits of technology to achieve societal goals. While the customised solution is functioning and could easily be implemented as it stands now, we recommend that RADAR make technological upgrades to allow for the features of the system to function fully. We also strongly suggest that once these upgrades are made, RADAR implement the solution we designed and monitor the use of the system by the organisation's employees. Finally, we also recommend that RADAR treat this system as a basis for future development of computer-based technology into its business practices.

TECHNOLOGY RECOMMENDATIONS

While the system we customised will function in conjunction with RADAR's current software version, the full benefits of the system will not be realised until the organisation addresses three issues - - the upgrade of the entire network to the 2003 version of Microsoft Office®, a bandwidth evaluation, and security and user permissions.

- *Office® Upgrade*: The 2003 version of Office® contains the Infopath® program that we used as a component of our financial control system and enables the functioning of specific document management features such as version history.
- *Bandwidth Evaluation*: A study of bandwidth usage per user of the customised system must be made. This evaluation will enable the remote access feature of our

system to function to its fullest and allow multiple users to access the system from an outside location.

- *Security and User Permissions*: Security issues and user permissions must be further evaluated and addressed in order to provide adequate confidentiality of the data stored in the system. This includes security settings for external connections as well as local permissions that limit employee access to specified folders.

By upgrading and amending these features, RADAR will permit our customised solution to function to its fullest allowing for the most effective use of the system's collaborative communication features.

WHAT'S NEXT: THE WORK CONTINUES

As we defined the scope of our project, our goal was to evaluate the collaborative communication needs of RADAR's employees and design and customise a system that would address these needs. The system we created through the integration of features of Microsoft Office® with Microsoft Sharepoint Services®, successfully accomplishes these goals; however, our project did not include the implementation steps that must be made to distribute our solution to all of RADAR's employees. As a result, while we considered some aspects of implementation in the design of our solution, specific issues will become more evident once implementation occurs. We foresee some of these issues to be usability, accessibility, and acceptance.

- *Usability testing*: RADAR will need to conduct testing to ensure that the system actually functions as it was designed. Employee opinions will need to be gathered in a similar manner to those of our methodology which established the necessary features of the system.

- *Accessibility*: As a large percentage of employees at RADAR are disabled, an evaluation needs to occur assessing how disabled workers access and interact with the system. The interaction of the customised system with accessibility technologies should also be explored.
- *Acceptance*: As suggested by Dasgupta's (2001) stages of information technology implementation, acceptance of the system by RADAR's employees is critical. An acceptance evaluation of how employees actually use the system will be integral to understanding future system revisions, amendments, and additions.

The manner in which the implementation of the system we customised for RADAR is carried out will directly affect the impact the design has on the organisation and steps should be carefully considered to ensure that the transition to using the system is as smooth as possible.

WHAT'S BEYOND

The system we designed for RADAR can easily be adapted to include many more functions of importance to the organisation and it is our hope that this future development will occur. There are a number of future developments that we feel would be easily integrated into the system and enable RADAR to develop its collaborative communication even more fully.

- *Shared Calendar Space*: The integration of a shared calendar space into the system would allow RADAR's employees more effective collaboration communication by allowing them to more efficiently schedule meetings and interact with one another.
- *Inventory Control System*: Although we provided RADAR with a financial control system, we were unable to provide them with an inventory control system. Our financial control system could be used as a model for the design of this system. An

Access database could be created to manage the various publications and supplies which RADAR creates and uses. Forms could be created within Infopath® to provide employees with an interface for accessing this database.

- *Project Management System*: A project organizer could be integrated into our solution to help RADAR's managers more effectively supervise project timelines, milestones and success.

It is our hope that the solution we customised will serve as a basis for future development of technology within RADAR and become a routinely used tool for communication within the organisation.

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APPENDIX A: Interview Questions

Objective: Generating primary objectives

Questions: Mr. David Wright

1. Please, tell us about with previous IQP Teams? Can we have their IQP Reports?
2. What problems were the last IQP groups faced with?
3. How did they go about solving them?
4. What changed since then that makes their solution obsolete?
5. How is RADAR structured? Who are these affiliate organizations, and how do they fit into the mix?
6. What do the employees tasks entail? Why is the current way of business inefficient?
7. Does every employee have a computer?
8. Describe the interaction between the Croydon staff and this office?
9. What type of relationship exists with the organization downstairs at Central London site?
10. What are the primary goals to the solution from your point of view? Rank objectives in order of importance.
11. What technical abilities do you have currently at RADAR that will assist in the maintenance and upgrade to our system?
12. What experience do you have with information systems and document management?

Questions: Mr. Robert Saunders

1. What is your position within RADAR and what duties does it entail?
2. What problems have you been encountering within your job?
3. How does an employee go about purchasing something?
4. What inventory system is used to track publications, access keys, etc.?
5. What are the primary goals to the solution from your point of view? Rank objectives in order of importance.

APPENDIX B: Survey Questions

Objective: Verifying employee needs and selecting focus groups participants

Questions:

1. How many years have you been with RADAR?
2. How would you rate your computer knowledge?
3. How much time, on average, do you spend at your workspace computer per day?
4. Would improved communication with others potentially make your day more efficient and easier?
5. If possible, how frequently do you think you would log into RADAR's network/server from an outside location?
6. How user friendly do you find the software currently used at RADAR?
7. How often do you find basic supplies missing (i.e. paper, staples, etc.) due to inventory problems?
8. How often do you use the provided email system?
9. How often do you receive junk mail?
10. How often do you find email inadequate for your communication needs? (How often would you rather have an alternate means of communication/file transfer such as an instant messenger client?)
11. Do you have trouble forwarding documents to specified recipients?
12. How many of the documents that you deal with are stored electronically?
13. Do you have problems searching for and finding documents/data that you need online?
14. Does the current communications system (computer-based) meet all your collaborative (communication-based) needs?
15. Do you find general organization of software/data usable and good?

APPENDIX C: Focus Group Questions

Objective: Determining system requirements specific to employees

Questions:

1. Within your position at RADAR, describe how you collaboratively communicate with other employees and trustees.
    a. How frequently do you communicate with trustees and with employees?
    b. What is the role of trustees and what information is important for them to know?
    c. How frequently do you share documents?
    d. Is email your only form of primary collaborative communication?
2. What issues have you had concerning this communication?
    a. Do you ever find your computer slows while transferring forms of data? Does this hinder your communication?
3. What would you like to see change about the way you communicate now? How would you envision an ideal communication system? Why would this be ideal for you?
    a. Does the prospect of a new technology cause you to feel uncomfortable?
    b. Do you use instant messenger clients? Any preferences.
4. Being in an organization that stands for the advocacy of the disabled community, do you find communication between employees and supporters to be even more important and/or difficult than in another organization? Why?