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Corporate Information Database and Intranet/Internet at RADAR

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Abstract

The Royal Association for Disabilities and Rehabilitation (RADAR) is a non-profit disability umbrella organisation based in London. In response to RADAR's needs to organise and communicate information, this project implemented a new Corporate Information Database. An assessment of employee needs and of RADAR's organisational setting helped define system requirements. Training materials such as manuals and demonstrations were developed to help staff use the system.

Page of Authorship

February 28, 2004

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Executive Summary

The Royal Association for Disability and Rehabilitation (RADAR) is a non-profit organisation concerned with disability rights in the United Kingdom. The goal of this project was to improve RADAR's communication and organisation of information within its central office and among its partner organisations. To meet the goals of this project, we first determined a set of objectives to follow.

We began by identifying RADAR's organisational needs and the initial state of its Information and Communication Technology (ICT) system used to communicate and organise information. To gather the information required we interviewed the employees at RADAR. Once all of the interviews were completed, the results were compiled and analysed. We found that RADAR had no standardised system to communicate and organise its information. Employees at RADAR used different methods depending on what their job specific tasks required of them. RADAR, like any organisation, needed a standard ICT system to keep up with the amount of information being used and transferred each day.

In addition, RADAR needs to communicate well with other organisations including the Enabling Partnership (EP) and its member organisations. After assessing RADAR's organisational environment and the time available for this project, we decided to concentrate on improving internal organisation and communication within RADAR.

Our project group determined that RADAR required a Corporate Information Database (CID) system. In order to follow best practice methods, a design document was created before system development began. The structure and layout of the CID system

depended on the organisational needs of the RADAR employees. Through our interviews, we were able to compile a list of employee needs, which if integrated into the CID, would greatly benefit their work. This list was compiled with features ranked according to their importance to employees. We also assessed each of these features to see how long each would take to develop. Based on the development time required and management decisions, a list of features we could implement was created.

Each feature became a module defined in the design document, including news, file management, diary (calendar) and searchable contact list. The news module displays work-related announcements and events. A file management module allows employees to store and share files in an organised scheme. The diary module provides a scheduling tool to employees, also allowing them to plan meetings. Lastly, employees can use the contact list to search for important contact information. By using a module system, other modules or features may be inserted in the future as needed.

There were some concerns, such as security protection, brought up during our interviews which we were able to incorporate in the system. The system requires all users to log on with a username and password before they can access system resources. A group based permission system was added to provide a medium for employees to restrict access to sensitive files. Connections to the system time out after extended periods of non-use, preventing employees from mistakenly leaving their computers logged onto the system.

The languages and software used are all open source, including PHP, MySQL, and SMARTY. We chose to utilize these because they are easy to use and edit. They are also free. A security login page was created first, followed by the news, document,

administration, diary, contact list, and log out pages. By implementing the features in this order, we were able to provide beta test versions of the system. These beta tests allowed us to gain essential user feedback and make appropriate changes to the system. This iterative approach also proved helpful when certain errors and bugs were discovered as we updated the system.

In parallel with the implementation of the system, was the creation of a training manual. Screenshots accompanied a set of systematic instructions to allow employees to complete tasks more easily. The manual is also a quick reference guide/tutorial for employees who may have questions about the system. A demonstration was also given to the staff each time a new beta version of the system was uploaded to the beta server.

Once the system was up and running, we performed a final assessment of the situation at RADAR. We were able to identify areas of RADAR's communication and organisational situation we improved, and those that will need to be addressed in the future. Future project groups should address RADAR's extended information management concerns, including expanding the present system to incorporate other closely associated organisations such as the Enabling Partnership and RADAR's many umbrella members.

We also made some recommendations to RADAR on how to use the system effectively. In order to effectively use the file management module, a file naming convention should be adopted which presents important information concerning the file. This will allow employees to find files on the system more easily. Due to many employee suggestions for an online or off-site email access system, we also recommended that RADAR reach a decision on how to allow employees secure email

access online. We were unable to address this communication aspect due to security concerns within RADAR. To allow employees to use the system with ease, we also recommended that RADAR designate an employee well versed in the system to aide staff members who require help.

The completed system was delivered to RADAR on a CD. The CD included the CID system, CID source code, CID installation instructions, and copies of installation files for the most recent versions of PHP and MySQL. The CD will allow RADAR to easily install the system. A training manual, in both printed and online web based copies, was also delivered to RADAR. This manual details all of the modules of the CID. Using the manual as a guide, employees will be able to use the system to its full potential.

1.0 Introduction

Any company, large or small, requires a system to organise and communicate information within the organisation itself, as well as to other companies and the public. Without such systems, employees may not be able to complete important work in a timely manner. A large amount of data is useless without proper organisation; a library is a perfect example of good organisation. Everything is catalogued and easily found, providing individuals with more time to assimilate the information rather than searching for it. Without properly managing information, the order of everyday business can quickly become muddled.

Not only is it important to manage and organise information, it is also essential in today's society to have excellent communication. With the advent of the internet, it is now possible to communicate across the globe and interact internationally with ease. A company must be able to develop efficient systems of communication in order to keep pace in this quickly evolving world. The information technology field is constantly changing, requiring organisations to adapt quickly in order to keep up with current technology and operate well into the future.

In addition to the usual problems of managing information technology, an umbrella organisation, such as The Royal Association for Disability and Rehabilitation (RADAR) in England, is confronted with unique challenges. The management of all of the member associations requires a distinctive solution. RADAR is composed of over seven hundred members (RADAR, 2003). These members include individuals and organisations working for the common benefit of disabled people. RADAR is expanding

faster than its Information and Communication Technologies (ICT) department can manage. As a result, organisation and communication among the associated members under the umbrella are inadequate.

Another non-profit organisation in England, Arthritis Care, solved a similar problem to RADAR's by creating a Corporate Information Database (CID). The database allowed employees to access information more efficiently through a centralized location. Previous research observed that databases help organisations to store their information. The information is stored in a centralized location, which is accessible to all employees. By providing this location to employees, employees spend less time searching for information, and more time applying it to their work. The database allows employees to retrieve information more easily than previously.

A similar system is Blackboard's Portal System, which is in use at Worcester Polytechnic Institute (WPI), Tufts and many other colleges. This system helps to organise class websites, student documents and communications within each class. With this centralized system, it is easier to access course documents and websites in one location instead of using different systems for each class. Trying to navigate through department websites can sometimes be difficult and time-consuming task. In addition, within each class, administrators can create groups on this system so that each group has its own discussion board and location to upload files for the rest of the group to access.

RADAR's problem is distinctive because the CID system must be accessible to RADAR's employees, it must be accessible to other members under the umbrella. Any ICT system implemented at RADAR must expand to accommodate additional members. The system must be able to expand within RADAR itself, as well as to the other members

of the umbrella. Also, many of the employees working for RADAR are disabled themselves. This introduces new challenges for creating a system that all employees at RADAR can use.

Based on the unique needs of RADAR, we researched different methods of implementing an ICT system, and reached the conclusion that RADAR would benefit from the implementation of a CID. Once this system is installed, information will be centralized to this database. Employees can conveniently access the information from any computer terminal via the local intranet or through the international internet.

The aim of our research was to create a corporate information database for RADAR. Given our short time with RADAR, we were not able to address all of RADAR's needs. Our system focuses on the local needs of the RADAR organisation as collected through employee requirements and solutions to initial problems. These needs included the ability to store, share and organise files. This ability will greatly improve due to the implementation of a file management system. RADAR also required a news posting system. This system was implemented to aide the association in posting information on important events and work related announcements. Another need presented by RADAR employees was the ability to reference contact information. The system includes a searchable contact list, allowing employees to find important contact information quickly. Lastly, RADAR required a diary management system. The system implemented in the CID provides employees with the capability to keep track of their own schedules, as well as view other employees' diaries in order to plan meetings. Training resources were also developed in order support the CID's adoption as an office tool.

The resources of this system will be accessible in the future to the Enabling Partnership (EP) as well as RADAR's umbrella organisations. This extension will be the focus of the next project group. The future project group will also address the organizational needs of a joint RADAR and EP system. Our project provides insight into these issues and we made several recommendations on how to proceed with project expansion.

The target goal for this project was to create a system, including the previously mentioned systems, for RADAR to use by the end of our project. To have a system up and running as soon as possible, it was recommended by our liaison that we adopt only a portion of the W3C standard to save development time. The web-based ICT solution will solve RADAR's problem of sharing information. The CID will solve RADAR's local problem as well as possibly allow RADAR to expand technologically to a global level. Other project groups, as they expand the system, may find it necessary to address needs of disabled people in the future. At the conclusion of the CID implementation, RADAR will become a more efficient, self-sufficient association with the ability to meet its goals in a timely manner.

2.0 Background

In order to effectively implement an information and communication system at RADAR an understanding of non-profit organisations' needs is essential, specifically, the needs of RADAR. In order to solve RADAR's problem, there needs to be an understanding of the organisation and communication. Lastly, the ICT solution is investigated, including the tools available, as well as possible drawbacks.

2.1 Non-Profit Organisations

One of the best ways of learning more about non-profit organizations is to look at examples of systems used by organisations like RADAR. There are many examples of non-profit organizations within Massachusetts itself. Some are very small and localized organizations; while others are branch across the country, or the world. To broaden our knowledge of how existing non-profits deal with their organization and communication of information, we interviewed several organizations. They are not in the exact situation RADAR is, but there may be in, but there may be aspects we can draw from these examples to better assist RADAR.

There are many different methods of communicating and organizing information using an ICT system. Each system has its advantages and disadvantages. When we spoke with representatives from Red Cross and Massachusetts Association for the Blind (MAB), both organisations agreed that it is imperative that each organization have an ICT system. Rick Lee, the executive director at Red Cross (personal communication, Nov.

26, 2003) says it is “essential to carrying out our work effectively,” in reference to their ICT system. He admits that it is difficult and time consuming to keep everyone in the organization up to date with upgrades to the system. Most employees in a non-technically based organization are not computer experts, and there is a learning curve involved with this process, which Lee calls “culture shock.”

In order for each organization to keep up with the constantly changing technology, it must acquire the most up-to-date equipment. Lee stated that the hardware and software these organizations need do not come cheaply, and the larger the organization, the greater the demand for an up-to-date system resulting in a higher cost. Technology is changing so quickly, new updates and better equipment are always available on the market. Non-profit organizations, such as MAB and Red Cross have a hard time keeping up with all this technology due to the lack of funding. Many smaller non-profit organizations do not have an ICT department, or even an ICT specialist. The ICT personnel must maintain and update the system, and train others within the organization so they are familiar with each new feature added to the system.

At the rate at which technology is advancing today, it is nearly impossible to keep any single stable ICT system running for very long (Lee, 2003). There are changes being made constantly to the system, even for organizations that are up to date. Those who are behind in their efforts to keep up with the changing technology today will fall behind industry standards.

There are many factors to consider when deciding what type of ICT system to implement in an organization. This decision is based on the needs of the organization, as each system will have its own advantages and disadvantages. American Red Cross is a

large non-profit organisation and, as stated before, has many chapters nation-wide. The system which they use is a Local Area Network (LAN) (Lee, 2003), and their ICT personnel are beginning to implement Internet Software Applications (ISA) into all of their systems. For an organization such as Red Cross, speed is an attribute they rank highly in their system, as it is important for information to be communicated quickly during emergencies.

Carol Curdo, the regional director of MAB community services (personal communication, Nov. 21, 2003) says that MAB uses Access for a database system, because it caters better to the needs of the people using it. One of those needs is that the software either be compatible with an audio programme or have an audio programme built in for the blind to use. Not all of their local branches have ICT experts on site, and the staff at their head office do much of the maintenance. MAB is currently looking at purchasing a programme better suited for their needs as they too are expanding. With this programme implemented, all of their local networks will be inter-connected, enabling communication among offices.

Many companies and organizations have locations in regions around the world. Melinda Jiusto from Community Builders Inc. (personal communication, Dec.12, 2003) says that her organisation has problems with standardization of terms and procedures between their offices. Part of the reason they have begun to implement an ICT system is to force some consistency between their branches. Depending on the conditions each office faces, various methods and terms have been developed to address each issue. This causes a problem of communication between offices, where one office may be talking about one thing, and another office may not understand what is being referred to because

of different terminology. Creating a standard for processes does solve the communication problem but other problems can arise. If there is too much attention and focus on this standardization, it may destroy the creativeness of the individuals who were responsible for creating different methods and processes based on their local situation. Jiusto says that there must be a balance between the two, which is often hard to find.

Not only must there be standards for terminology and procedures, there must be a standard with equipment. Jiusto says that they once had a problem where the system they had was not working with one of their offices because those computers did not have internet explorer on them. Although most PCs purchased today do come standard with Microsoft software, one must not make the assumption the equipment is compatible. This may become a major problem when working with other organizations. One organization may decide to standardize their equipment within all of their offices, but it becomes a challenge to have one working system among various different organizations.

2.2 RADAR

In order to understand our role in this project, we must first study the organisation that we worked with in London, the Royal Association for Disability and Rehabilitation (RADAR). RADAR was founded in 1977 as an organisation concerned with meeting the needs of disabled people (RADAR, 2003, "About Us"). Two major disability organisations merged in order to create RADAR. One of the organisations was formed following World War I, and the other was formed after World War II. The two associations merged in 1977, by royal command, and RADAR was born. RADAR was created to be an organisation for disabled people, run by disabled people. The

constitution of RADAR states that a majority of executive board members must be disabled. In most years, around ninety percent of board members are disabled.

One of the difficulties RADAR has faced throughout its history has been fundraising. In its past, RADAR has attempted to raise funds in several different ways, including from government aid, legacies, membership fees, publications, and investments. As explained in the RADAR publication “The Seven Year Itch,” during the 1990’s RADAR experienced major financial problems (“What is Radar?”, 2003, p.3). The problems prompted RADAR to join in cooperation with a new organisation, Enabling Partnership (EP). EP was responsible for finance, fundraising and human resources. RADAR, as well as its many members, benefited from the Enabling Partnership by being able to concentrate primarily on their missions, rather than developing ways to raise funds.

In 1995, RADAR helped pass the Disability Discrimination Act (DDA). The act established standards and rights for disabled people regarding employment, access to goods, facilities and services, and buying or renting land or property (“The Law”, 2003, p.6) Despite being a major victory, the act also had some negative effects on RADAR. The public believed that RADAR had accomplished its goals, and would be disbanded. RADAR, however, never intended to disband following the passing of the DDA. The association was committed to moving forward in the fight for disabled people’s rights. The result of the public misconception was the fundraising difficulty explained earlier, leading to the joining with EP. With the partnership in place, RADAR was able to continue its mission, guided by the association’s goals. As we have discussed in the introduction, RADAR is currently having difficulties organising and communicating its

information. In order to correct this problem, we must first understand how organisations store, access and communicate information.

2.3 Communication and Organisation

2.3.1 Routes of Communication

Communication and organisation are central to the success of associations in the modern world; as organisations expand they become more difficult to maintain and control Information and Communication Technology (ICT) needs. The field of ICT is growing at an exponential rate and leaving institutions, especially non-profits, in its wake scrambling to catch up. Joseph N. Pelton (2000) described this growth as a “cyberspace jerk” because the acceleration of change is like nothing the world has ever faced before (p. 10). Pelton also mentions that in the past few years several non-profits have begun the process of remodelling their ICTs in order to improve efficiency. The strategies these associations have used vary as each was engineered for the unique sponsoring group. What remains consistent throughout the solutions are the issues faced and the questions that require answers. What type of system should be implemented? How should it be implemented? RADAR shares these same conundrums as well as a focus on expansion; the system RADAR requires must be able to grow inexpensively and exponentially.

Communication is no longer limited to phone calls and the local mailbox; with the advent of the internet and local area networks, the world is now connected across the globe. This brings about new challenges to the non-profit sector as well as new opportunities. There are now a myriad of methods to export information to the public;

the difficulty is in evaluating each method and deciding which is the best fit. There are several routes of communication that any solution for RADAR must be able to handle: interoffice communication, and communication with the members of an umbrella organisation.

2.3.2 Interoffice Communication

Interoffice communication is the most important route of communication in an organisation. Without a high-quality system in place, it is hard to keep employees informed and organised. RADAR has several sites in England. Employees at one site must be able to communicate instantly with other offices. Waiting for a communiqué from someone at another office may delay an employee's ability to complete his work. Employees communicate in several different ways, including written means, voice, and the sharing of resources (documents, schedules, etc). Communication methods have changed as new technologies have been developed. For example, past systems have included face-to-face communication, phone calls, discussion boards and postal mail. Newly available systems include intranets, extranets, email, file transfer protocols (ftp) and instant messaging. The solution used by many other organisations in the non-profit sector is an intranet; this is housed locally within an organisation and allows communication between networked computers. Corporations, such as Serenic Software (Serenic), create software specifically for governments and non-profits. They utilize a number of resources, including an intranet (The Practical Accountant, 2003). RADAR will require an intranet system, although very different from the programs available from

Serenic's purely finance-based system. David Wright, Head of ICT at RADAR, indicated that they require a solution that will allow the sharing of documents, news announcements, a diary system and collaborative document design (personal communication, November 12, 2003). Software that meets these needs is not freely available; such systems as the Blackboard Portal System from Blackboard Inc. (Blackboard Inc., 2003) are in use by many universities across the globe. One such university is Worcester Polytechnic Institute, where the Blackboard system can be accessed at my.wpi.edu where it provides services such as file sharing and personalized pages. This software is proprietary and therefore not an option as its price outweighs its usefulness for RADAR's needs. The blackboard system solves only a few of RADAR's needs; it fails to address expandability and collaborative document design, also known as workgroup computing.

2.3.3 Umbrella Communication

Large organisations often have many locations other than their headquarters that need to be able to communicate efficiently. Offices could be located throughout the city, country, or even the globe. In this situation the intranet is no longer an option, however a solution must be found that still has the same functionality as the intranet. Mary J. Cronin (1995) believes the Internet is "an essential ingredient in internal collaboration and teamwork among branch offices" (p.250), providing further evidence that the Internet brings together areas separated geographically.

Existing solutions point to exporting the interface of the intranet to the Internet. Serenic accomplishes this with their software solutions providing “instant ability to export information to Microsoft Office/E-mail/Fax” (The Practical Accountant, 2003). Other companies, such as Microsoft, produce server products (Outlook Exchange) which include email, calendar and contact storage. The type of product selected, however, depends on the intended demographic. Smaller companies, such as RADAR, may not have the funds or support recourses to purchase such software solutions. Pelton (2000, p. 28) points out that the population on the Internet will pass one billion by 2005. Pelton then puts this figure into perspective noting that those one billion are mostly “higher-income and highly educated people” (p. 28) and that even by the year 2005 the internet will still be unavailable to the majority of the population in the world. Therefore, the solution depends on the audience. RADAR’s audience is informing the public as well as communicating swiftly with the organisations under its umbrella (RADAR, 2003). This will require not just one solution but several. The Internet provides the efficiency RADAR is looking for but does not support those associations and people that may not have access to the Internet. Therefore, RADAR will need a system that involves both the Internet and older methods of communication, such as the brochures and publications already produced.

Non-profit organisations often have many volunteers who can offer a few hours of work each week at odd times. This contribution is important to the prosperity of non-profits but is a management nightmare. One solution evolving with the information age is telecommuting. Pelton (2000) quotes the number of telecommuters worldwide in 2000 to be fifteen million and believes this figure will “explode to some 60 to 80 million

teleworkers by 2010” (p. 6). Marie D. Amico corroborates Pelton’s views on telecommuters predicting, that “Telecommuting technologies will reinforce and accelerate the movement of people and enterprises from the center to the periphery” (Amico, 1994). RADAR’s ICT would benefit from the telecommuting model because it provides volunteers with the convenience of working whenever they want from wherever they want.

2.3.4 Organisation of Information

After the internal communication needs of an organisation have been met, there is still the question of external communication needs. In other words public relations, the question of what information should be available to the public and in what form is an important one. Other non-profits provide general information via a website. For example, InterAction (<http://www.interaction.org>), the United Way (<http://www.unitedway.org>) and Unicef (<http://www.unicef.org>) all have websites that provide contact information and a general history. RADAR’s website (www.radar.org.uk) has this same information. David Wright made it clear that the website and intranet would need to be accessible to everyone (using W3C standards), especially the disabled (personal communication, November 12, 2003). The main page for RADAR does provide a pure text version, which allows individuals to remove colours as well as increase the font size. These same principles need to be carried over into any solution to RADAR’s communication problem.

Once communication has been established, the issue of privacy must be addressed. Different organisations require different levels of privacy. This is a fine line to walk, as some information needs to remain public while it can be detrimental for other data to fall into the public eye. In RADAR, David Wright would like a system where employees have credentials; these credentials would differ from employee to employee and would be used to determine what information they can or cannot see (personal communication, 12 November, 2003). Authentication is one of the main security protocols. Any user entering the system must provide a username and corresponding password in order to access system resources. This is not a new concept and is in use in many applications today. Most Operating Systems have this built in. When a user logs on to a computer the user has access to files and settings unique to the user. When someone else logs on, it changes to fit the new user's saved settings.

What RADAR requires is an advanced version of this concept similar to that of the myWPI system but with additional features. MyWPI is a system that provides file sharing among group members and a discussion board to organise ideas (myWPI, 2003). The needs of RADAR require a dynamic system unlike myWPI and its many clones. It needs to be able to expand to include other members beyond just RADAR and facilitate not only the transfer of information but the organisation of the information as well. What existing systems lack is a template that can be moulded and shaped to match each organisations needs as they arise. This system must be able to evolve and adapt to the changing technology and participants. With this as the focus, the next step is identifying the ICT tools available.

2.4 The ICT Solutions

In today's modern computer age many companies and organisations are relying on ICT to solve many of their problems and to streamline some of their current operations. One of the important first steps in ICT is having a goal and making sure the goal corresponds to the organisation's goal. Holtsnider and Jaffe (2001) believe "your goal as an active manager and caring employee and employer is to make sure that your department's aims are in line with those of your organisation. It does not matter if you are an ICT manager for a nonprofit citizen's group or midlevel manager of General Motors; you need to discover what the organisations goals are and make them your own," (p. 4). After we have RADAR's goals, which is to continue to provide disabled people with helpful legislation and services, in mind the next step is to have a plan to follow and a vision of where it will lead in the future. As Burgess (2002) noted "One of the barriers identified earlier that hinder the effective use of ICT ... is a lack of formal planning and control methodology," (p. 10). Once goals have been set and a plan has been made for the ICT development a solid foundation is in place with which to continue.

2.4.1 Databases

One important tool in the ICT arsenal is the database, which can be used to store and organise large amounts of information to be accessed relatively quickly by many people in separate and sometimes remote locations. "Databases today are essential to every business," (Garcia-Molina, 2002, p.1). Databases have multiple uses. They can be

used to link and track almost any type of data that could be used by an organisation. Databases are primarily used to track, gather and organise information over extended periods of time and then output the data as the users request it. Commonly databases are referred to as tables and most databases consist of multiple tables that are used in conjunction to perform the overall goal. “A collection of logically related tables rather than a single table of data presently emerges as the solution,” (Bagchi, 1987, p. 3). Some primary examples of database systems are airline reservation systems, banking systems and corporate records. By being able to handle large amounts of data in a centralized location and being able to share those data with people globally, databases are an essential tool for any ICT department.

2.4.2 Websites

With the majority of the United Kingdom’s population accessing the World Wide Web websites have become a necessity for relaying information to both the public and to the members of an organisation. There are three main types of web sites, internet, intranet and extranet, which are categorized by how they are accessed by people and where it can be accessed from. Each site is different from the other three because they are designed for different purposes. Holtsnider and Jaffe (2001) describe the different types as:

Internet - An Internet Web site is the one that a company makes available for every user of the World Wide Web to see (even though all these users may not be interested in seeing it).

Intranet - An intranet site is a private site available only to those with the company or organisation. Outsiders (defined as people without access to your proprietary network) cannot see material on an intranet.

Extranet – An extranet site is similar to an Internet site except that it is specifically designed for use by the company’s partners (suppliers, customers, etc). (p. 224)

RADAR is looking for one of each of these types of sites to be developed to the association’s needs. Currently they have an Internet site but they are looking for an intranet site to improve communication within their own offices and an extranet site to improve the communication between them and the other organisations under the umbrella.

2.4.3 Security

Along with this new interconnected world, the issue of who should be able to access what information has arisen and to solve this dilemma many different security techniques have been implemented over the years. As Tanenbaum (2003) states “security is looming on the horizon as a potential massive problem,” (p. 721). Even though most people who use a network, a service or browse the web are harmless and do not intend to cause problems, there are the few that actively attempt to access data, change data or corrupt data they should not. There are two main ways that someone can access a system either through their Internet connection or through a dial-in service. One simple and relatively effective method for guarding against security breaches from the Internet is

with a firewall. A firewall, whether it is physical or software, determines what computers and services are allowed to access the Internet and at what times based on a set of rules programmed into them. Using a modem pool, which allows many computers to use a single modem on a server instead of each individual computer possessing a modem, can reduce the threat of a security breach through dial-in services. In addition to a modem pool, additional security might be necessary. Remote Access Servers (RAS) can prompt users for passwords to be able to access the system. Instead of letting the person access the system, it then hangs up and calls the number associated with that user so it can only be accessed from a specific phone number. Also, there is another method called secureID. This credit card sized device generates a password that is only good for about 60 seconds. The user must enter the password to gain access to the network (Holtsnider & Jaffe, 2001). With all the possible security threats, it does not hurt to try to stay in step with the security industry.

2.4.4 Email

The time it takes a message to be sent and received has always been important. With the use of email, it has become almost insignificant, as messages and responses can be sent and received virtually instantaneously over long or short distances. Holtsnider and Jaffe (2001) describe email “as required as a telephone,” (p. 258). Email is a great method of communication not only because is it fast, but it can be used to contact people within an organisation and those outside the organisation as well. In addition to being used as a simple way to communicate, it can be used to share files between co-workers

working on the same project by attaching the appropriate documents to the email. Also, email allows everybody to work on his or her own schedule. Two people in different time zones would not have to coordinate a time when they both could email each other, as they would have to do if they were communicating by phone. Email is a valuable communication tool in this modern, fast-paced world.

2.4.5 Available Tools

The tools with which these new technologies can be implemented are almost as vast and diverse as the Internet itself and can range from programmes that cost thousands of dollars to open source projects that are free and continually being enhanced. There are two main categories that tools fall in, either hardware or software. Hardware is the physical components of computers such as hard drives, RAM, and CDROM drives. Software is the digital data the programmes and information, which is stored and run on a computer. In both cases it is important that the user know the computer's intended use. Based on this information, the user can make an informed decision on what type of computer is required. Holtsnider and Jaffe (2001) believe that first "Define your needs for a personal computer. Then get the best machine that fits those needs," (p. 158). Once the proper hardware has been chosen to handle the specific needs of the organisation, it is necessary to perform a similar search for the software. The first piece of software that has to be chosen is the operating system (OS). The OS is the platform on which all other applications will run on the computer. Tanenbaum (2001), talking about operating systems, observes that, "All of this history and development has left us with a wide variety of operating systems," (p. 18). The correct operating system depends on the

needs of the system, for example, Microsoft Windows 98 might be fine for someone's personal computer at home but would not be suitable as a web server. Once the proper OS selection has been made, the applications that are going to be run on the computer can be addressed. Software packages that are chosen depend on what features are needed, what kind of support is available, as well as the extent to which it will be used. With all this in mind, the proper software can be selected to perform the required jobs properly.

2.4.6 ICT Drawbacks

Just like any other solution, there are some disadvantages to using an ICT solution to solve the problems of a company or organisation. One of the most significant side effects of ICT is that after the system is setup either a new department needs to be established dedicated to maintaining the system or someone who can be called upon outside the company to fix or change the system when it is necessary. Having an ICT department means that there will be somebody always there to help with the computer and other technical problems during the work day and sometimes on call twenty-four hours a day. However, sometimes it is not necessary to have someone on site all the time so an expert outside is used. Drawbacks to using outside experts include time delays in responses and expensive services.

2.4.7 Training

When a new system is installed in an organisation, it is necessary to train the staff how to properly use the system to their full advantage. This inherently is a more significant problem with some people while others hardly seem to ever need training. Even if most of the people in the organisation might belong in the second of those two categories, it is still necessary to do some training (Holtsnider& Jaffe, 2001, p. 55-59).

There are many ways to approach training staff about the use of the new system. One tool is a user manual, which describes in detail the features of the system. Also, a presentation given to groups of employees demonstrating the operation of the system and explaining in mild detail how to use the system and the more basic features is a good way to visually show the system's uses. For more in-depth training, it is sometimes necessary to carry out one-on-one sessions to go over the system with an employee, on how to use the system and the features that the staff member will need or want to use. Sometimes one or two of the methods of training will work, but usually all three will have to be implemented to some degree. It is usually necessary to write a manual that has as much information in it as possible because someone might not always be there to explain how to use a feature and the user can always refer to the manual. Sun Microsystems' GNOME Documentation Style Guide states that the training manual should provide procedures for each task that can be completed using the software (Sun, 2003).

A presentation to groups of employees will visually show many people how to use the system. For some that is all they will need in order to use the system properly. For other people though, it will be necessary to go over the information individually so

that they can fully understand and use the system. One-on-one training sessions can be very time consuming, however. According to Gerry Kennedy, it is important that employees “work at their own level and can learn and practice skills at their own pace” (Kennedy, 1991). Kennedy also points out the importance of special training equipment or software, such as screen readers for the blind, that could help train disabled people specifically. This equipment could help the employees understand a software system better by catering to their disability.

2.4.8 Management Information Systems (MIS) Best Practices

Having the goal in mind and a platform set is only the first part of the process. When one is designing any system, one must follow the Systems Development Life Cycle (SDLC). The purpose of this process is to ensure that the system is catered to RADAR’s needs. Coronel (2002) says “it is hard to separate database design from SDLC” (p. 322). The developer must assess the initial ICT system. Whether or not there is a system in place, there are five phases to follow: planning, analysis, design, implementation and maintenance.

All of the work that was done during the term preceding this project is classified under the planning phase. The planning phase asks the questions of why a system needs to be built and what is required of the system. These questions will guide designers through an initial assessment of the situation at RADAR. A work plan helps to estimate the time of implementation, task identification and work distribution among the group.

The developer must then complete an analysis of the new system prior to design. The analysis can be completed once data is collected on the problem (Coronel, 2002, p. 330). A question that the developer needs to address is where will the system be hosted and what are the organisation's business requirements. The steps behind this analysis are found in the methodology section of this report.

The technical design of the system may begin once the developer completes the planning and analysis. The developer asks the following questions: How will the system work? What are the system specifications? There must be a detailed list of system specification, in particular concerning RADAR's disabilities and designing the system according to the World Wide Web Consortium (W3C) design standards.

With the design interface set, the physical implementation of the system may take place. The construction of the system includes coding, testing and debugging (Coronel, 2002, p. 345). Throughout the construction of this system, the developer adds and removes design aspects. A period of fine-tuning must take place following the implementation of the major aspects of the system. When the system is completed, thorough maintenance checks will be performed (Coronel, 2002, p. 350). This includes and evaluation of the system, which will also be discussed in the methodology section. The system will then be changed and enhanced based on the evaluation of the users of this system, whom will be the employees at RADAR.

2.4.9 MIS Methodologies

Within these five phases are methodologies of implementing the SDLC (Dennis, 2003, p8). A complete SDLC requires that each phase be addressed, but the order in which these phases are addressed may not be as simple as listed above. There are three types of methodologies: structured methodologies, RAD methodologies and agile methodologies.

Structured methodologies are systematic approaches that move logically through the five phases. The first approach is the waterfall approach, which moves through each one of the design phases in order. The advantages of this approach are the system requirements are identified long before programming begins and it minimizes the changes to the requirements as the project proceeds. Disadvantages are that the developer must complete the design on paper before programming begins, requiring an extend period of development (Dennis, 2003, p8). The parallel approach is similar to the waterfall, in that the sequence of the phases is the same. The difference is that the design and implementation phases are split into a series of subprojects, where the implementation methods of each of the subprojects will be put into a final implementation phase and the maintenance. This approach reduces the time required to deliver a system, meaning that there is less chance of changes. However, it does increase the amount of paper work depending on the number of subprojects. It also creates dependencies within the subprojects, where one decision may affect another group.

Rapid Application Development (RAD) addresses some of the weaknesses found in structured methodologies (Dennis, 2003, p.10). This approach recommends the use of

special techniques and computer tools to speed up each phase. A phased development methodology breaks the system into different versions. Once the developer completes planning, the rest of the phases the first rendition of the system is completed. Then through the maintenance, the system will go through the analysis, design and implementation phases repeatedly, until the final rendition is completed. This provides business value sooner than the other approaches would, and users have a chance to try out the system as the developer makes changes. The drawback to this approach is that once users have adjusted to this design, newer renditions include alterations to features users have grown accustomed. To save even more time, the developer can take a prototyping approach. This approach requires that the analysis, design and implementation phases all occur concurrently. This means that the developer can implement a prototype very quickly. With a prototype, the process of learning from paper is eliminated. A problem arises with systems that are more complicated when prototypes are created quickly: the first few iterations of the prototype may be poor because a careful well thought-out analysis was not performed. If too many problematic prototypes are created, the process changes from time saving to time consuming.

The final method of implementing the SDLC is agile development (Dennis, 2003, p.14). The purpose of this method is to remove some of the modelling and documentation required in each of the phases, which saves time. It is the balance between structured and RAD methods. The most popular method in agile development is extreme programming (XP), which requires the continuous testing and close work between developers and the users of the system. It produces the best results if the methods are followed properly, and in many cases out perform the RAD. This approach,

although effective, requires a great deal of discipline and teamwork. Communication between all members of the team and the focus on the work which must be done is vital to the success of this approach.

Each of the methods suggested above has its own unique advantages and disadvantages. The choice of the use of methods will be left up to the team implementing the system. For the RADAR system, Coronel's SDLC is appropriate due to its breakdown in product development stages suitable for multi-term projects.

2.5 Conclusion

In order to create the best ICT system possible for RADAR, we opened several new avenues of communication. These avenues will allow electronic correspondence to travel over the Internet and intranet at lightning speeds, uniting all of RADAR as if it were under the same roof. The second half of the ICT upgrade was the organisation of information. RADAR requires a CID to centrally store all its information in a way that can be easily accessed and backed up. With these goals in mind, the project could begin, the foundations of which are similar to some ICT systems already in place today. This is not the only foundation, we had to modify the blueprints and redesign the building in order to meet the specific needs of RADAR, which come from it being both an umbrella organisation and an organisation for the disabled.

3.0 Methodology

3.1 Introduction

In order to develop methods of research we must first review the questions that need to be answered. The state of Information and Communication Technology (ICT) at RADAR was not up to employee standards when we arrived on site. One of the first questions that required answering was the initial state of RADAR's ICT system. The responses we received allowed us to decide what types of tasks the system we developed must be able to complete. The next question we explored was the kinds of features employees at RADAR want. Based on Coronel's SDLC, as explained in the background chapter, needs analysis is part of the planning stage. By understanding the needs of RADAR, the solution was customized to fit RADAR's requirements better. These features will allow employees to interact with the system with ease and help them integrate it into their everyday routines. Along the same lines, we learned what disabilities employees at RADAR have. This was important in the design process of the system in order to make it accessible to all RADAR employees. We also evaluated our system design; the performance of the final product as well as the design iterations leading up to it were evaluated. Lastly, we developed methods to train the employees of RADAR to use the new system, including instruction manuals and demonstrations.

As we progressed through our project, we had to keep in mind that our focus was on the ICT system within RADAR itself. RADAR has many member organisations, but our liaison wished that we implemented a working system within RADAR. After completing our project, future project groups will continue our work, expanding this

system to other organisations, including the Enabling Partnership and member organisations.

The framework of design for the system we developed was based on Coronel's SDLC. After the planning stage as described in the following subsections 3.2-3.4, the analysis of the data was described. Analysis is the second stage of Coronel's SDLC. The analysis stage provided the information needed to begin system development.

Development included creating design document elements such as use cases, implementation details, and interface layout. The design document can be seen in Appendix D. The implementation of the system began after the design was complete. Several languages were used to create the system including Hypertext Pre-Processor (PHP), My Structured Query Language (MySQL) and Smarty. Before this development could begin, however, we had to answer several crucial questions.

3.2 Initial State of RADAR's ICT System and Feature Additions

The first two questions we addressed were the initial state of RADAR's ICT setup and the features employees wanted in the system we developed. Since these two questions are very closely related to each other, we decided to address both of them at once. The employees provided ideas regarding possible system improvements and feature sets. Initially, a survey was developed to collect this data. Because RADAR is a small organisation, we interviewed employees individually to learn their ideas. It was easier and quicker to conduct interviews than to develop, distribute and collect a survey in this small environment.

Interviews were conducted to answer these two research questions. Staff working in the ICT department at RADAR were at the top of our list for interviews. The interviews allowed us to determine the state of RADAR's ICT system as it existed when we arrived at RADAR. Questions were asked detailing the problems employees were encountering when completing their work. Staff were also asked about system features that had been proposed, but not yet implemented. Due to the lack of ICT staff and the fast pace at which RADAR is growing, the integration of these features into their system was delayed.

Beyond ICT staff, interviews were also conducted with other employees. Questions were asked regarding how they would want the system to work. Issues that were resolved through the answers to these questions included interface, features, security, and overall uses of the system. The features included the ability to access the system from the internet anywhere in the world, personalized pages for every user, a facility for storing documents and cataloguing work, discussion board, and co-workers' information. The data collected from these interviews can be found in sections 4.2 and 4.3, as well as interview summaries in Appendix B.

As the database/intranet was developed, RADAR employee feedback was also received through interviews regarding their opinions of several implementations. These interviews were conducted during a three week beta test period of the CID. Through the answers to our questions, employees were able to provide a more detailed account of how they wished the system to be used. Beyond data collection, the interviews also allowed us to interact with employees on a personal level. Gaining employee trust was an important aspect to the success of our project. As we spent more time working with

employees at RADAR, they felt more comfortable providing feedback. This allowed us to better assess the progress of our project. The employee recommendations, including bug fixes and preferences, are included in Appendix C.

We analyzed the data using various methods to provide a framework for the design of the CID. We searched for commonalities or themes to the employees' answers to our questions. We first addressed problems that many people were having, as well as commonly requested features. Based on the information gained from the interviews, we implemented the more important features into the system before the less important features. In this way, we prioritized the features. By implementing the system in this manner, we were able to design a system that met the more pressing needs of RADAR employees.

The data collected from the interviews were in the form of written notes from the interview. A summary of these interviews is in Appendix B. As the project progressed, interviews provided useful data regarding the implementation style of the system. From the responses to questions, we could determine the best styles of implementation, including features and interface.

Interviews conducted later in the term also provided important feedback regarding the later stage versions of the system. We interviewed staff members regarding the strengths and weaknesses of the designed system. Based on their responses, we were able to alter our system to fix the problems they felt were present.

3.3 Accessibility

Another question we wished to answer initially was what disabilities do RADAR employees have. RADAR currently has around thirty staff members, many of whom have disabilities themselves. These disabilities may affect the capability of employees to use the ICT system we implement. In order to find out what disabilities RADAR employees have, we consulted our liaison, David Wright. Based on his knowledge of his fellow employees, he was able to provide a summary of disabilities at RADAR. Regarding disability standards, our liaison made it clear that we should not overly concern ourselves with making the system accessible to all disabled people. All employees at RADAR can view and use normal computer systems without the help of special equipment. He demonstrated his desire for a system that does not look like it was made for disabled people. It is a huge task to develop a system that is accessible to anyone with a disability. The W3C accessibility standards are extremely detailed and time consuming. The time it would have required to implement these standards was not feasible for the project. Our liaison decided it was not worth the time to develop one for RADAR at this stage. He advised us to keep in mind the basic accessibility standards when the system was designed. Based on his advice, as well as the fact that full accessibility design would require an extended period of time, we created a system which is accessible to all the employees at RADAR.

3.4 Training

Once our system was implemented, we trained the employees at RADAR. In order to get the most out of our system, employees must be able to use it with relative ease. By using various training techniques, we provided employees with an overview of how to use the system.

We developed several methods for training. We decided that a training manual, demonstrations, and one-on-one sessions would be the best approach to training. These methods covered the various training needs of the employees. Some employees were unable to attend the demonstrations, while others required one-on-one training. The diversity of our training techniques allowed employees to receive instruction in a method that accommodated their schedules and learning styles.

One method of training involved creating a training manual. This manual will serve as a guide for current and future employees through different sections of the system. The development of the manual followed Sun Microsystems' GNOME Documentation Style Guide (Sun, 2003). This comprehensive guide to creating training resources provided best practice methods for creating a training manual for use by computer users. The guide details every aspect of training manual design, including structure, writing style, use of screenshots, and how to create effective section headings. When creating the training manual for the CID, we considered the recommendations in the guide.

The manual is organised by sections discussing the various features of the ICT system, including step-by-step tutorials. The GNOME Documentation Guide suggested

creating sub-headings in each feature, which describe each associated task. These sub-headings were added to allow the reader to easily find information on the particular procedure they want to complete. Examples of these sub-headings include Uploading a Document, Inserting a New Event, and Searching for Contacts. When developing the procedures under the sub-headings, it was important to keep several key ideas in mind. First, just because a procedure is obvious to us, does not mean that it will be obvious to the RADAR employees. The manual includes procedures for even the “simplest” of procedures. It is possible to go too far in explanation, however. The documentation guide cautions against going into detail about any of the coding aspects of creating the software (Sun, 2003).

To allow users to see what the current screen should look like after completing a series of steps of a procedure, screenshots were included. Some screenshots include “callouts,” as defined in the GNOME Documentation Guide. Callouts are labels for the screenshots, used to draw the reader’s attention to key features. Each screenshot has a small description below it, as well as a figure number to allow the user to refer to it more easily based on prompts from the procedures.

The manual begins with a brief introduction, describing the software’s uses. The introduction explains the purpose of the training manual, describing it as a manual for both experienced users and beginners. This was an important step to reach both audience types. The GNOME Documentation Guide reinforced the importance of writing a manual for all levels of computer users, and avoiding writing that “talks down” to the reader (for example, do not refer to procedures as easy or quick). The introduction ends with an overview of the methodologies used to develop the CID. This allowed us to

increase employee confidence in our system by describing the CID as software developed based on a thorough needs assessment, as well as staff feed back. The complete training manual is in Appendix E.

After we have left RADAR, employees will be able to consult the manual if they have any difficulties. David Wright mentioned that employees prefer solving problems on their own, before they confer with the ICT specialists. The manual will allow them to attempt to work through any difficulties they have on their own. If they still have problems, David Wright was well trained in the system based on his experience with us. In the last few weeks, he was administering the system on his own without our assistance. His advanced understanding of the system will allow him to help employees to understand the system, including those who arrive after we leave RADAR.

Another method we used for training is the demonstration. A short demonstration of the system allowed employees to interact with the system. The demo allowed us to present our system based on how employees may use the system in their everyday jobs. We used a projection of the computer screen as we demonstrated the system on a screen. Demonstrations of the system occurred once a week, or five in total. We found RADAR's weekly meetings to be a perfect venue for the demos, as each employee was present. The demonstrations provided benefits to the employees as well as us. Employees learned how to use the system as we collected information on how to adjust it to fit their needs. New features were demonstrated and evaluated by the employees in attendance, as they were added.

After the demonstrations concluded each week, we gave employees an opportunity to provide feedback. The feedback, summarized in Appendix C and section

4.3: Requested Features and Employee Recommendations, presented us with changes to be made to the system. The sessions were met with great enthusiasm by the staff, who were eager to learn about the system being developed for their benefit. The sessions also allowed us to prove that we were providing a valuable resource to RADAR. Staff members often commented on the speed and completeness of the system development.

We realized that some of the RADAR employees may not have complete confidence in the training or the system we developed. We attempted to convince some of the staff members that our system has great value, and that its use will allow RADAR to operate more fluidly and effectively. We also attempted to lighten the mood of the demonstrations. We attempted to remove any tension that the employees were feeling by appearing relaxed and using humour. Beyond presentation tone, it was also important that we provided clear instructions for each procedure. During the step-by-step descriptions, we made sure that each trainee was following along. This included allowing employees to ask questions whenever they felt it was necessary. Answering such questions allowed employees to get a better understanding than what is provided in the training manual. All questions were answered concisely, no matter how simple the answer appeared.

4.0 Data and Analysis

4.1 Introduction

To create a successful CID, we required answers to several research questions :

- 1) What was the initial state of RADAR's ICT system?
- 2) What kinds of features did employees at RADAR want?
- 3) How must our system accommodate employee disabilities at RADAR?
- 4) What changes should be made to the system in order to improve it?

The information collected relating to these questions was the basis of the design of the RADAR ICT system. The most important research technique we employed was our interviews with RADAR staff members. These interviews allowed us to develop an understanding of the problems RADAR was experiencing as well as to gain insight into the types of capabilities staff members wanted in a new ICT system.

The structure behind asking these research questions, as discussed in the background and methodology chapters, is Coronel's SDLC. Prior to any design or implementation of the system, we carried out carefully analysed of the communication and organisational situation at RADAR in order to develop a solution that would benefit the association. Once we collected enough data, the design and implementation of the system took place. Feedback from employees was still very important. However, interviews were conducted during beta testing in order to obtain employee preferences

regarding colours, features, layout, interface, etc. The following sections will describe the data we collected as well as the analysis performed in order to develop the ICT system.

4.2 Initial Status of RADAR ICT System

4.2.1 Data Collected

In order to assess the need for a new ICT system properly, we first investigated the initial state of RADAR's ICT system. Following one of the SDLC guidelines, we set out to investigate this question during our first week at RADAR. Our first impression of the system was during our first meeting with our liaison. The opinion of one individual cannot fully represent that of many, as each employee has a different job and therefore uses the computer in a different way (Write, 2004). Hence, we needed to gather information from all employees.

The main method for collecting data relating to the initial system status was through employee interviews. The users of this system, and our clients, are RADAR employees. They provided us with information on how they use the computer in their daily work. We interviewed all twelve of RADAR's staff members. The summary of these interviews can be found in Appendix B.

The interviews with RADAR staff included the following questions:

- 1) Explain a typical day in the office for you.
- 2) How do you normally use your computer at work?
- 3) What problems are you currently experiencing using the computers?
- 4) What new features would you like to see in a new intranet system?

Question one was asked in order to develop an understanding of the work that each employee completed on a daily basis. This question is not directly related to our project, but rather provided an introduction and background to help understand the employees needs. The information we gathered from this question led us to the next few questions.

The second question provided information on how employees use the computer to complete their work on a daily basis. Many employees did not have a complete understanding of our intentions, and they did not always understand the entirety of the technical jargon used in some of our questions such as intranet. This question allowed us to understand how the current system was used and what features were used the most.

The third question was designed to give us an idea about the types of frustrations RADAR employees were facing. It was important to identify possible areas of improvement. In addition, the possible features implemented in the new ICT system should attempt to fix the problems employees were experiencing.

The fourth question specifically asked about features we could include in the ICT system. This allowed the employees to provide ideas for features they had already

contemplated. We will address this question further in Section 4.3. Detailed summaries of the interviews based on the questions can be found in Appendix B.

Based on the results of question two, we found that many different methods for completing the same tasks were employed at RADAR including those shown in Table 1.

Contact List	Diary	Word Processing	File Storage	Email
Outlook contact list	Outlook diary	Typewriter	Local hard drive storage	Outlook email
Excel contact list	Hard copy diary	Microsoft Office	Network drive storage	
Word Contact list	Excel diary		CD/disk storage	
			Hard copy paper copy storage	

Table 1: Methods Employees Used to Accomplish Common Tasks

Some employees use one aspect such as word processing more often than email, while others use email more often. There are problems associated with each one of these tasks.

The ability to store contact information was one issue for employees. Currently RADAR has a short list of contact information on a shared drive. However, not everyone knows how to use the shared drive, so other methods of storing contact information are used. These methods change from one employee to another. The most popular contact storage method is to use Microsoft Outlook. However, Microsoft Excel and Microsoft Word are also used. The results of question three revealed employees were frustrated with these methods. Each of these programmes stores the contact list locally on each workstation and there was no way to access these contacts outside of the internal network. It is possible for employees to access a Word or Excel file from another workstation in RADAR, but the moment that employee goes off site the contact list becomes unavailable.

Employees currently use the computer as well as hard copies to store their diaries. Outlook is a popular choice to store diaries, as employees can download their schedule onto a PDA. To create a hard copy of the diary, employees sent their schedule information to the system administrator in order for the data to be added to a word document that was published on a network drive. The system administrator expressed his frustration with the system, commenting on how it wasted his time. Once again, employees are unable to access either method of storage offsite. Most of the employees who do not use Outlook use a hard copy diary book.

To store files, employees use many different methods. As listed above, some of these are stored on local hard drives and others are on shared drives. The result is confusion among staff members when they wish to find documents. All of the employees use Microsoft Word for word processing and Excel for chart data. Any file type may be stored electronically on local and shared drives, as well as printed to create hard copies. Staff members are unable to search for files of their own, let alone access files that belong to another employee. The problem of not being able to access the documents off site still remains.

All employees use Outlook for email. Each employee has an email account set up so that Outlook accesses the account. Employees were unsatisfied with this, and expressed the need for an off-site accessible email client, so that they may be able to work off site.

4.2.2 Data Analysis

After completing our interviews with RADAR staff, we met with our liaison once again to discuss our data and to give our analysis. Our liason David Wright is an ICT specialist and is knowledgeable of how the organisation runs. We concluded that RADAR did not have a standardised ICT system implemented and each employee used their own system, which they either invented or adapted from others. Nothing was currently centralised and there was not a simple way to search for information. Time was wasted searching for information, and information was lost. Our system needed to address each concern within each feature.

The lack of a centralized list of contacts was a re-occurring issue brought up by the employees. Each employee has a list of contacts gathered throughout the years, and not everyone's contacts may be up to date. To solve these problems, we designed a contacts feature for the CID. The contact list they create must be simple to use and view, allowing users who normally use a hard copy to be able to adjust to the new system.

In order to facilitate the flow and storage of information, the system will need to provide a common location for employees to store, share, and communicate information amongst each other. There are certain personal files each employee may wish to keep on a local drive, but other documents may require sharing or online capabilities provided by the new system. Employees will then be able to gain access to a certain documents without the need of the document owner's presence. To ensure that all documents uploaded to the system are standardised, a naming convention and folder organization

method will need to be incorporated into the system, which will be discussed in the recommendation section.

The CID intranet most likely will be hosted off site, to allow all users to gain access to it from anywhere at any time. From our interview with our liaison, we found that a deal might be made with a company that will host the system off-site. By doing so, the problem of users not being able to access their information off site will be eliminated. As long as the information has been uploaded to the system, and the terminal they are using is connected to the internet, they should be able to gain access to the information.

According to our interviews, all 12 of RADAR's staff use e-mail almost as much as they use the telephone (see Appendix A). The common theme among employees about the ability to access resources online also arises here, where staff members want to have access to email off site. This system can be made to accommodate this need once an off site server has been established and a decision to allow online access has been reached. If the server is located on site, it may not be available via the internet and maintenance such as backing up the server becomes more difficult. If the server is located offsite, the hosting company will provide backup services and reliability.

4.3 Requested Features and Employee Recommendations

4.3.1 Data Collected

One of the most important factors in the design of our system was the input from employees regarding possible features to include. These features would allow employees

to eliminate some of the annoyances, as described in the previous section 4.2: Initial Status, that they were experiencing. Many of the features had the specific goal of providing employees with the ability to work from anywhere with an internet connection.

We used interviews to collect information relating to possible features of the system. We conducted interviews with RADAR employees on-site and off. Employees were very open to interviews due to the frustrations they were experiencing. Employees requested many of the same features based on the common problems they were facing. The specific features staff members requested included a contact list, diary system, news system, and a file management system.

One of the main problems RADAR employees encountered was finding contact information. It was common for employees to ask other people, including other employees, for contact information. The receptionist's work, for example, requires her to contact people frequently. Other RADAR staff voiced similar concerns. We received suggestions to create a searchable online contact list. If a situation arises when an employee who is working out of office must contact someone, that employee can access contact information on the CID. The contact list feature is explained in section 7.0 of the training manual in Appendix E.

Another commonly suggested feature, as seen in figure 3.2.1 on page forty-eight, was an online diary system. Employees expressed the need for a diary system that they could view online. Users also needed the ability to view other staff members' schedules. This capability would provide employees with a resource, through which they can plan meetings. By viewing multiple schedules on the same screen, employees could find times when all possible attendees are available for a meeting. Employees made

comparisons to the Outlook diary, which with Microsoft Exchange server, can be viewed by other employees online. Due to security concerns with online email access the online Outlook diary system could not be made available as a public resource.

The security concerns regarding online email access also had an impact on the RADAR ICT system. Many employees suggested that that system include email access. However, during a semi-annual meeting with all of the City Road staff, some staff members, including the director at RADAR, were concerned with possible security breaches because some of the emails sent contain sensitive material. This issue was not one a technical nature but of company policy, the director did not want employees to be able to access e-mails from internet café's or other public places. To eliminate any possibility of unauthorised viewing of these emails, the decision was made not to use Outlook Exchange and not to develop a new email system.

Another important communication capability employees requested was a news posting system. A news section reports important events and meetings for RADAR employees. As with the other features, the news system is available online. The system has the distinct advantage, however, of helping system administrators report important news with a method other than mass emailing. The news posting system is explained in section 4.0 of the training manual in Appendix E.

The ability for employees to work on documents from home was also an issue. With no access to email outside of the office, employees initially had to use discs or similar media to bring work home. Eleven employees, or seventy-nine percent of RADAR's staff, requested a document repository for storing and sharing files to help solve this problem. This system allows uploading and downloading of files to a server

that is accessible from any internet connection. Staff also recommended the ability to create permissions for file access. When uploading a file, the managers required that the user be able to select who may have access to the file. The user may select individual people, groups, or all. Employees also requested personal folders that only they themselves could access. The document management system developed for the CID is explained in section 5.0 of the training manual in Appendix E.

Several employees in addition requested a bulletin board. This would allow employees to post messages online without the use of email. We decided after talking with David Wright not to include the bulletin board in the ICT system. Only four out of twelve employees mentioned this feature. The bulletin board also has some inherent flaws. In the case of the Arthritis Care bulletin board, users began posting personal communications rather than important business exchanges. The result was the bulletin board became more of a nuisance than a tool.

During program development, we conducted a three-week beta testing period, in which employees provided feedback on possible improvements to the system. This allowed staff members to provide further suggestions on the creation of the system. Through their suggestions, we were able to create a more customised system to suit their preferences.

Throughout beta testing, we kept records of the changes we made to the system based on employee feedback. These notes are included in Appendix C. Colours were a common issue for employees. The initial colour scheme, in an attempt to capture RADAR's logo colours of red text on purple buttons, was difficult to read for some

employees. The text was then changed to an orange colour, which was met with approval from the employees.

Users also provided input on bugs and other issues they found while using the system during the beta test. Error messages, for example, needed to be added that better described the errors the employees were receiving. We enlarged text boxes so users could view larger amounts of text on the screen. Overall, the employee feedback provided the information needed to produce a system which they could use easily.

One obstacle we encountered was having the diary be too simple for some of the more experienced computer users. Our system, which was developed for ease of use, targeted those who have not been using an electronic form of the diary. The system was simple and easy enough for them to use. To some employees who used the Microsoft Outlook calendar, however, it presented an obstacle. Some staff members currently use Outlook in conjunction with PDA's, which they are able to carry with them. In effect, they are using Outlook to do what our system is able to do. However, it is not cost effective for RADAR to provide a PDA for all of their staff and to train them to use Outlook.

One of the newest features we were able to add was the ability to import and export diaries between Outlook and the system we developed. Changes made in Outlook may be imported into our system, and changes made in the system may be exported back to Outlook. This feature can be seen in sections 6.6 and 6.7 of the training manual in Appendix E. Employees, after observing this new addition to our system, were enthusiastic and were more eager to learn about the system. This feature marks an example of how those with the most basic knowledge of computers may navigate through

the system, while allowing those who are more advanced to continue using their current methods of organising their information.

A concern many of the upper level employees had was security. Remote access could lead to security breaches. Staff members asked for permissions to be set for documents and possibly contacts. Based on our analysis, a group based permissions architecture was the best course of action. This means that certain groups may have more authority over the system and access rights to information on the system (i.e. the administrator) over a regular user.

4.3.2 Data Analysis

Based on the data collected, there were certain features that more employees requested than others. These features were given a higher priority in program development and were implemented first. The following graph displays the features employees suggested on the horizontal axis with the number of employees suggesting each feature on the vertical axis.

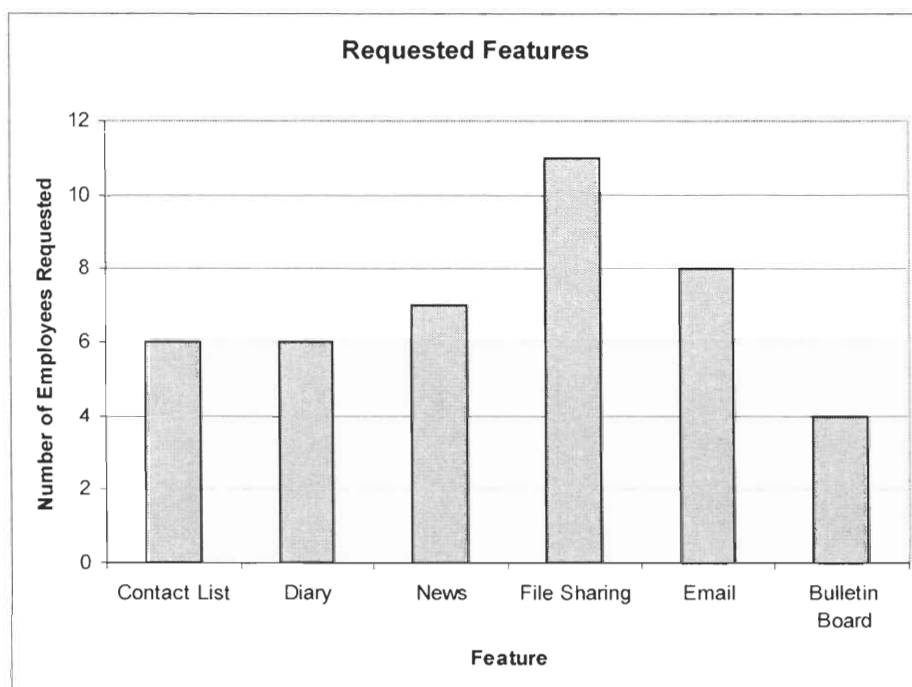


Figure 3.2.1: Requested Features

As seen in the graph, the file storing/sharing system was the most requested feature. This is a result of the problems employees were experiencing with lost files and wasted time searching for files. In the preliminary stages of development, the file management system was the first implemented. Because file management was first, it allowed us more time to fully develop it and fix any bugs in the module.

After file management, email was the most requested feature. However, due to concerns presented earlier we eliminated this feature from the system feature set. We deemed that the news, contact list and diary features were secure and therefore included these in the design of the system.

The most significant capability of the ICT system is the ability to access the features online. RADAR and EP currently have four sites that managers, including our liaison, frequent in order to stay informed of the organisation's status. When managers are off site, it is not possible to access files and email which they sometimes need. The

ICT system will allow managers to “stay connected” to their work. The off site visits they participate in will become more useful due to the file access capacity, as well as the ability to view their own schedules and to plan meetings with off site employees.

The online capability also permits all employees to work from home, which will be an important asset for them. When they are unable to reach the office, they could still have the resources available to complete their work. Should the need arise, employees will be able to access files if they are unable to go to the office because of an emergency or a time restriction. In the event that the internet is unavailable from the office, employees could work from home.

The feature recommendations received from employees along with the problems they were experiencing provided a framework for the design of the ICT system. The goal of the implemented features was to alleviate some of the issues staff members were experiencing as described in section 4.2, Initial Status. We designed the details of each feature in an attempt to provide an easy to use solution, with capabilities that appeal to the employees.

4.4 Accessibility

Another concern we had entering into this project was creating a system that is accessible to all RADAR employees. We interviewed our liaison, in hopes of discovering how employee disabilities might affect computer access. Many of the RADAR employees have disabilities. These disabilities, however, do not impede any current employee’s ability to use a computer. We also acquired reference notes for

accessible document design from RADAR (RADAR, 2003, Accessible). We also considered the World Wide Web Consortium's (W3C) standard for creating accessible websites. The W3C deals with issues such as font size, button types and colours to develop. Although we did not create a public web site, the basic principles behind the W3C are applicable to our project. Our work meets many of the W3C guidelines, specifically those that reflected the needs of RADAR employees.

The focus of the design of our system was functionality. To create a system accessible to all types of disabilities, regardless if they were represented at RADAR, would take a longer period of time than we can devote to the project. Poptel, a professional website development company, created a completely accessible website that follows the third level, also the top level, of the W3C in two years. The fully accessible web site had many more features within it than we planned to have, but we only had seven weeks to complete our system and make it operational. To bring our system to complete W3C standards would require an amount of time that is beyond the seven weeks allocated for our project.

Due to time concerns, we decided to create a system based on the lower level guidelines of W3C and RADAR's accessible document design notes. The main consideration for accessibility is the preferences of employees. Creating a system that provides a useful resource for current employees in the time available outweighs the benefits of bringing the system to full W3C standards. Keeping our focus on the functionality of the system, we will accommodate the needs of the RADAR employees.

We created the system with accessibility guidelines in mind. The accessibility issues we addressed were based on the needs of the employees. These include colour, button placement and fonts.

4.5 Conclusions

The information we collected from staff led directly to our system design. This system, properly used and maintained, will provide an improved communication and organisation setting for RADAR. Based on the information we gathered, we were able to assess RADAR's current situation and ICT needs. RADAR required a CID to improve communication and organisation of information. This CID includes various features, including: the ability to share/store files, view/post news, view and create diaries, and lookup contact information. All these systems have security built into them.

During an offsite interviews with two members of the Enabling Partnership (EP), we also uncovered what could be an important issue for the next RADAR project group. We asked similar questions to those shown in Appendix B, our internal interview protocol. The focus of the next project group is to expand the system we will create and apply it to EP. EP is a much larger organisation than RADAR, with different needs. Although RADAR employees may feel that it is more important for them to have a good document storage system than a bulletin board, EP employees may feel that it is more important to have an updated website for their clients. It is very important that EP's needs are assessed before the system is adapted to their organisation.

The system implemented at EP may also look different as well. EP's staff may have different disabilities than RADAR. Since the current system only addresses the specific needs of RADAR employees, simply copying the system will not be acceptable. Certain visual features such as the RADAR logo will need to be replaced by the EP logo. The system we are leaving behind can be easily expanded to EP or any other organisation. If EP requires further modules or features other than those already in place, anyone with knowledge of the code would be able to improve the system.

5.0 Results, Conclusions, and Recommendations

The goal of this project was to improve RADAR's ability to communicate and organise information. We completed the project in a series of steps as detailed in Coronel's System Development Live Cycle (SDLC). Due to time constraints, the method we chose to use was rapid prototyping (refer to Section 2.4.7 Management Information Systems (MIS) Best Practices). We followed the steps of Coronel's SDLC including assessment, planning, design, and implementation.

5.1 Initial Status of the RADAR ICT System

Through an assessment of RADAR's initial capacity to communicate and organise information, it was determined that this capability was inadequate for the organisation's needs. There were no standards for file storage and sharing. Employees maintained their diaries in many different formats, such as hard copies, and Microsoft Outlook. Contact information was outdated or inaccessible. Employees were generally frustrated about the computer systems. Through interviews with RADAR employees, we determined that it was necessary to design and implement an ICT system.

5.2 Feature Suggestions and Employee Recommendations

This assessment helped us to develop an initial understanding of problems employees were experiencing. Employees also recommended possible features we could integrate to an ICT solution. The ideas they presented became the foundation for the

design of the new ICT system. By knowing their individual and organisational needs, we were able to design our system around those needs.

We specifically intended each of the modules designed for the system to aide employees in their daily work. Given our short time with RADAR, we were unable to address all of their needs. Future development projects, including those completed by future IQP groups, will address the additional needs at RADAR and EP organisations. The system we created includes news, file management, diary and contact list modules.

The file management module may be the most important for RADAR employees. The ability to access files from off-site locations allows employees to become more flexible in their work. Scheduling and planning are vital to the lives of RADAR employees. The integration of a diary/calendar module into the ICT system provided an online schedule device for staff members.

The information RADAR transmits to all staff members required consideration. This includes association announcements concerning meetings, important dates and general important information. We developed a news-posting module to provide a medium for this information.

Another crucial functionality to any association is the ability to contact people. A location must be available that shows contact information for every employee as well as other staff members in EP. We developed the new ICT system with a searchable contact list module to address this aspect of organisational communication.

The completed system contains the four modules described above as well as an administrative module. Administrators have access to all system resources, including the ability to post/edit/delete news articles, as well as create/edit/delete users, groups and

contacts. These administrators will be important to overseeing the system, allowing employees to use it in the most effective way possible. There are also activity-specific administrators that have administrative permissions over certain areas such as news and contact modules.

Initially, we thought that accessibility would be an issue for RADAR because some of the employees have disabilities. An assessment of possible accessibility difficulties found that all employees could use computers without difficulty. Our liaison suggested, and supported by our findings, that we should focus more on the functionality of the system. Using lower level accessibility standards, such as font, colours and layout, we developed a system that was accessible to employees.

The ICT system contains security protections as well. All users must logon to the system in order to access the system's resources. Files can be viewed by all, by a single user, or by groups of users. Only the user who uploaded the file or the system administrator can delete files. If a user stays logged into the system but does not use it for extended periods of time, the user will timeout and be forced to log back into the system. Overall, the system we built provides a secure location for employees to access, share and communicate information.

The system we created provides RADAR with many of the important capabilities they require. The system will allow employees to share, store, and organise information more effectively than previously. This information includes schedules, news, files, and contacts. The system is available at any location with internet access, permitting employees to work from outside the RADAR office. RADAR employees can benefit greatly from the correct use of the CID.

5.3 Training

We developed training resources following the completion of the CID. Training solutions included live demonstrations as well as a training manual. The live demonstrations provided employees with the opportunity to ask questions and evaluate our design. We gained valuable feedback from the demonstration sessions, which allowed us to better accommodate employee needs. The training manual will help employees gain confidence with the CID by providing illustrated procedures for every task in the system.

5.4 Enabling Partnership Considerations

The continuation of the CID project will include further development to expand system capabilities to the Enabling Partnership. This includes a detailed needs assessment of EP as well as CID alterations and additions to fit EP's requirements. Preliminary findings after visiting the EP site provided evidence of a similar situation to RADAR's. EP requires many of the same modules already implemented in the CID, including file management, diary, news, and a contact list. The unique challenge posed by the expansion of the CID will be developing the system for a much larger organisation and creating a system that both RADAR and EP can use successfully. The complexities of the RADAR and EP relationship require further investigation in order to develop a system that properly balances the interests of both organisations. The organisations must reach an agreement on what information is helpful to share and what information should

remain confidential. Once the organisations reach an accord, future project groups will be able to implement an effective CID

Ownership issues will also arise with the creation of a RADAR/EP system. A single organisation should not own the system; both organisations should share the CID. The shared system will allow for mutual responsibility regarding its upkeep and support. The next section recommends eliminating the ownership by splitting the cost of off-site hosting.

5.5 Recommendations

We have several recommendations on how to proceed, now that the system has been completed at RADAR. Our system addresses all of the needs that we identified earlier in this report except e-mail, which was eliminated because of security concerns. However, the CID will only be effective if it is utilised properly. The purpose of the system is to act as a tool to aid RADAR employees. Through proper administration, training, and future development, employees will gain the most from the CID's resources.

To make best use of the file management system, RADAR should develop naming conventions for its files. An example that works quite well is to begin each filename with the file description, followed by the author's name and ending with the last date edited. ICTReportDaveFeb12.doc presents all the relevant file information. A file naming convention similar to this will help employees reduce search times and avoid ambiguous filenames.

In order to allow employees to use the new ICT system to its greatest capacity, they must be comfortable using it. We recommend that at least one employee at RADAR be fully versed in the procedures and capabilities of the system to provide help to other employees. More experienced users will then be available to provide further help to other employees.

One of the most requested features was the ability to check email online. We recommend that RADAR reach a decision on how to allow secure email access online for employees. Remote email access is especially important for travelling staff members. The ability for employees to access email from home and on the road will allow them to diminish their response time to important e-mails.

Hosting options for the CID will have to be investigated. We recommend hosting the CID at an off-site location with a professional hosting company. Professional hosting companies provide a secure, stable location for the CID. Such companies also perform backups on the system, protecting against any loss of information. If both RADAR and EP provide equal funds for hosting the CID at an off-site location, the issue of ownership is eliminated.

The scope of this project encompassed the internal communication structures of RADAR. The next project team will attempt to extend this model to encompass the EP as well as RADAR's umbrella members. We recommend further development in order to create a link between each organisation, allowing information to flow between them. Future projects will require a needs analysis for EP as well as any other relevant organisations. Once these needs are assessed, a complete, encompassing CID system can be designed and implemented to extend the benefits of the project we completed.

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Appendices

Appendix A: Background on the Royal Association for Disability and Rehabilitation

The Royal Association for Disability and Rehabilitation was founded in 1977 with the vision of creating a world without disability discrimination. The people who work for RADAR share in its goals. RADAR currently employs around thirty staff members. Many of these employees are disabled themselves (RADAR, 2003, “What is RADAR?”). At the executive level, fifty one percent of the members are required to be disabled, but most years this number is closer to ninety percent. The people serving on the executive committee are elected into office by RADAR’s members. The head of the executive committee is the chief executive. RADAR also employs policy officers who work specifically on developing disability policies. Information officers provide other associations and individuals information (publications) regarding disability policies and practices which they should be following. Regional officers are in charge of working with member organisations in England. Communication staff members work on RADAR’s monthly bulletin, as well as the organisations website.

RADAR has around seven hundred members including individuals and organisations. Many of the organisations under RADAR provide services to disabled people in general, for example Blyth Valley Disabled Forum, Lewisham Association of People with Disabilities, etc. Other members are specific by disability type, including Blind in Business, British Epilepsy Association, and Arthritis Care. Each member pays a fee related to the organisation’s income level. Being part of RADAR has benefits including receiving RADAR’s monthly bulletin, which provides information on

RADAR's direction and disability concerns. Members are also entitled to take place in RADAR's Annual General Meeting, and the National Forum. These two events provide members with the opportunity to share information with other members, and discuss disability concerns. A list of the members of RADAR can be found at <http://www.radar.org.uk/RANE/Templates/Members.asp?lHeaderID=80>.

In order to deal with RADAR's fundraising troubles, as discussed in the background chapter, RADAR founded the Enabling Partnership. This organisation is in charge of fundraising activities for RADAR. Fundraising staff within RADAR also organise fundraising events and work with sponsors who wish to donate to RADAR. RADAR has published various books which help disabled people in their everyday lives. Funds are also gained from selling these books.

Goals

RADAR lists its goals on its website:

- Ensure that disabled people continue to be at the heart of the decision making process at RADAR;
- Take the lead in devising, upbeat and proactive campaigns towards the social inclusion of disabled people;
- Provide high quality campaigning tools and services to organisations of and for disabled people;
- Develop networks in the disabled persons' movement to maximize the development of inclusive policy, legislation and regulation;
- Develop and disseminate best practice information about user-centred, user involvement to organisations for disabled people;
- Develop fresh ideas through strategic external alliances and partnerships, in support of social inclusion for disabled people (RADAR, 2003, "About Us").

All of these goals result from RADAR's overall mission as stated on the website: "Our mission is to enable disabled people and disability organisations to initiate, develop and encourage change and campaign for a fully inclusive society" (RADAR, 2003 "RADAR"). Much of RADAR's work moves towards political change. The association campaigns for disabled people's rights, against the discrimination of disabled people.

RADAR goals focus on the idea that disabled people should be given an opportunity to live an independent life. Disabled people must not be looked at as disabled; society should be fully inclusive to their needs. Currently, RADAR is focusing on areas such as education, employment, economic independence, transportation and access to the built environment.

A recent publication by RADAR, The Seven Year Itch, provides a good summary of RADAR's goals. Regarding education, RADAR believes that disabled children should have the same opportunities as other students ("Education", 2003, p. 12). RADAR understands certain challenges will arise when advocating for change, including the increased expenses to schools, and training teachers so that they may be able to aide disabled children.

The DDA addressed employment discrimination in some detail. Problems have occurred, however, and discrimination in the workplace has continued ("Employment", 2003, p.14). Most progress has been made in respect to large businesses. Smaller businesses are reluctant to accept disabled people into their organisations. RADAR believes that employment should be fully inclusive. Disabled people should be given all the same opportunities, and access that non disabled people experience concerning job

opportunities and work environment. RADAR is currently pushing to implement the Disability Rights Task Force, which eliminates small business exemption from the DDA.

As a result of employment discrimination, many disabled people experience economic troubles. Disabled people typically receive lower wages than non disabled people. Being disabled, most people have increased expenses due to transportation, special equipment, and doctor's fees. Movements have been started to help disabled people deal with these added expenses, including the Disability Living Allowance (DLA) ("Economic Independence", 2003, p. 21) Many disabled people, however, do not claim their specified DLA. RADAR is asking the government to provide information regarding the DLA, in order to encourage disabled to claim their DLA.

Another problem RADAR is currently pursuing has to do with transportation. At present, transportation is typically inaccessible to disabled people. As part of the DDA, new busses and trains must be accessible to disabled people by certain dates ("Transport", 2003, p.16). Like the employment provisions in the DDA, certain transportation providers remain exempt. RADAR wishes to improve the law by removing exemptions and improving access to transportation services.

Like transportation, access to buildings in London is somewhat restricted to disabled people. The DDA provides some degree of regulations on access to buildings and parking ("Access to the Built Environment", 2003, p. 17). The act does not go far enough, however, and only provides a minimum standard for access. RADAR again wishes to update the DDA to provide a more complete view of proper access for disabled people. RADAR also is in the process of informing local access groups, so that they may be able to assess the problem more effectively.

RADAR is currently pursuing change in other areas such as housing, independent living, politics and legislation, information and health. Like the areas described above, the desired outcome of RADAR's work is the full inclusion of disabled people in society ("Hollywood Ending", 2003, p. 28). RADAR will also continue to support all organisations which are for the aide of disabled people. As a result of the work done, RADAR hopes to eliminate discrimination against disabled people, as well as helping disabled people feel "enabled."

Accomplishments

All of RADAR's work is done in the aide of disabled people. The organisation produces books, brochures, and guides describing services for disabled people, as well as describing how disabled people can lead normal lives. Some examples of this work includes access guides, travel guides, and education guides for disable people.

In 1995, RADAR helped pass one of the most influential bills for the rights of disabled people. The Disability Discrimination Act (DDA) was created to end discrimination against disabled people, mainly concerning employment, access to goods, facilities and services, and buying or renting land or property (disability.gov, November 17, 2003). Though the law was a huge step towards gaining rights for disabled people, RADAR's Seven Year Itch states that the organisation remains disapointed ("The Law", 2003, p. 6). The law failed to address other issues such as education and transportation. RADAR remains committed, however, to ammending the law to encompass a wider area of concerns. In a survey conducted in 2002, RADAR recieved feedback on the direction

the organisation should turn towards. The results of the survey showed that people were genuinely concerned with the omissions from the DDA. As a result, RADAR has defined its new mission as working towards overcoming the weaknesses of the DDA, and campaigning for change in the law.

Later in 2002, as described previously, change did come with respect to the DDA. The law was amended to include provisions regarding education. The amendment was designed to eliminate potential discrimination in educational institutions. The law also states that educational institutions must attempt to make “reasonable adjustments to ensure that a disabled student is not placed at a 'substantial disadvantage” (disability.gov, November 18, 2003). Through these additions to the law, RADAR hopes to move closer to eliminating discrimination towards disabled people. Although much progress has been made, RADAR will continue to push for further revisions to the DDA.

Appendix B: Interview Questions and Results

Questions – Series of questions we asked each of the employees

- 5) Explain a typical day in the office for you.
- 6) How do you normally use your computer at work?
- 7) What problems are you currently experiencing using the computers?
- 8) What features would enhance the ability for you to do your work? These features may be features RADAR currently does not have or features you have used in the past with other organisations. (We suggested possible features to each of them if they had difficulty coming up with features on the spot)

Interviews – City Forum

Haqeeq Boston, Research and Parliamentary Officer 13/1/04

- Contacts clients, uses outlook a lot
 - uses outlook's diary, wants an inter office diary
 - remote email access
 - used to use outlook for file sharing
 - currently uses shared local drive space
 - prefers the one person can use file at once

His main concern is a good documents system and off site email access. Since he uses Outlook along with his PDA, his diary is always up to date and he has all of the contacts he needs on his PDA. He has his own style of file convention, which we believe works very well. He suggested including a feature where a document can be revised, but have old revisions of the document accessible online as well.

Kieran Bright, Campaign Manager/London 13/1/04

- some sort of discussion/communication board with admin control
- server needs an auto update function (of contacts and such)
- problem with the inbox

Kieran uses Outlook with personal PDA. He would like to have some sort of discussion board with admin control. He stated concerns regarding a mass collected list of contacts. Would the contact list be automatically updated, or should someone be in charge of updating it?

Mark, Temp 13/1/04

- unreliable servers, up/down once a week
- disclaimer on emails, especially temps (RADAR should have a disclaimer at the bottom of each of their emails)
- database, currently everything is paper based
- slow machines, slow connection

Temporary staff member, will only be there a few months. Does not need to use a system for his work. However, general problems in RADAR need to be fixed. Problems are listed above.

John Stanford, Publications Editor 13/1/04

- does not like to use computers, rather use the old typewriters and paper
- unfamiliar with computers and they are always not working (stability issues)
- only uses email and word processing, but has a problem gaining access to organisation's email addresses

He is not very experienced with computers, and is more familiar with non-electronic forms of work. Because of his unfamiliarity, he has many problems with the computer. One concern he has brought up is the need for a good email contact list. The list he currently has is not always updated and he cannot always find what he needs, where as if he was to use the phone, he can call to find out.

Cynthia Mathews, Membership and Events Manager 13/1/04

- archival storage space – central location for everything
- work at home, home access to emails and disk drive space

She needs a good archival storage space system. We asked if a document repository we are proposing is what she's looking for, and as long as it's accessible off site and is the central location for all the documents she needs, that's fine. She also needs to access her email from home, which would really speed things up for her.

Rachel Ellis, Reception Co-ordinator 13/1/04

- staff info pages, quick reference for phone numbers
- member organisation phone numbers and addresses (i.e. Enabling Partnership)
- auto reply for emails
- list not only personnel info, but current projects as well

Her job as a receptionist requires her to constantly look up contact information for not only staff at RADAR, but other member organisations as well. A good list of contact information would really help her out.

Kate Nash, Director 14/1/04

- Background of RADAR
 - government influence
 - legislation created
 - staff drop from 50→25 staff
 - learn from the US, US ahead in area of disability legislation
 - new organizations being added to RADAR
- Computers – not good with them
 - emails, help with personal organisation –outlook
 - word processing
 - some stuff is confidential
 - diary-hard copy, not working
 - needs some priority/travel time in diary
 - emails documents to people instead of using drive
 - security- sensitive documents accessible to only certain employees
 - work at home
 - as john says, they don't have all of the other member org's emails

She realises that the organisation is having problems with their organisation and communication of information, partly because the staff there is mostly new. There is also a difference in computer skills, as she notices there are some who are very comfortable with using one. She is not proficient in using a computer, so whatever we do must be as simple as possible. All of the features previously noted by other staff members were brought up through this interview.

EP's fund raising department.: Becki Jupp, Karen Duncan-Bernard, and Sarah Pyser.
14/1/04

- bulletin board
- News, personal pages with info on current projects
- share that info with other member organizations
- fund raising page
- mainly uses outlook
- suggested we talk to some board members of EP

Mainly needs a good webpage, being able to reach out to other organisations and accessing personal information. Personal profile pages would be nice. Mainly uses outlook now to send/receive documents.

Raquel Abreu, Parliamentary and Research Asst. 14/1/04

- website needs work, website is behind compared to other orgs
- needs to be updated and needs a better easy to use design/interface
- shared space, mainly needing more standardisation
- archive, centre location for all info

Needs better website, one that is updated regularly. The design and interface (physical appeal) needs to be improved as well. Needs a central location to store documents, some sort of online archive, with standards in place so that information can be found.

Ed Mylles, Operations Director 14/1/04

- not the best with computers mainly uses them for word processing/documents
- needs a contact Database for people and member org.
- currently each staff member has own list of contacts not shared with others
- set up some sort of emailing alias for RADAR or EP, etc.
- standard software on all of the machines
- possibly updating all of RADAR's system at once (once a month)
- agreed with all of the other comments

First off admits not being very good with computers. Much like Kate, he needs what the staff needs, as he uses all of those features the staff have suggested.

We conducted these interviews during the first week. Employees were very willing to participate. They provided very good information that we will use to design the ICT system. Based on the information we received, the main features employees want in a new ICT system are some sort of online diary viewable by all employees. This information would be important for meeting planning purposes. Employees also want a system to store and share files. These files should be available from work and home, or

anywhere with internet access. Security should also be considered, including the ability to restrict the access to sensitive documents. Some employees also want the ability to view news concerning RADAR. In the future, news would be extended to member organisations. Employees would also like to be able to access email from anywhere with internet access. This would be helpful for days when they cannot make it to the office. Another desired feature is a listing of contact information for employees.

Croydon

Daljit Kalair, Sales and Sponsorship Manager 27/1/04

- explained the needs and structure of the Croydon office
 - other organization that are a part of EP are work there as well
 - mainly work on fundraising/sponsorship
- their system more stable than RADAR (working phones, internet connection more stable)
- they have the same needs and concerns as the main City forum office
- diary would help them out a lot, since they are at a different location, it is not possible to simply walk around the building to look for someone
- security admin control – possibly have him as admin in Croydon, Dave would be admin for City Forum, and Andover would have another one
- needs for training
- key concern and feature needed is the ability to share files effectively
 - being away from the main office there are sometime problems accessing files from the main branch
 - an effective file transfer/sharing system would help the office move away from hard copy filing and storage, as hard copies may get lost. It is hard to retrace the steps of a document that was sent to the wrong place
- news section would be nice
- documents get sent out as hard copies, but if they get sent to the wrong place or miss placed, takes too long to look for another one, if it is not online somewhere
- accessing email out of office not our control, should talk to David about

Also another EP member org. there, **Holiday Care**

- only about 3 staff members, no need for complex system like online diary
- completely different needs than RADAR
- main use is to look up information for customers, so what they need is a good archival storage system.
- currently storage has been split into two, so information is jumbled between two systems – time wasted

-- company they hired to transfer files found out half way through they were undercharging holiday care. Once prices went up, holiday care couldn't afford them anymore

Andover – Enham

Kevin (marketing director)

It was through this trip we began to understand the relationship between Enabling Partnership, RADAR and Enham. Enabling Partnership was created when RADAR was in some financial trouble. Enham helped RADAR through this and Enham created what they called the Enabling Partnership through this. RADAR, along with some of the other EP members, believe them all to be equals, as the title should suggest, it is a business partnership between each one of the organisations. Enham, however, sees themselves as EP, because it was they who came up with the funds and the idea. They believe that Enham's name is technically Enham Enabling Partnership, where RADAR and Holiday care are members underneath them.

This difference between the two views has created some political issues. With regards to our own project, this has little impact on us, because we are creating a CID for RADAR, and we are working for RADAR. The information RADAR puts on this system is completely up to them. The problems lie with the RADAR D term group, when they have to work with some of the naming conventions. For example, if a presentation were to be given to Enham, their logo should be included and the emphasis should not be focused on RADAR, but rather more on Enham and their needs.

Enham is a much bigger organisation, and they have slightly different needs the next group needs to focus on. Many much of their data is still filed as hard copies, which will take them time to convert to electronic copies. A good contact list and diary system is what they are looking for. As well, having certain business areas to their compound, they need a client friendly website (which is not what these two projects are about, but we're keeping that in mind).

Recommended approach is to talk to one of their heads (possibly Kevin again) to straighten out some terms or run through the presentation in front of him before actually giving it to the rest of the board.

Appendix C: Feedback from Beta Testing

We were able to receive feedback from the staff on our system through beta testing. By introducing them to the system and guiding them through each aspect of the system, we found certain aspects of the system that required improvements. Beta testing was completed during the last three weeks of the project.

Visuals

- Colours – need a good colour scheme. Dark red on dark purple doesn't work. Bright red on dark grey doesn't work. Follow accessible doc. Design guide. Certain fonts and font sizes do not work either.
- Logout button – g goes into the black part
- Make white text boxes longer so that when someone types in something long they can see what it was they typed in

News

- create news admin – has admin power over the news section only

Documents

- tells you what folder you are in, possibly a thing like windows c:/documents/iqp
- add icons to files/folders – make the name bigger

Diary

- make a name telling people who's diary is currently being viewed
- put the links for inserting events at the top of the table rather than the bottom
- make end time 15 min after the start time (auto)
- make month event boxes bigger to show more than 2 lines
- make it compatible with outlook
- allow an event to repeat through the whole week, or whole month (aka a meeting at 2 every tues for three months)

Contacts

- make sections segments
- list out organisation and job title

Full system

- Tells you who is in what groups, once someone is put into groups, there should be a way to find out who belongs to what group
- Custom error messages – if an error occurs, the system should tell the user what that problem is
- Delete error checking – something like “are you sure you want to delete this document?”

Appendix D: System Design Document

Use Cases

Prerequisite Logon to the system

Document Sharing and Organization System

Post a document

- Click documents section
- System displays home/root folder
- Find directory or create a new directory
- Click submit new document
- Choose the document(s) to submit
- Select where to upload the document to
- Set file permissions
- Click the upload button
- Watch file transfer status
- Await successful conformation from the system
- System goes to directory documented was posted in

Retrieve a document

- Click documents section
- System displays home/root folder
- Find directory or use search to find the file
- Click on the document
- Click where to save the document on local machine
- System serves file up
- Client receives file

Delete a document

- Click documents section
- System displays home/root folder
- Navigate to directory it is in or search for the file
- Click the delete button
- If you were the original poster it prompts to make sure u want to delete the file.
- Select Yes
- The file and all previous revisions are deleted

Delete revisions only

- Click documents section

System displays home/root folder
Navigate to directory it is in or search for the file
Click the delete previous revisions button
If you were the original poster it prompts to make sure u want to delete the file.
Select yes
All older revisions deleted

Retrieve older revisions

Click documents section
System displays home/root folder
Navigate to directory it is in or search for the file
Click review revisions button
All the revisions are displayed starting with the original document up to the newest file
Click on the revision you are interested in
Click where to save the document on local machine
System serves file up
Client receives file

Delete specific revisions

Click documents section
System displays home/root folder
Navigate to directory it is in or search for the file
Click review revisions button
All the revisions are displayed starting with the original document up to the newest file
Click the delete button next to the file you want to delete
If you were the poster of the revision it prompts to make sure u want to delete the file.
Click yes
That revision is deleted

Post Revision

Click documents section
System displays home/root folder
Navigate to directory it is in or search for the file
Click post revision for the document
Browser pops up asking which file
Select file
File is uploaded to server
Brought back to directory the file is in

Possibly (Change Permissions)

Click documents section
System displays home/root folder
Navigate to directory it is in or search for the file
Click change permissions
Select proper permissions changes
Click submit
Brought back to directory the file is in

Search for document

Click documents section
System displays home/root folder
Enter string to search for
Click search
Returns search results

Calendar

Add an Event

Click on the calendar section
System displays calendar dates
Click the add event button
Shows series of information which needs to be imputed
Fill in fields
Possibly invite others to the meetings
Click submit
Brought back to the calendar to whatever you were viewing

Delete an Event

Click on the calendar section
System displays calendar dates
Click the edit/delete event button
System shows list of events with check boxes
Check events to be deleted
Click the delete
Updated page with event deleted

Edit an Event

Click on the calendar section
System displays calendar dates
Click the edit/delete event button
System shows list of events with edit button next to each item

Click edit
System displays original event with field
Click submit
Brought back to page with updated info

View multiple schedules

Click on the calendar section
System displays calendar dates
Click on the date
Click View other users button
Check the boxes next to the users you want to view
Click submit
Shows everybody's schedule next to each other

View others calendar

Click on the calendar section
System displays calendar dates
Click on the view different calendars
Click on the name of the person's calendar you want to view
Displays the calendar for the person you selected

View a day's details

Click on the calendar section
System displays calendar dates
Click on the day you want to view
Displays the day by ¼ hr intervals

Contact List

Add contact

Click on contact list section
Click add contact button
Input information about the person that is being added
Click the submit button
Displays the contact list main page

Edit contact

Click on contact list section
Locate the contact either in his category or by searching
Click the person's name
Click the edit button

Displays the persons information editable
Change appropriate information
Click submit
Displays persons new information

Delete contact

Click on contact list section
Locate the contact either in his category or by searching
Click the person's name
Click the delete button
Confirm deletion message displayed
Click yes
Returns to the main contact list page

Search for contact

Click on contact list section
Enter what you want to search for
Click search
Displays all results with the character string in it

Possibly (Advanced search for contact)

Click on contact list section
Click advanced search button
Fill in the information you want to search for
Click search
Returns results of search

News Section

View latest news

Click on news section link
Displays the latest news events

Find older news

Click on news section link
Displays the latest news events
Click older news button
Either find the article by browsing through the list or use the search
Click on the title of the article you want to view
Displays the article

WPI CS Documentation Standard

Author: Nathan Clark, Haydon Hung, David Jeannotte, Eric Leshay

Date: 2/11/04

Version: 1.0

Project ID: RADAR?

Programming Language: PHP, MySQL, Smarty

OS/Hardware dependencies:

Platform Independent. Requires a server capable of running PHP and MySQL for all connecting clients. Also requires disk space for file storage and a network connection. Minimum requirements: P3, 128 Megs of RAM and 1 gigabyte of disk space. This requires a minimum of Apache web server version 2.0.48, PHP version 4.3.4, MySQL version 5.0 and Smarty version 2.6.1.

Problem Description:

RADAR requires improvements to the organisation's ability to communicate and organise information.

Overall Design:

Functional design with structs. Each subsystem is divided into its own folder. There are currently 7 subsystems: News, Documents, Diary, Contacts, MyAccount, Administration and Security. Each folder contains an index.php file that is loaded when a subsystem is accessed. The system is event driven and only stops to wait for new user input. Functions common to most of the subsystems are stored in the library or lib folder. These files often end in 'inc' short for include. The Smarty engine is stored in the Smarty directory. The template files are stored in the skins directory. This includes two folders one for the templates and another for the compiled version of the template. The templates directory contains files that end in tpl and this contains the layout for each page. There is a separate template file for every screen displayed to the user. Data in the system is most often represented in classes or structs. The most common of which is assigning a value to smarty that can be pulled out later and printed to the screen. We also use several classes; we have a class for retrieving data from the database as well as several classes that are similar to C structs that allow us to keep related data together. We also maintain a list of useful globals that are used throughout the program that can be found in /lib/include.inc.

Program Assumptions and Restrictions:

This program does assume that the database schemas have already been loaded into MySQL before running. It is also assumed that the administrator has made the necessary

changes which are detailed in the installation instructions to connect PHP and MySQL together. When it starts it will only have one user account with username Administrator and password Administrator. It is strongly recommended that the password is changed the first time you login.

Interfaces:

The interface to this program is a webpage. The webpage begins with a login window with a field for username and password. After the login the user is presented with the main page. Every in the system except the login page has a navbar on the left and logo in the top left. The main page shows two pieces of information, news and meeting announcements. Meeting announcements let you know if anyone has invited you to meeting, or if you invited how other users, how they responded. The news shows small summaries of articles that can be viewed further by clicking on the title.

The next section is documents which provides an interface for posting documents. There are fields for creating a folder or uploading a document. Once these are filled in a new page unfolds prompting the user for more information about their folder/document including a description and permissions. On the main page, if you own a folder or document, you also have the power to delete it, but only after the system receives confirmation of your actions.

The third module is the diary section. When entering this section the system displays the current months calendar and any events in the month. You can click on any event to get more information or click on a certain day to view it more in depth. The day view shows an entire day in fifteen minute increments and any events you currently have scheduled. From the diary main page users can add events, and invite other users to their events. They can also view the in depth day view along with other members diaries to compare schedules.

Next is the Contacts module where you can search a database of contact information to find out more. The user can search by various different criteria including first name, last name, organization or all of the above. They can also just click a view all button and see the exhaustive list. The search results are ordered alphabetically with last name first along with email, work number and organization. The users name is a link which leads to a page to more detailed information such as address, home phone and cell phone.

The last module for the average user is MyAccount. This module allows the user to modify information about their account. This includes their own contact information as well as changing their password. In the future this page would probably include preferences such as font colour and size.

The Administration module is only viewable and accessible to a user in the administrator group. This page allows the administrator to create new accounts, edit existing accounts and delete accounts. They can also create/edit/delete groups and

contacts. This allows the administrator the power to control the system and control user access when necessary.

The interface within the system occurs most often between PHP scripts and the smarty templates. The information is calculated in the PHP and then displayed within the smarty code. With this mentality if you wanted to change the appearance of the website you need only change the template files and leave the PHP files alone. Vice versa if you wanted to change an algorithm or the information appearing you only need to change the corresponding PHP file. Interaction with the database is handled by a custom class instantiated as a global with the name of \$dbConn.

Implementation Details:

There are two different types of files the PHP and smarty templates. The PHP files are split into sections, the first portion of the file is run when it is loaded and acts as a control because it directs the flow of the program. The next section contains functions which are called from the above control program as required. The third part of each file contains any classes that are necessary in the script. The template files contain straight HTML with references to values passed by smarty to be displayed. It is important to try and maintain the separation of PHP and smarty; it is possible to embed PHP in smarty with the {php} and {/php} tags, although it is highly discouraged.

As a naming convention variables are all lowercase and separated by underscores. A class begins with a capital letter and uses bumpy case or as it is also known camel case. Functions don't begin with capital letters but do use bumpy case/camel case. Most variables are local to a module. If information needs to remain persistent then it must be stored in a table in the database. There are a few global variables in the include.inc file within the lib folder.

How to build the program:

No building is required, if it is installed correctly the code is compiled and run when a webpage accesses it.

Program Source:

Root directory:
index.php

Admin Module:
contact.php
account.php
groups.php
index.php

Contacts Module:

contacts.inc
index.php
viewContact.php

Diary Module:
conference.php
day.php
index.php

Documents Module:
create.php
delete.php
download.php
index.php
perm_conf.php

myAccount Module:
index.php

News Module:
admin.php

Security Module:
login.php
logout.php

Library:
CalendarPopup.js
db.inc
dbutil.inc
include.inc
init.inc
login.inc
permission.inc

Templates:
accountAdd.tpl
accountEdit.tpl
addGroup.tpl
admin.tpl
contact.add.tpl
contactList.tpl
day.select.tpl
day.tpl
delete.tpl
diary.change.tpl

diary.new.tpl
diary.select.tpl
diary.topl
documents.topl
error.tpl
footer.tpl
group.edit.tpl
header.tpl
login.tpl
myAccount.tpl
news.tpl
newsEdit.tpl
perm_conf.tpl
updatePass.tpl
viewContact.tpl

Additional Files:

/news/articles/, directory can be empty
/skin/cid.css
/smarty/plugins/function.html_table.php
/images/, directory contains all images
currently 48 images

RADAR Corporate Information Database Training Manual

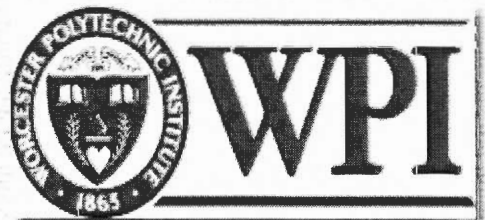


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1.0 Introduction

The information provided in this training manual allows users, both experienced and beginners, to use the Corporate Information Database (CID) to its greatest capacity. The CID is composed of six modules including news, documents, diary, contacts, my account, and administration. Each of the modules is described in detail in this training manual. Step-by-step procedures, supported by screenshots are included to help users complete all possible tasks using the CID.

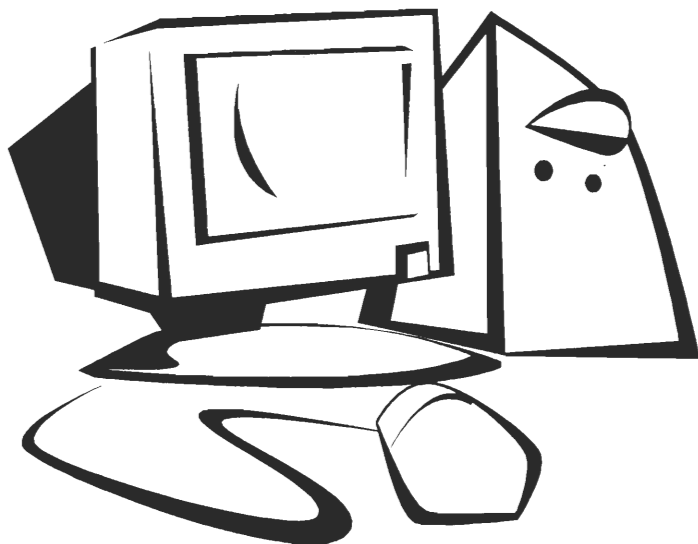
The CID presented in this training manual was the result of a fourteen-week project completed by four Worcester Polytechnic (WPI) Students. Each module created for the CID was the direct result of employee feedback regarding feature preferences, problems they were experiencing using the computer, and employee suggestions. We hope that by using the CID, with the help of this training manual, everyday work tasks will be completed more efficiently.

Sincerely,

Nate, Haydon, Dave and Eric
The WPI CID Team

2.0 What is an Intranet/Extranet?

In today's modern world, organisations must have the ability to communicate information instantly in effective methods. The information must be presented in an organised manner, allowing users quick access. With the advent of the internet, information exchange has become easier. While the internet is available to everyone with an internet connection, certain information must be kept private. Corporations around the world have developed intranets to keep private corporate information within the organisation. Corporate Information Databases (CID)'s allow organisations to develop organised, secure means of information transmission over the intranet. Intranet/Internet hybrids, or Extranets, provide users with the ability to access their organisation's CID's from anywhere with an internet connection. Security remains in place, as each user must logon to the CID in order to access the resources provided. The use of an extranet allows employees to become more efficient, with the ability to access the information at different locations, including home.



3.0 Login

The first step to accessing the CID is to login to the system.

1. Enter the CID address, provided by your administrator, into the address field in Internet Explorer.
2. In the following screen, enter your username and password.
3. Click the submit button to complete the login procedure.

After entering your login information, the following screen appears.

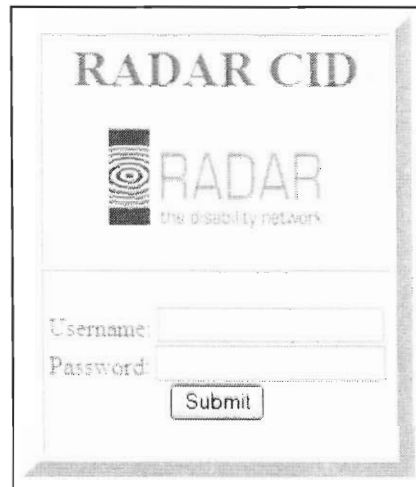


Figure 3.1: Login Screen

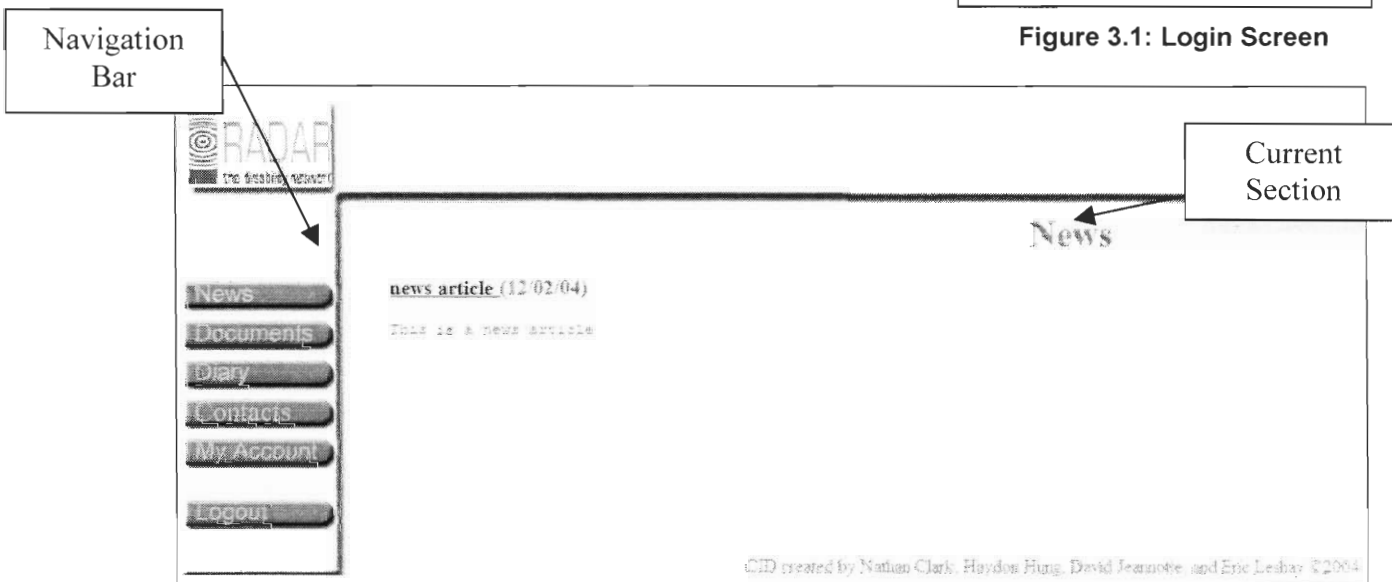


Figure 3.2: News Page

The links to other sections of the CID (documents, diary etc.) are on the left side of the screen.

4.0 News

The news section of the CID is the first screen seen after logging in. Articles relating to events and happenings around the organisation are displayed. System administrators can add/delete and edit news articles.

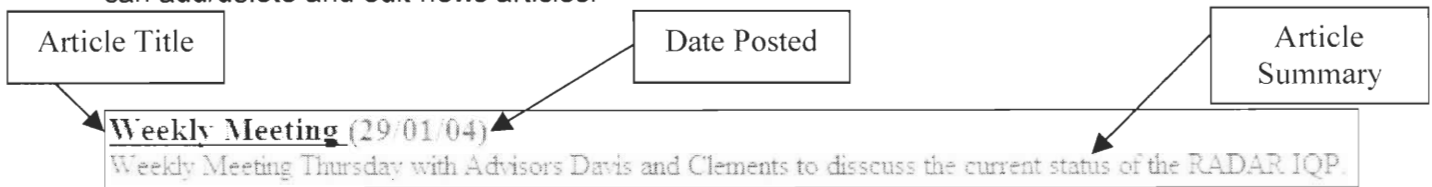


Figure 4.1: News Article Summary

Each article is labeled with a title and the date on which the article was posted. Below the title, a small summary is displayed. The summary is the beginning of the entire article. To view the whole article, click on the title. The expanded article will then be displayed in the window.

If you have any news which you deem important enough to post on the system, contact your system administrator regarding the details of the news.



5.0 Document Repository

The second tab in the navigation bar leads to the Document Repository system. This system allows users to upload/download and share documents. Users can upload documents up to 8 Mega-bytes (MB) in size. File permissions can be assigned based on groups of people or individuals. When the Documents button is clicked, the following screen displays.

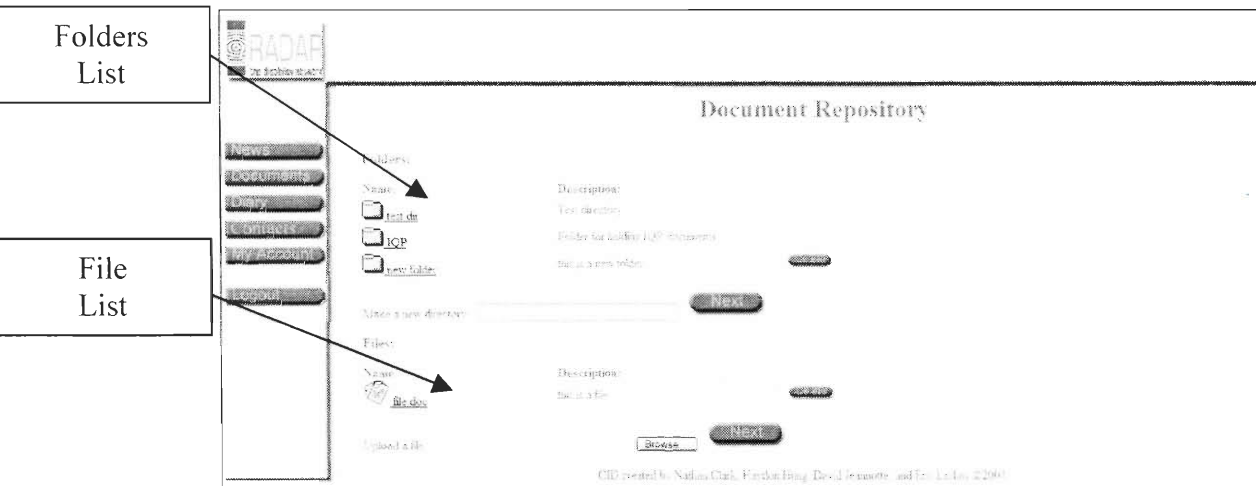


Figure 5.1: Document Repository Front Page

5.1 Creating a New Folder

In Figure 5.1, there are two folders available to put files in. New folders can be created to store additional files. To create a new folder:

Figure 5.2: New Folder Field

1. Type the name of the new folder in the “Make a new directory” field shown above in figure 5.2.
2. Click the Next button
3. In the following screen, shown in figure 5.3 below, enter a description of the folder you wish to create.
4. Select who can view the folder and its contents from the permissions drop down box. This includes allowing everyone to view the folder (all), just yourself (personal) or a predetermined group as defined by your systems administrator (groups).

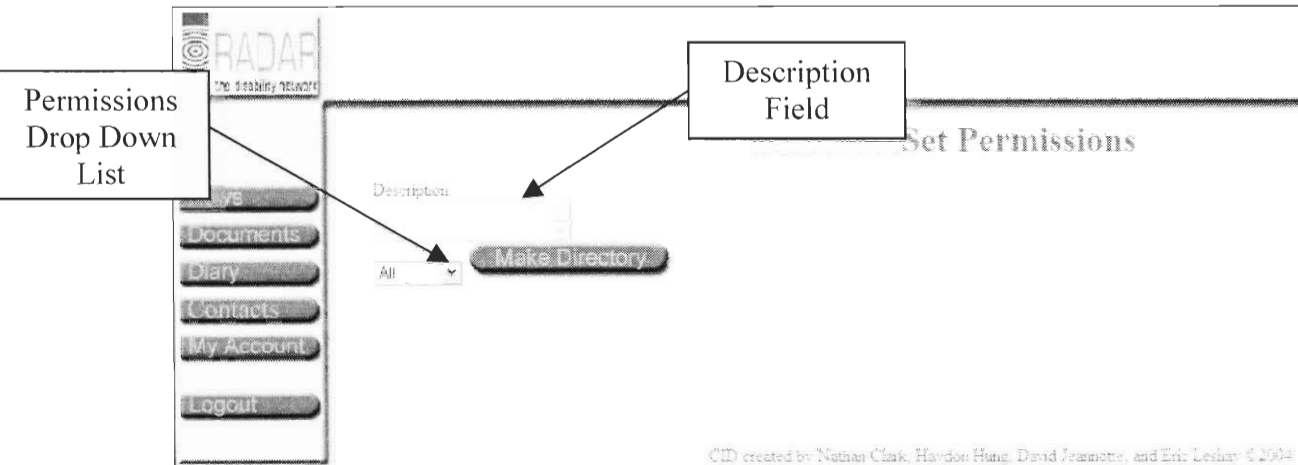


Figure 5.3: Set Permissions for New Folder

5. Click the Make Directory button
6. The next screen that displays is the contents of the new folder. No files will be in the folder immediately after creation.
7. Files may be uploaded into the folder as covered by the next section, "Upload Files."

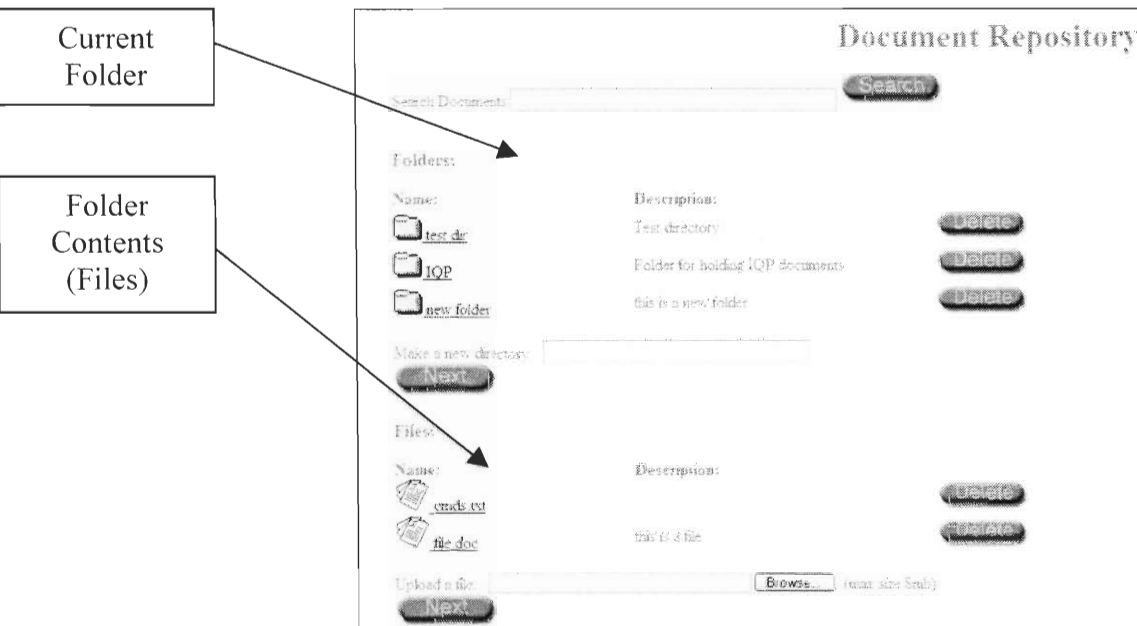


Figure 5.4: New Folder Created

5.2 Uploading a File

Uploading a file adds the file to the system. The file is then available to be downloaded by those who have permissions to the file. To upload a file to the system:



Figure 5.5: Upload a file Field

1. Navigate to the folder you wish to add the new file to.
2. Click the "browse..." button.
3. In the following screen, shown in figure 5.6, select the file you wish to upload and click the "Open" button.

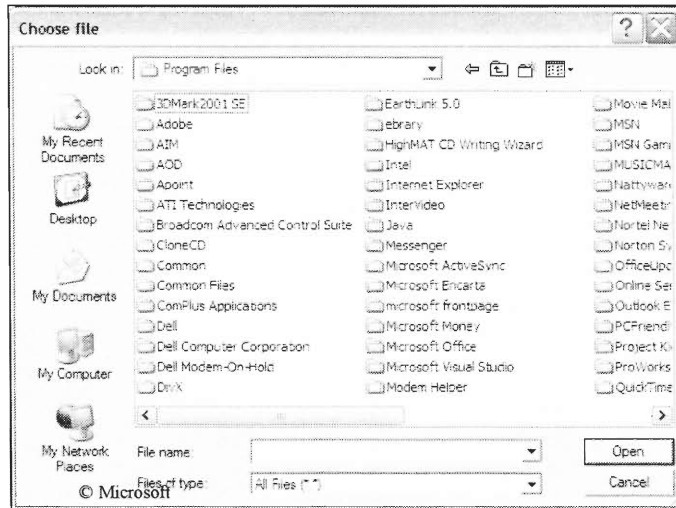


Figure 5.6: Browse for file to upload

4. The file location appears in the "Upload a file" field as seen below in figure 5.7.



Figure 5.7: File Location Appears in "Upload a file" Field

5. Click the "Next" button.
6. In the following screen, enter a description of the file.
7. Select who has access to the file using the permissions drop down box. This includes allowing everyone to view the file (all), just yourself (personal) or a predetermined group as defined by your systems administrator (groups).

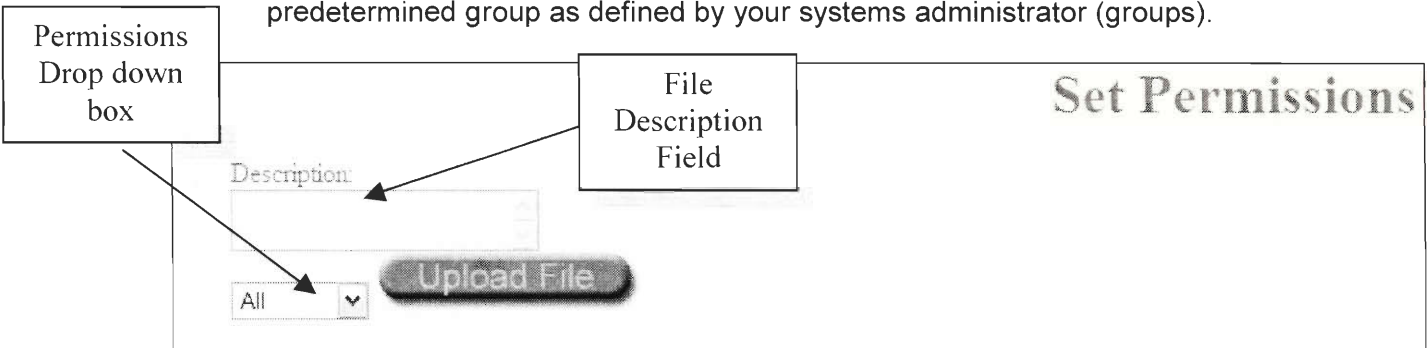


Figure 5.8: Permissions for New File

8. Click the "Upload File" button
9. The new file appears in the folder along with its description



Figure 5.9: New File

10. The new file can be deleted as described in the "Deleting a File or Folder" section.

5.3 Deleting a File or Folder

The person who created a file or folder, as well as administrators have the permission to delete the file or folder. To delete a file or folder:

1. Click the "Delete" button next to the file or folder you wish to delete.
2. A message appears to confirm your wish to delete the file or folder, as seen below in figure 5.10.

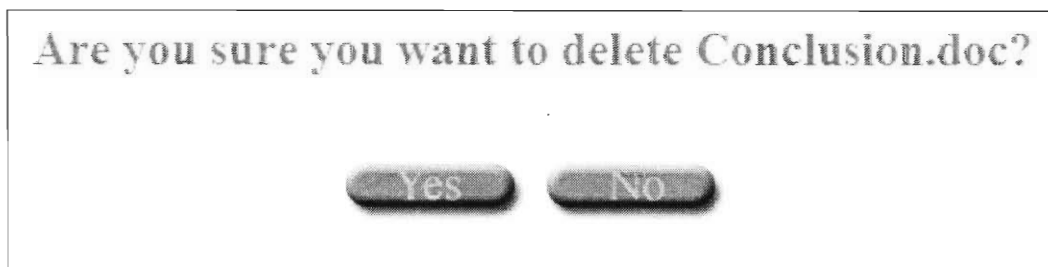


Figure 5.10: Delete Confirmation Dialogue

3. Click the "Yes" button to confirm the deletion or the "No" button to cancel the deletion.
4. If "Yes" is chosen, the file or folder is deleted from the system server and you are returned to the folder the file or folder was in. If "No" is chosen, the file or folder remains on the system server, and you are returned to the folder the file or folder is in.

5.4 Downloading a File

Once a file is uploaded to the system, users with permission to access a file may download the file. Downloading a file copies the file from the system server to your local hard drive. To download a file:

1. Click the file you wish to download
2. The following dialogue box displays

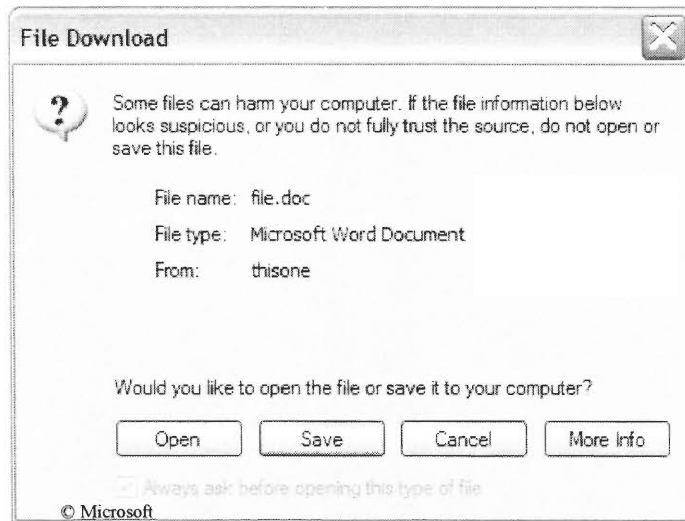


Figure 5.11: File Download Dialogue Box

3. Click the “Save” button to save the file or click “Cancel” to cancel the download.
4. A new “Save As” dialogue box appears, shown below.

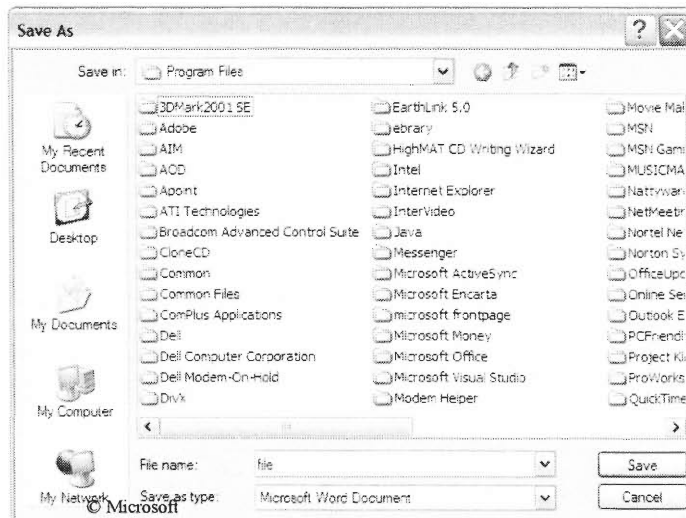


Figure 5.12: Save Location

5. Browse to the folder you wish to save the file to
6. Click the “Save” button to finalize the file download, or click “Cancel” to cancel the file download.

5.5 Searching for a File

The documents on the system can be searched using the document search feature.

To search for a document:

1. Enter the keyword you wish to search for in the search field.
2. Click "Search."
3. The list of files containing the keyword is displayed.

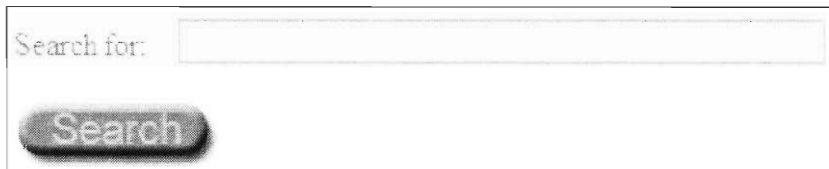


Figure 5.13: File Search Field

6.0 Diary

The diary is a scheduling aide designed to help users keep track of their own schedules, as well as view other employees schedules. Meetings can be planned using the diary meeting planning feature.

When you first load the diary feature by clicking the “Diary” button on the navigation bar, the following screen displays:

The screenshot shows a web-based diary interface. At the top, it displays the months 'Jan', 'February 2004', and 'Mar'. Below this is the text 'Your Name'. The main part of the screen is a calendar grid for February 2004, with columns for days of the week (Monday to Sunday) and rows for dates. Days from the previous month (Jan 26-31) and the next month (Mar 1-8) are shown in a grayed-out state. The current month's dates (Feb 9-29) are in a white background. On Friday, Feb 13, there is an event scheduled from 14:00-15:30. On Saturday, Feb 14, there is a meeting scheduled from 08:00-12:00. Below the calendar grid are three buttons: 'View Other Diaries', 'Insert New Event', and 'Outlook'. At the bottom of the screen, there is a copyright notice: 'CID created by Nathan Clark, Haydon Hung, David Jeannotte, and Eric Leshay © 2004'.

Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
26	27	28	29	30	31	1
2	3	4	5	6	7	8
9	10	11	12	13 14:00-15:30 event	14 08:00-12:00 meeting	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29

Figure 6.1: Diary Screen

The diary is presented as a full month. The grayed out days are days from a previous or upcoming month. The current month is displayed in red above your name. The previous and upcoming months are on the respective sides of the current month. Clicking on the previous or upcoming month brings that month into view. Three buttons are located below the month including “View Other Diaries,” “Insert New Event,” and “Import Outlook.” These features will be described in the following sections.

6.1 Inserting a New Event


The diary stores information about your meetings and any other important events. To insert a new event, click the “Insert New Event” button. The following screen displays.

The screenshot shows a web form titled "Add a New Event". It contains the following fields and controls:

- Event Date:** A date input field with a calendar icon and a placeholder "(DD/MM/YYYY)".
- Event Title:** A text input field.
- Event Duration:** Two dropdown menus for "Start Time" and "End Time", both currently set to "08:00".
- Event Description:** A large text area for entering details.
- Invite Others:** A dropdown menu currently set to "No".
- Insert New Event:** A button to submit the form.

Figure 6.2: Insert New Event

This screen allows the user to enter information regarding the event.

1. Click the  button to select the date for the new event. A calendar appears allowing you to select the day you wish to add the event to.

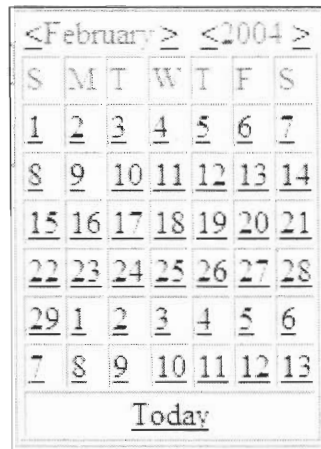



Figure 6.3: Date Selection Window

2. Click the day you wish to add the event to, or click "Today" to add the event to the current day. You may also add events to future months by clicking the  button next to the current month and selecting the date.
3. Enter the start and end times for the event in the event duration drop down boxes.

Start Time:	
08 ▾	00 ▾
End Time:	
08 ▾	00 ▾

Figure 6.4: Event Duration

4. Enter a title for the event in the "Event Title" field.
5. Enter a description of the event in the "Event Description" field.
6. Click the "Insert New Event" button to add the event to your diary.
7. The event appears on the date you selected with the start and end times.

6.2 Viewing a Day's Events

You may view a day's event in a new format. To do so, click the date number, on the full month screen, for the day you wish to view.

13th February 2004

Select More Users

Insert New Event

Times Your Name
08:00
08:15
08:30
08:45
09:00
09:15
09:30
09:45
10:00
10:15
10:30
10:45
11:00
11:15
11:30
11:45
12:00
12:15
12:30
12:45
13:00
13:15
13:30
13:45
14:00
14:15
14:30
14:45

Start of event
event description

Figure 6.5: Viewing a Day's Events

The screen shows a day with events greyed out between the start and end dates for that event. This allows you to see times that are free for new events, and times when you

are not available. You can also insert a new event on this screen. When you click "Insert New Event," the insert new event screen appears, as described in the "Inserting a New Event" section of this manual. The date of the day you were viewing is automatically entered into the date field. You can also select other employees' diaries to view, as described in the next section, "Viewing other Employees' Diaries."

6.3 Viewing Other Employees' Diaries

There are two methods for viewing other employees diaries: view a whole month's events or view a day's events.

To view a whole month's events:

1. From the main diary screen, click "View Other Diaries."
2. Click on the person's name you wish to view.
3. The employee's diary is displayed in full month format.
4. You may click on days to view the employee's events for that day.

To view a day's events:

1. From the main diary screen, click on the number of the day you wish to view.
2. Click the "Select More Users" button.
3. Check off the names of the people's diaries you wish to view.
4. Click "Select People" and the following screen displays.



Figure 6.6: Viewing Other Diaries by Day

5. This screen shows the selected diaries side by side. In this example you can see that the morning is free up until 12:00 for all three employees. Once you have viewed another person's diary, you can plan a meeting with them, as described in the next section "Planning a Meeting."

6.4 Planning a Meeting

The Diary system can be used to plan meetings with other employees. You may invite other people to attend a meeting. The potential attendees can then choose to accept or decline your invitation to the meeting.

To invite people to a meeting:

1. From the main diary screen, click "Insert New Event"
2. Enter the information as described in section 6.1, "Inserting a New Event," up to and including step 5 of the procedure.
3. In the drop down box, select "Yes."

4. Check of the names of the employees you wish to invite to the meeting and click "Insert New Event."
5. The selected people will then receive a message on the news screen asking them if they wish to accept or decline the invitation to the meeting.

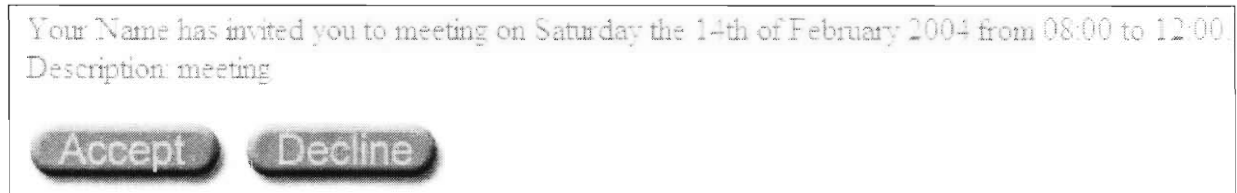


Figure 6.7: Meeting Invitation

6. If "Accept" is clicked, the event is automatically added to the invitee's diary. If "Decline" is clicked, the event is not added to the invitee's diary.
7. Once employees have made a decision on whether to accept or decline the meeting, the meeting planner (person who invited people to the meeting) receives a message stating which employees accepted and which employees declined the invitation.

6.5 Editing or Deleting an Event

Once an event has been entered into the diary, it may be edited or deleted.

To edit an event:

1. Click the name of the event in the month view of the diary.
2. Click "Edit."
3. Edit the fields you wish to change.
4. Click "Update" to submit the changes.

You can also edit an event by clicking on the event name while viewing your daily diary view.

To delete an event:

1. Click the name of the event in the month or daily view of the diary.
2. Click "Delete."
3. Click "Yes" to confirm the deletion, or click "No" to cancel the deletion.
4. If yes is clicked, the event is deleted, and no longer appears on your diary.

6.6 Importing a Diary From Microsoft® Outlook®

Diary entries already entered into the Microsoft® Outlook® diary can be imported into the CID diary.

To import Outlook® diary entries into the CID diary:

1. Open your diary in Outlook® and open the File menu and choose "Import and Export" option.
2. Click "Export to a file" and click "Next."

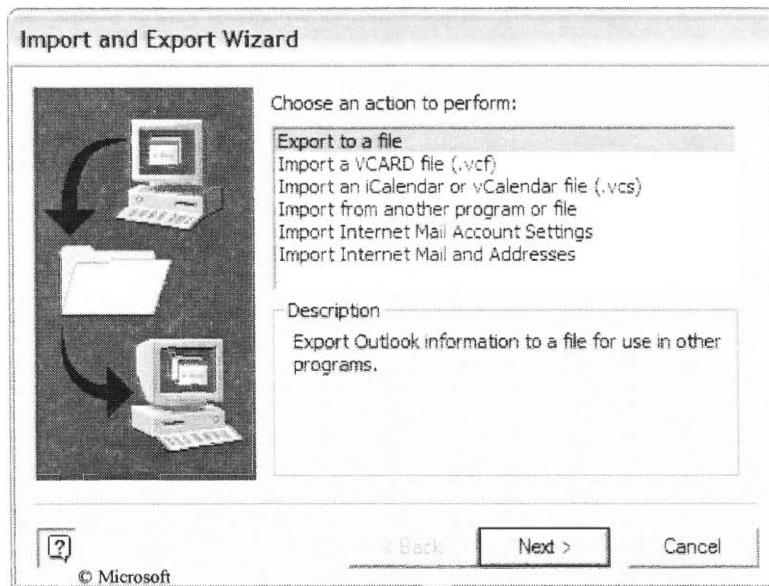


Figure 6.8: Exporting to a File

3. Select "Comma Separated Values (Windows)" and click "Next."

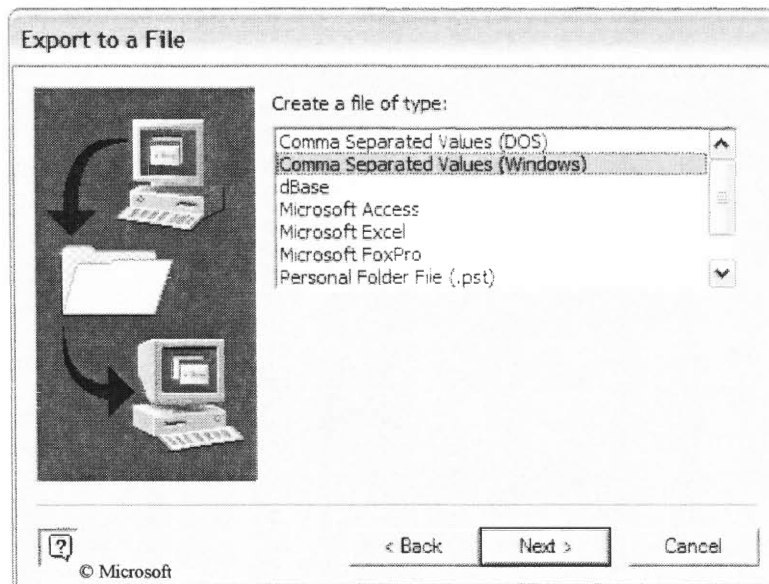


Figure 6.9: Select Comma Separated Values (Windows)

4. Click on Calendar and click "Next."

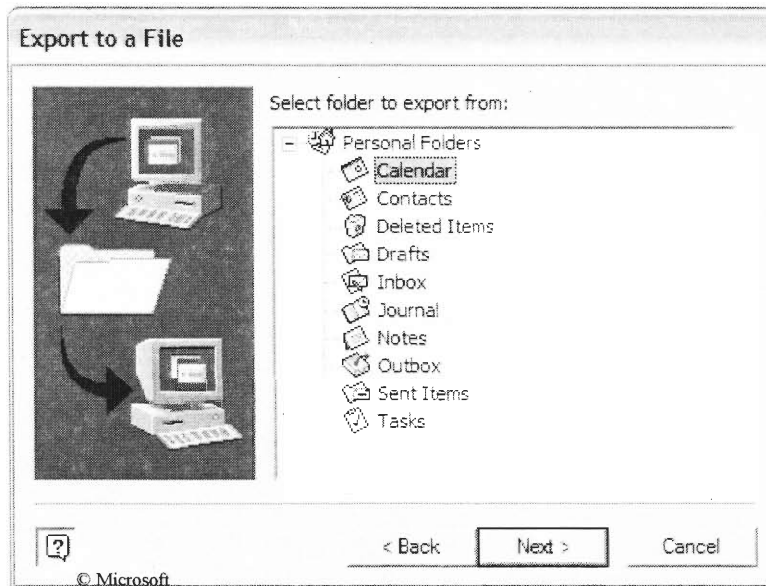


Figure 6.10: Select Calendar

5. Choose a location to save the file to and click “Next.”
6. Leave the next screen, shown below in figure 6.11, as it is and click “Finish.”

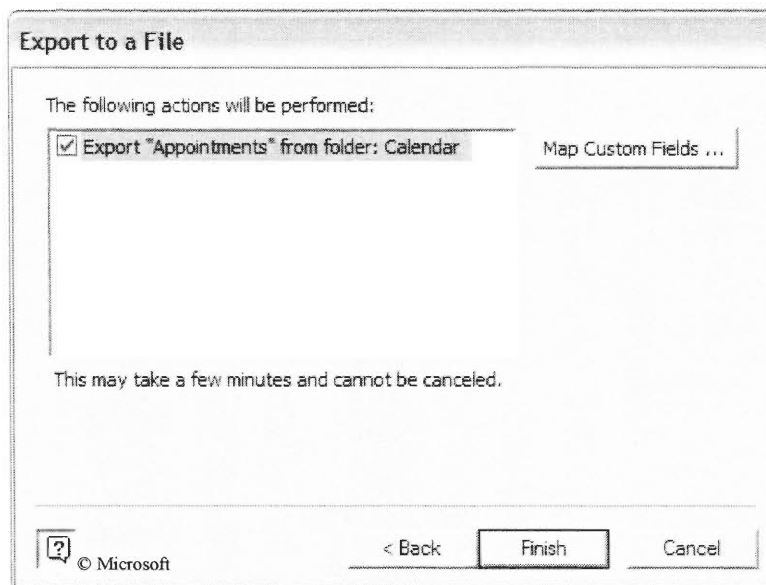


Figure 6.11: Finalizing Outlook Export

7. Enter the start and end dates you wish to import the events between. Click “Ok.”

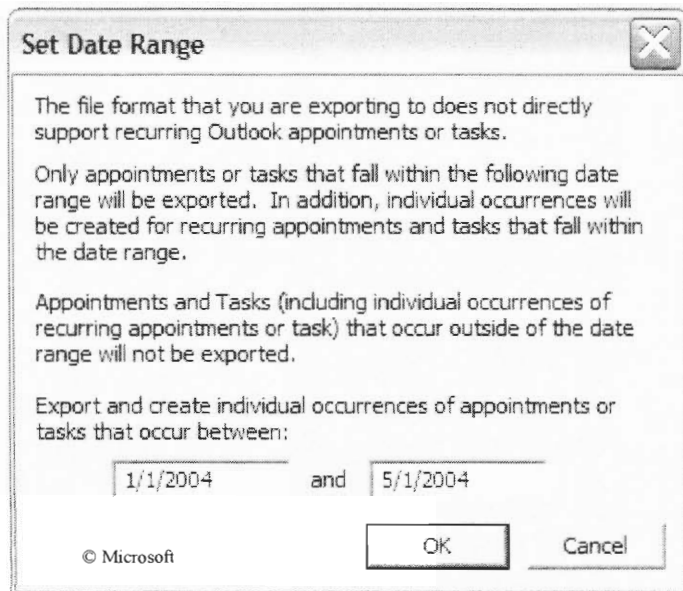


Figure 6.12: Select Date Range

8. In the CID system, go to the Diary section and click "Outlook."

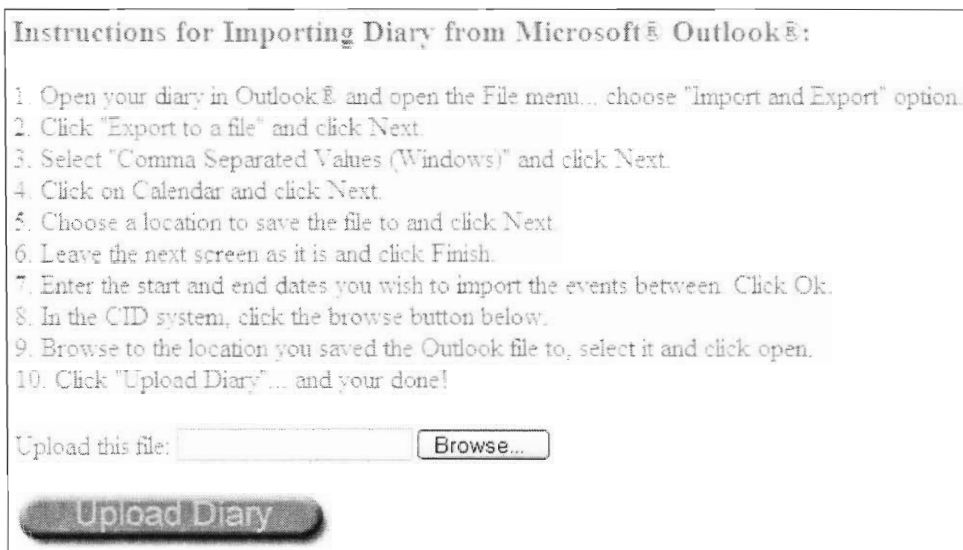


Figure 6.13: Uploading the Outlook® Diary File

9. Browse to the location you saved the Outlook® file to, select it and click open.
10. Click "Upload Diary."
11. The entries in your Outlook® diary are now added to your CID diary.

6.7 Exporting a Diary to Microsoft® Outlook®

Your CID diary can be exported to Microsoft® Outlook®.

To export a diary:

1. Select a start date and an end date. All events within this date range will be exported.



Figure 6.14: Start and End Dates

2. Click "Export Diary" and then click "save as" when the download dialog appears.
3. Save the .CSV file to a location on your local machine you can find easily.
4. Open Outlook® and open the File menu... choose the "Import and Export" option.
5. Select "Import from another Program or File" from the menu and click Next.

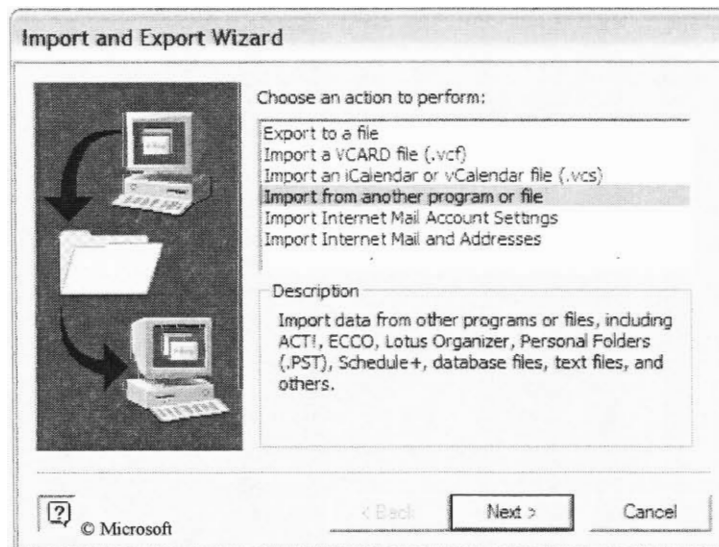


Figure 6.15: Import from another program or file

5. Select "Comma Separated Values (Windows)."

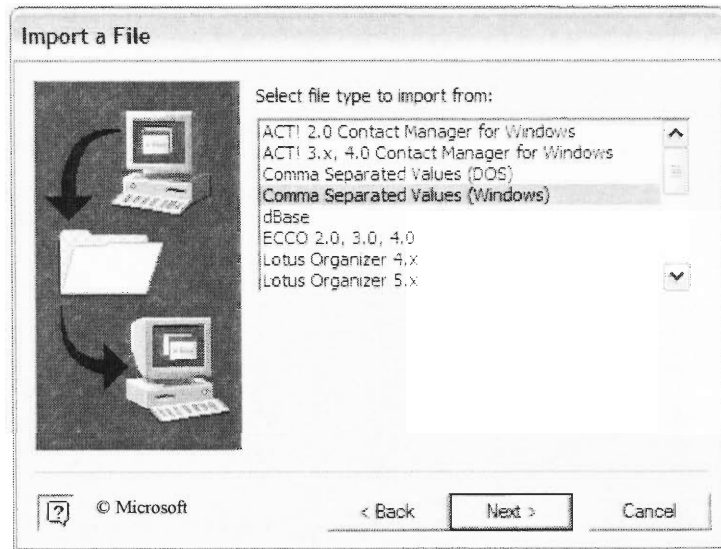


Figure 6.16: Select Comma Separated Values (Windows)

6. Click "Browse" and navigate to the .CSV file you saved earlier, select it and click Open
7. Select the appropriate option, most likely you will want to replace duplicate items, and click Next.

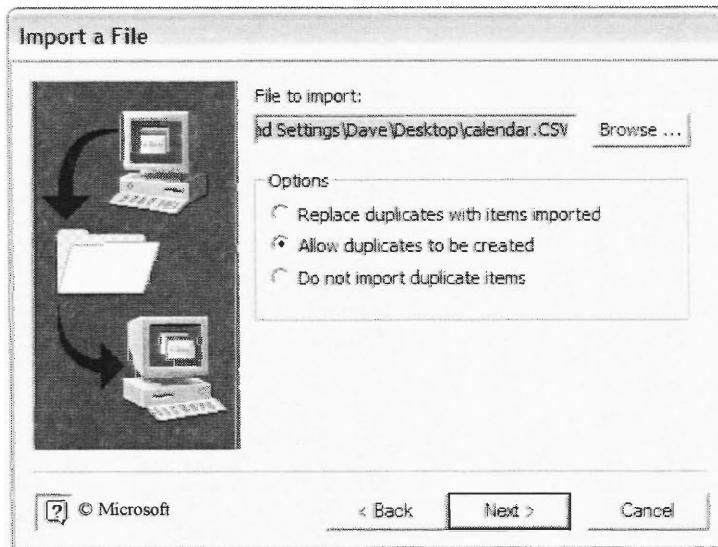


Figure 6.17: Browse to the CID File

8. Select Calendar as the destination folder and click Next.

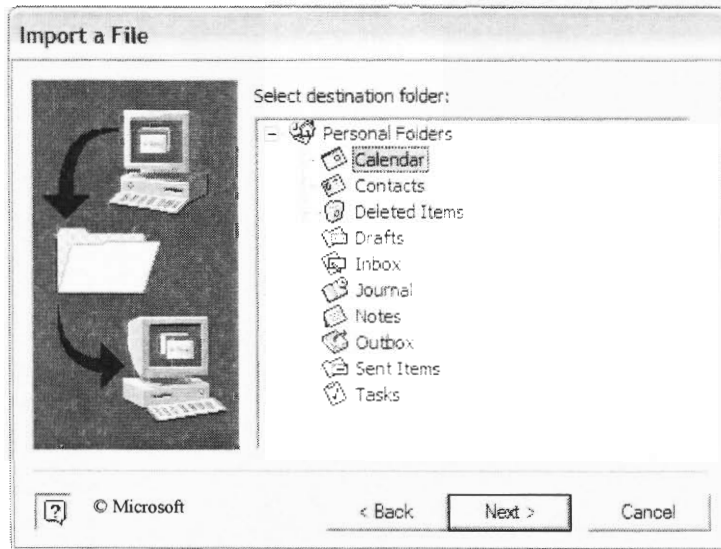


Figure 6.18: Select Calendar

9. Click Finish to complete the diary import into Outlook®.

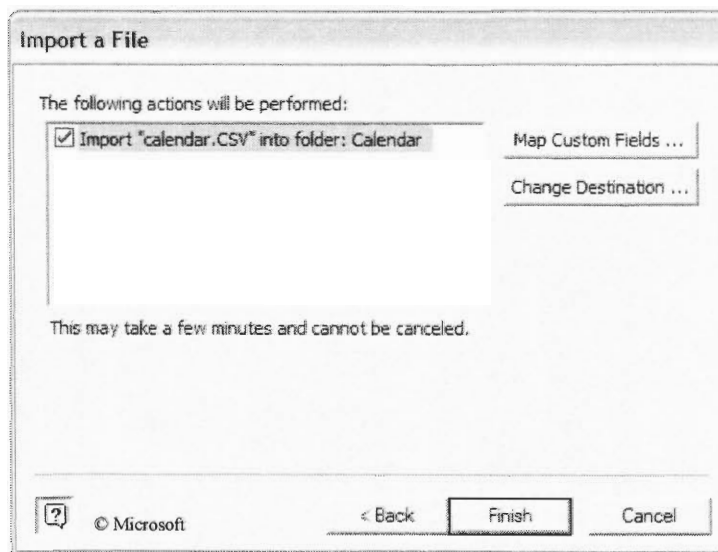


Figure 6.19: Click Finish

10. Your diary entries from the CID will now be available in Outlook®.

7.0 Contacts

The CID Contacts section contains information on important contacts in the organisation. The contacts list is searchable, allowing you to quickly find information.

To enter the contact section, click “Contacts” in the navigation bar. The following screen displays.

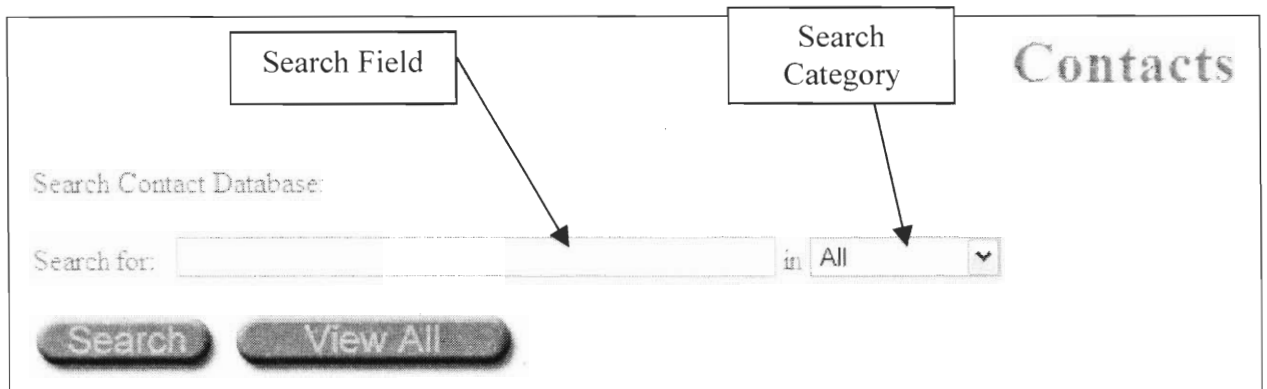


Figure 7.1: Contacts Main Screen

The main contact screen contains options to search for contacts. You can view a list of all contacts by clicking “View All.”

7.1 Searching for Contacts

The list of contacts can be searched using the search feature.

To search for a contact:

1. Enter the text you wish to search for in the search field.
2. Select the category you wish to search including:
 - All – search all categories
 - First Name – search first names
 - Last Name – search last names
 - Position – search positions
 - Organisation – search organisations
3. Click “Search”
4. The contacts containing the search phrase appear in a table



Figure 7.2: Search Results

If you click on the name of a contact, more information is displayed about that contact, including the contact's work address.

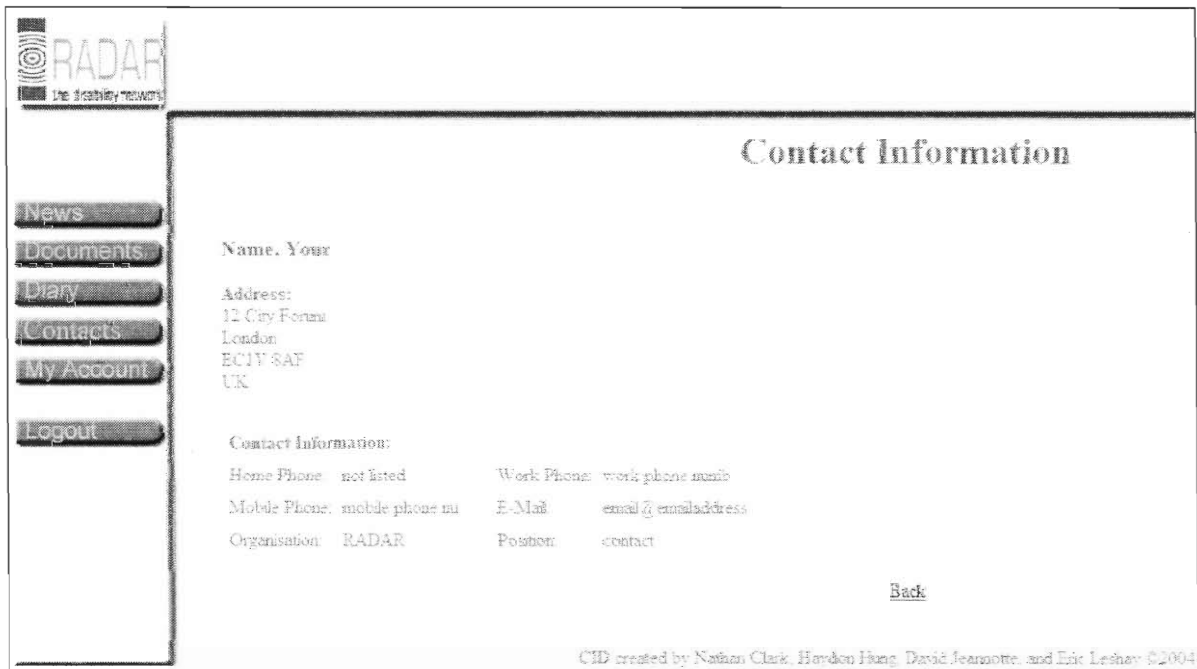


Figure 7.3: Contact Information

8.0 My Account

All users can edit the information about their account. Users can edit contact information as well as change their CID password.

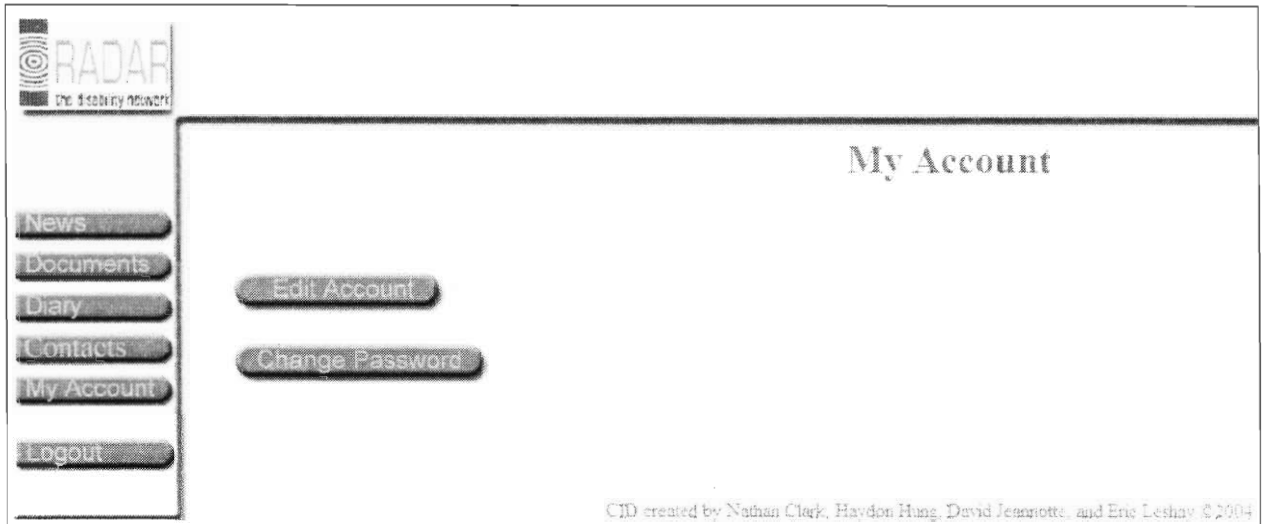


Figure 8.1: My Account Main Page

8.1 Editing Your Account

To edit your account information:

1. Click "Edit Account"
2. Edit the information you wish to change

The screenshot shows the 'Edit My Account' form. The form is titled 'My Account' and 'Edit user's Account'. It contains the following fields:

First Name:	Your	Last Name:	Name
Address:			
Street Address:	12 City Forum	City:	London
Postal Code:	EC1W 9AF		
Country:	UK		
Contact Information:			
Home Phone:	not listed	Work Phone:	work phone numb
Mobile Phone:	mobile phone nu	E-Mail:	email@emailaddress
Organisation:	RADAR	Position:	contact

At the bottom of the form is an 'Update' button. At the bottom right, there is a small copyright notice: 'CID created by Nathan Clark, Haydon Hung, David Jeannotte, and Eric Leshay © 2004'.

Figure 8.2: Edit My Account

3. Click “Update” to finalize the changes
4. The information you changed will now be available for other employees to view using the contact list feature (see section 7.0 Contacts).

8.2 Changing Your Password

The password you use to log onto the CID can be changed using the Change Password feature.

To change your password:

1. Click “Change Password.”
2. Enter your old password in the Old Password field.
3. Enter your new password in the New Password field, and again in the Repeat New Password field.



The screenshot shows a web interface titled "My Account". Under the heading "Update Password:", there are three input fields: "Old Password:", "New Password:", and "Repeat New Password:". Below these fields is a button labeled "Change Password". At the bottom right of the form area, there is a small copyright notice: "CID created by Nathan Clark, Haydon Hung, David Jeannotte, and Eric Leshay © 2004".

Figure 8.3: Changing Your Password

4. Click “Change Password” to submit the change to your password.

9.0 Administration

Administrators have special access to features that allow them to make changes to the CID system. Three categories of administrators exist, including full admins, news admins and contact admins. News admins have the ability to add/delete and edit news articles. Contact Admins can add/delete and edit contact information. Full admins are both contact and news admins. Full admins also have full access to all files.

9.1 News Administration

Administrators have the ability to add, edit and delete news articles.

To Add a News Article:

1. Log into the CID.
2. Click the "News" button

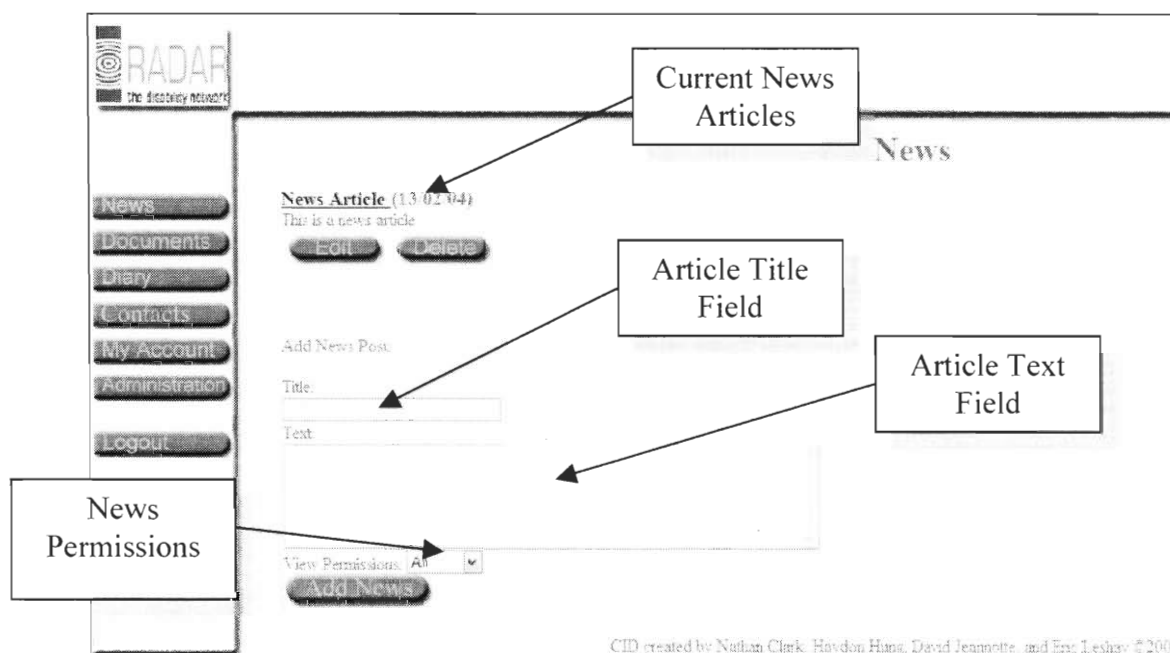


Figure 9.1: News Administration

3. Enter a title for the news article in the Title field.
4. Enter the full text for the news article in the Text field
5. In the View Permissions drop down box, select the groups who have permission to view the news article:
 - Select All to give allow all users to view the news article
 - Select Groups to select from a list of groups

View Permissions: Groups ▾

- Administrators System administrators
- Contact Admin People who can add, edit or delete contacts
- Group 2 adsil,jafds:lsdf
- News Administrators People who can add, edit or delete news postings
- WPI for WPI students

Add News

Figure 9.2: News Permission Groups

6. Click “Add News” to add the news article to the system
To Edit a News Articles:

1. Click the “Edit” button underneath the article you wish to edit

News Article (13/02/04)
 This is a news article

Edit Delete

Figure 9.3: Edit and Delete Buttons

2. Edit the desired fields including the Article Title, Text or Permissions.

News

Title:
 News Article

Text
 This is a news article

View Permissions: Groups ▾

- Administrators System administrators
- Contact Admin People who can add, edit or delete contacts
- Group 2 adsil,jafds:lsdf
- News Administrators People who can add, edit or delete news postings
- WPI for WPI students

Update News

Figure 9.4: Editing a News Article

3. Click “Update News” to submit the changes to the article.

To Delete a News Article

1. Click the “Delete” button below the news article you wish to delete.

2. Confirm the article deletion by clicking “Yes” on the next screen, or click “No” to cancel the deletion.

9.2 Account, Group and Contact Administration Summary

Administrators have the ability to create, delete, and edit user accounts, groups and contacts. To access these abilities, click the “Administration” button on the navigation bar.

9.3 User Accounts Administration

To Create a New User Account:

1. Click “Create Account.”

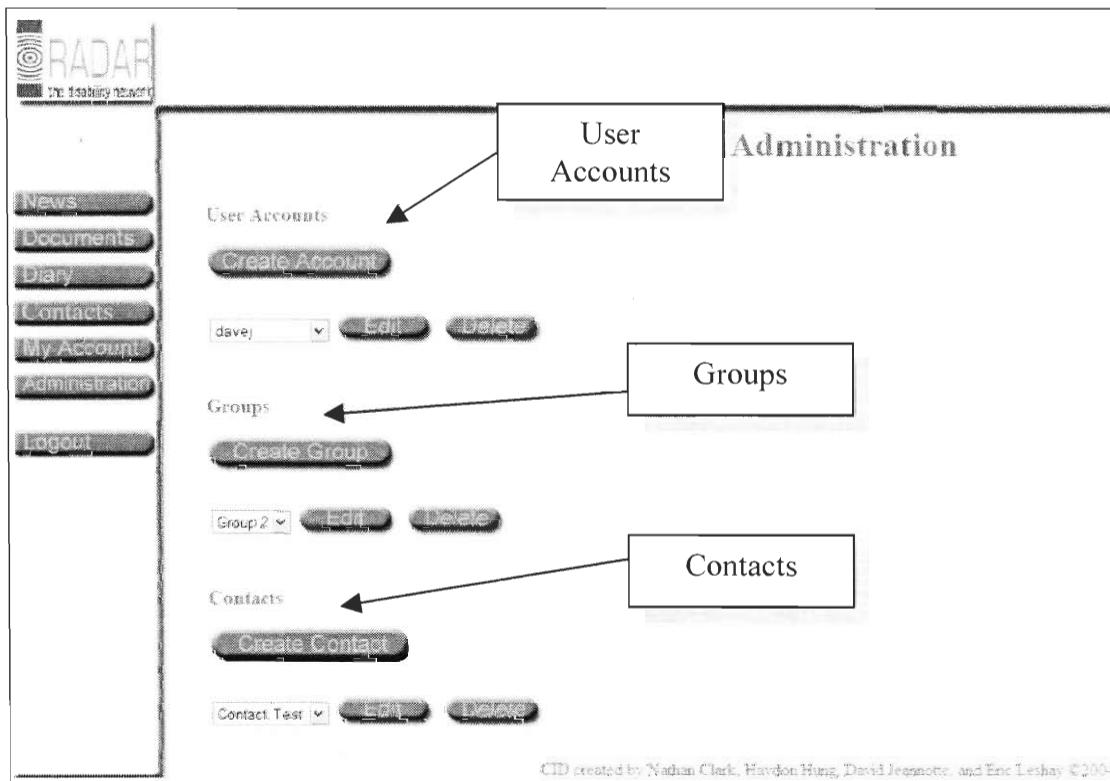


Figure 9.5: Administration Main Page

2. Enter the information for the new user in the appropriate fields, including the password for the user.

The image shows a 'Create a New Account' form with several sections and callouts:

- Username:** A callout box pointing to the 'Username' input field.
- User Password:** A callout box pointing to the 'Password' and 'Verify Password' input fields.
- User Information:** A callout box pointing to the 'First Name' and 'Last Name' input fields.
- User Groups:** A callout box pointing to the 'Select Groups To Join' section, which includes checkboxes for 'Administrators', 'Contact Admin', 'Group 2', 'News Administrators', and 'WPI'.

The form also includes a 'Create Account' button at the bottom.

Figure 9.6: Create a New Account

3. Select the groups the user will belong to. Selecting the “Administrators” group allows the user to access all of the administration special features.
4. Click “Create Account” to finish the account creation.

To Edit a User Account:

1. Select the user account you wish to edit in the User Accounts drop down box
2. Click “Edit.”
3. Enter the information in the appropriate fields

Administration

Edit user's Account

First Name: Last Name:

Address:

Street Address: City:

Postal Code:

Country:

Contact Information:

Home Phone: Work Phone:

Mobile Phone: E-Mail:

Organisation: Position:

Select Groups To Join

<input type="checkbox"/> Administrators	System administrators
<input type="checkbox"/> Contact Admin	People who can add, edit or delete contacts
<input type="checkbox"/> Group 2	adsfjafdsjlsdf
<input type="checkbox"/> News Administrators	People who can add, edit or delete news postings
<input type="checkbox"/> WPI	for WPI students

Figure 9.7: Editing a User Account

4. Select the groups the user will belong to.
5. Click "Update" to submit the changes.

To Delete a User:

1. Select the user you wish to delete in the drop down box.
2. Click "Delete"
3. Click "Yes" in the next screen to confirm the user deletion or click "No" to cancel the deletion.

9.4 Group Administration

To Create a New Group:

1. Click "Create Group."
2. Enter the group name in the Group Name field.
3. Enter a group description in the Description field.

Figure 9.8: Creating a New Group

4. Click “Create Group” Button to finalize the group creation process.

To Edit a Group

1. Select the Group to edit in the groups drop down box.
2. Click “Edit.”

Figure 9.9: Edit Group Members

3. Check off the names of users in the Non Group Members list if you wish to add users to the group.
4. Click the button to add the users to the group.
5. Check off the names of the current group members in the Group Members list if you wish to remove users from the group.
6. Click the button to remove the selected users from the group.

To Delete a Group

1. Select the group you wish to delete in the Groups drop down box.
2. Click “Delete.”
3. Click “Yes” in the next screen to confirm the group deletion, or click “No” to cancel the deletion.

9.5 Contact Administration

To Create a New Contact

1. Click “Create Contact.”
2. Enter the contact information in the appropriate fields.

Create Contact

First Name: Last Name:

Address:

Street Address: City:

Postal Code:

Country:

Contact Information:

Home Phone: Work Phone:

Mobile Phone: E-Mail:

Organisation: Position:

Create Contact

Figure 9.10: Creating a New Account

3. Click "Create Contact" to finish the creation process.

To Edit a Contact

1. Select the contact you wish to edit in the contact drop down box.
2. Click "Edit."
3. Edit the desired information

Edit Test Contact Info

First Name: Last Name:

Address:

Street Address: City:

Postal Code:

Country:

Contact Information:

Home Phone: Work Phone:

Mobile Phone: E-Mail:

Organisation: Position:

Figure 9.11: Editing a Contact

4. Click "Update" to submit the contact changes.

To Delete a Contact

1. Select the contact you wish to delete in contact drop down box.
2. Click "Delete."
3. Click "Yes" in the next screen to confirm the contact deletion, or click "No" to cancel the deletion.