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Setting Up Information Technology Structures for Trade Unions

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REGIS UNIVERSITY
School of Professional Studies

Masters of Science
In
Computer Information Science

Setting up Information Technology Structures for Trade Unions

Professional Project

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Advisor Paul Vieira

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Due by September 26, 2006

Information Technology for Non-Profits

Mission Summary

International Union California Health Care Local is dedicated to the goals of International Union by improving the lives of workers and their families and creating a more just and humane society: providing our members with the best service possible to achieve these goals; providing the best services using the most modern technology to improve these services; dedicating resources to upgrading the technological infrastructure. International Union California Health Care Local is working towards the goals of our members as well as all works and their families.

Executive Statement

The International Union has been innovative in introducing technology to improve their message delivery as well as creating a more efficient business. This has been done in many different projects within Northern America and abroad. Many of these projects are setup to give unity as well as helping smaller International Union Locals to save resources for their membership.

Some of these successful projects have grown over the past decade. Programs like Locals-on-Line that host, train and teach locals how to setup a web site as well as maintain it. GetActive is a program to keep the 1.8 million users informed of what is going on region and globally.

One of these projects creates new technological systems for the larger Locals. This is done by matching funds to these larger premier locals and having them intern the primer locals would assist the smaller locals.

Two of the largest locals were picked to spearhead the project to improve the technical infrastructure of its child locals. The International Union chose its largest locals in the eastern and the western states. These locals are The International Union Local in New York and the International Union Local in California, where two of these premier locals are used as test for other locals. The project in California was supposed to be a 6 month project that lasted nearly 3 years. At the end of this time a consulting firm was brought in to do an evaluation and give a proposal. They recommended a system overhaul and the hiring of an IT Administrator. They felt that using more consultants as the project leaders would be frivolous and fiscally wasteful.

The IT Administrator position was created and it was decided the candidate would be chosen by a panel of International Union representatives and technical consultants. The IT Administrator position would evaluate and create a model computer network within budget. With the exception of those requirements, all other options were the responsibility of the IT Director. The objective was to create an IT Administrator position to take the California Local into the 21st century.

Abstract

Trade Unions also known as Labor Unions are non-profit organizations whose purpose is to represent workers in their work place, negotiate collective bargaining agreements, and enforce those agreements while representing its membership. In the past three decades, United States Trade Union populations have been dropping. One of the reasons behind the reduction is the lack of leadership to keep infrastructure contemporary and able to meet the changing pace of business.

International Union has been working on different projects in an effort to change how they do business. One approach International Union exercised is upgrading its larger premier locals such as the California Local. California Local is a Trade Union representing Nurses, Social Workers, and other private and public people working in the healthcare industry. The third year into the project, the IT support system was not working correctly which led to many economic inefficiencies. An independent consulting firm recommended a solution and asked to oversee the project. The immediate solution was to hire an IT Administrator.

The new IT Administrator's first task was to create a new project. The position mandated a new Information Infrastructure and deal with technology refreshing IT systems with a three year Life Cycle Management. The project was segmented into 3 separate segments to save resources, stay in budget, and most of all to concentrate on managing the systems correctly. Step one included upgrading the computer network Infrastructure to make it useful and secure. The second stage upgraded Network Datalines and phone systems. The third and final stage was to improve workflow, eliminate redundancies, and insure conductivity to a central database. Once each stage

was implemented completely up to the maintenance phase, it would then be integrated into the Life cycle management philosophy to create an effective process of operation maintenance for the organization.

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Chapter One: Introduction

The International Union has been innovative in introducing technology to improve sending out their messages as well as creating a more efficient business. This has been done in many different projects within North America and abroad. Many of these projects are setup to give unity as well as helping smaller International Union Locals to save resources for their membership.

The success of International Union projects have grown over the past decade. Programs like Locals-on-Line that host, train and teach local membership how to establish and maintain a web site. GetActive is a program to keep the 1.8 million users informed of what is going on within their region and globally.

Another project was created to bring new technological systems for the regional Locals. This is done by directing funds directly into building technology within the locals. The Pilot project consisted of two of the largest premier Local's one in New York and the other in California. After three years both Local brought in consulting firm to evaluate and to fix the problems with their respective systems. The findings of each evaluation determined that the systems need to be evolved in a different direction. To hire more consultants would be a waste of resources. In California a professional IT Administrator needed to be hired.

So the California Local budgeted for the creation of an IT Administrator position. The person would be chose by a panel of Executive Board, Administrative Staff, and Technical Consultants. The IT Administrators position was to evaluate and create a model computer network. The IT Administrator was responsible for the budget and to pass all expenses through the Administrative Director and the Executive Board. Except

for those requirements, everything from researching, evaluation, and purchasing of all information systems was the responsibility of the IT Director. So the basic Executive Statement for this project was to create an IT Administrator position to take the California Local into the 21st century.

In January of 2001 a nine panel team interviewed and picked and an IT Administrator was chosen to create an efficient computer network to fix the problems with the old system. As long as the Executive Board approved the budget everything else was the responsibility of the IT Administrator. In response to the new responsibilities of the assignment the IT Administer started to create a discovery report of the Network Infrastructure.

The IT Administrator felt the Creation of a Project description is the first and most important part of creating a working network by evaluating why the local's network was not operating properly - then we needed to start building a plan. The network was not substantial enough to deal with the workload. It was not setup correctly; nothing was upgradeable and it was too small to deal with the usage. The network infrastructure was so poorly designed that the network itself would break down an average of twice a day bringing vital aspects of business to a halt.

The first project review was given in the second week. . This was a overview of the network and the IT Business Plan for the first quarter (three months). Some of these activities recommendations and suggestions needed to be accomplished:

1. Monitoring network using basic tools that came with equipment.
2. Patching the Internet connection so it worked.
3. Fixing basic components in the network to make it run smother.

4. Visiting all 8 offices throughout California
5. Discovery Report
6. Review finding after three months in the Computer Users Group

The finding of the Discovery Report

The discovery report creates;

1. A three year overall project to create a new network. This project will be divided into 4 different smaller projects.
2. IT documentation will be created. This documentation will consist of.
 - a. IT Business Statement
 - b. Continuity Plan
 - c. Documentation and Diagrams of all IT systems
 - d. Business Plans done quarterly
 - e. Usage documentation including email and internet usage and responsibilities
 - f. User system privileges and training on systems and IT rules.
 - g. Helpdesk protocols
3. IT staffing

Chapter Two: History

This is one of the larger premier locals for one of the largest growing trade unions. International Union Local in California is a Trade Union that represents over 20,000 members in the health care industry both private and public, throughout the state of California. With the increase of members realized over the past 25 years they needed to improve how to track their members.

The International Union California Local had set up a new membership database system by the mid 1990's. This was partially financed from the International parent union organization. They hired a local software consulting firm to create their new membership and financial system. They also prompted one of the bookkeepers to Computer Manage o and build a computer network.

Three years into the project the cost doubled the original budget and the system was not working correctly. First problem: as the local created a new system no one analyzed the work flow in which to figure out the problems with the original system. All of the systems were created to make the users feel comfortable with the old workflow. This also failed because the staff was never consulted. This caused users to create local data files. Over 30 different databases were on the network and on people's computers creating a security leak as well as doubled input.

The next problem: resolving Equipment failure. Many of the computers were not configured correctly from the beginning and were being rebuilt every couple of weeks. In addition, a third of the computers were breaking down needing replacement within 6 to 9 months of purchase. This was a problem since all equipment only had a 90 day warranty.

The servers were built as inexpensively as possible with no room for expansion. This meant that they were obsolete before the first year of their usage. The central server pool also resided in an inside porch that was connected to an outside walkway with constant work-hours traffic.

In addition, the wide area network (WAN) circuits were expensive and provided low bandwidth. All the Cisco Routers were supposed to be managed by the Internet Service Provider but they were ineffectively maintained. The company billed charges in which no services were rendered.

Finally a consulting firm that specializes in dealing with IT needs was called in to do an investigative survey, report on the system and fix it.

The consulting firm told the Administration that they did not want to waste the Local's money with their services. They recommended that the Local hire a professional IT manager to deal with this situation. Until an IT manager was named, they would agree to maintain the network and run a helpdesk.

2.1 Statement of the Problem to be Investigated and Goal to be Achieved

This project was replete with substantial problems. There were also problems with critical project management elements including time, money, and quality. Many funds were wasted in the past and the executive board was apprehensive about any new expenditure of funds. The quality was also below expectations and in most cases slowed down productivity causing projects to go far beyond their deadlines.

There are many ways to deal with these problems. The project team looked at the three most promising solutions. The first solution would create a whole new network. The problem with this is obviously expense of funds and the expense of time. Also more

IT staff would be needed for the long term. Of course, you would not want to throw away a lot of legacy equipment.

Second options keep the system the way it is. That would save money but not solve the problem.

The third option is to implement a hybrid of the two courses of action. Fix what you can on the system and add only the components that will fix any immediate problems. In addition, develop a complete discovery plan and use the tools available like the scope triangle, Work Base System, and Life Cycle Management to create system overtime and help spread out the budget.

What was the stakeholder decision? Implement a hybrid project. First stage was to do a basic study of the system. Meetings were established to talk with all the old consultants, executive board, the administrators of the California Local, and the super users. The session resulted in a Draft IT Business Plan and IT Business statement.

The second stage included the development of a complete Discovery Report and a meeting of the IT Computer committee to hear and adopt the recommended plan.

The third stage was a computer committee decision.

Chapter Three: Research

Topic research was derived from periodicals, text books and old classroom notes. The changing field of technology requires regular review of periodicals interaction with peers in the industry.

This project proves that projects based on practices of good Project Management and principles of Life Cycle Management are well founded. There is uncertainty when one considers the influence of people and technology.

Learning from the lack of Project Management in the New England States, California had decided to do a complete structured Life Cycle Plan, which can be continued for future projects. New England reorganization did not have an IT game plan and is still being formed. Many other areas are now contacting me to see how I organize my plan. Hopefully this will give a good foundation to help other regions be able to setup a plan for IT during their reorganization.

3.1 Peers and Associates

Much of the best information can come from professionals in fields that the project is being dealt with. In addition, references from a mixture of IT professionals as well as other like industry professionals who might have an understanding of the systems that are being fixed, improved, or created.

3.2 Books and Periodicals

An old and established technique is book research from a personal or public library. There are also specialized libraries for doing research. A great resource is school libraries or even just borrowing from the Library of Congress.

One of the newest resources are the personable book stores such as Borders or Barnes and Nobles. They are setup for people to use as a library. Customers can also special order books if needed. The other advantage is that they also have relaxing places to study. As a general rule, it is usually easier to study while relaxed.

3.3 *Internet*

ARPANET became the World Wide Web in the early eighties. Originally WWW was setup by CERN and MIT to help disperse research information to colleges, researchers, and other educational communities. WWW has become one of the greatest research mediums. Incredible amounts of information can be sent to your fingertips within seconds.

3.4 *Seminars and Professional Organizations*

Seminars and professional organizations provide a vast knowledge of information in specific areas. They can give you up-to-date information. They also allow for interaction with peers who are interested in the same systems as well as people who might have had similar problems with solutions - perhaps some that could help your particular situation. It is important to select a couple groups and seminars since the vast numbers available can become overwhelming and take away precious time from your project.

3.5 *Higher Education*

Higher education is still one of the best ways of executing research initiatives. Academics can advise what the best products are available and provide tools for improving your abilities to perform the needed research.

Chapter Four – Methodology

My research methodology utilized a hybrid of network of peers relationships, courses, professional groups, vendors, and research materials.

4.1 Documentation

Documentation is one of the most important responsibilities of IT professionals. Getting Buy in by your stakeholders makes the difference between having a project budgeted or not budgeted. One major problem I find with many companies that they mistake company leadership as the only people that matter. In big corporations this is usually pandering to the Executive officers, Company Board of Trustees, and Stockholders. In the smaller non-profits this is not really as big of a problem. Yet before you can approach your superiors or even if you are the decision maker, it is always wise to find out if what you are purchasing. This is part of the discovery process called the stakeholder buy-in.

4.2 Standardization

What are the things to look at in your network? You have three areas, one of which includes the hardware segment like the Network, Operating system, Tools, and security. Second are the user interface programs like databases files and files. The last and most forgotten is the Business Continuity Plan.

The infrastructure should not be too sophisticated. It should be as simple as possible. A good IT person should make sure that everything works under one standard. Today nearly everything works on a Internet protocol (IP) based network and whether you use a operating system like Windows, Unix, or Macintosh OSX doesn't matter as long as there is consistency. They are all good systems and capable of supporting the

work that your company does. All these operating systems are IP and portable (they can talk to each other) and have become easy to have them work together. It is just that by keeping a simple standardization and limiting the equipment to a couple of items makes support and maintenance easier.

My recommendation is to stay away from more obscure operating systems like VAX and AS400. These are excellent systems and if you need to run a program from them they are viable. However, the problem is that support for these systems is expensive.

As for data protocols it is best to stay with IP for simplicity. Also there are many great switches and routers available today. Cisco is still very good and is always a good recommendation. Cisco also has a lot of great routing features like Interior Gateway Routing Protocol (IGRP) and Enhanced (Interior Gateway Routing Protocol EIGRP). Other companies offer comparable equipment for a fraction of the cost.

Finding the correct Internet Service Provider (ISP) is also important. There are a couple of companies capable of providing an all in one system.

All-in-one packages can be established by having your internet provider host your internet email, and other communications, cell phones, and messaging services. If you want to maintain some control by setting up something similar to a Microsoft Small Business server you can then port your email to a built in exchange server to control emails.

Office application suites are also a consideration and warrants time in your evaluation. One of the questions people ask regarding office suites is whether there is compatibility with other applications and existing documents. In my analysis, I've found

that most vendors are compatible with each other. Some professionals worry that programs like WordPerfect (Corel) or Star Office are not compatible with Microsoft Office. This is false. All three of these offices are exceptional and it generally comes down to personal preference, cost, and ease.

The next big network service considerations are Wireless capabilities and Call centers. The affordability of both Wireless capabilities and Call Centers has put both of these products in the fiscal reach of most companies. Their ability to open new opportunities for businesses outside the boundaries of present technology will revolutionize how business will be conducted in the future.

4.3 *Scope Triangle*

The Scope Triangle is useful for determining and analyzing important properties of your project. It compares time, money and quality. Scope triangle is where you can begin analyzing your priorities. You must compare how much you can spend verses how much time you have. This also adds the factor of the quality of the systems you will be purchasing. The idea of quality is the ability to find the correct options for your project with in the cost of the project.

Money is usually one of the largest constraints while constructing a project. Monetary constants are a major factor yet they should not rule your project. It can affect the quality of your project in adverse ways. Projects are based on the ability to improve work flow and functionality and those must always be the major objective. Letting finances rule will only cause insufficiencies in the project and create major problems as you assemble your infrastructure. In the end a lack of fiscal discipline can lead to budget overruns.

One way of managing the cost is by increasing the time of the project or to create a life cycle of several years. This can help in many ways. You install only that infrastructure necessary to start your system, make it productive and ensure it's compliant with governmental and industry standard regulations. Then gradually add additional components each year until your system is where you want it to be. This also helps the project manager and financial sponsor budget the system each year.

The quality of the system is one that under this circumstance is a bit hard to understand for a smaller operation but is a great way of managing the other two factors. One of my professors in college would tell his students that, "A lot of students' mistake quantity for quality, and feel that they need to give a lot of homework and study time instead of utilizing and managing their time correctly and getting the most out of your study time".

Basic Pert Formula (Program Evaluation and Review Technique)

$$T_e = \frac{T_o + 6T_m + 6T_p}{6}$$

With the Scope Triangle paradigm, the use of the Basic Pert Formula was able to give rough ideas of time span. It is a method of figuring out a basic time scale. The tool can help you if you are looking for the average time it takes to do a project or get from point A to B. If this were a road and you had to get from Los Angeles to San Diego you would take many sample time measurements then plug them into the equation that will give you average time.

4.4 Critical Path Review

The critical path review is a tool based on Combinatory Mathematic Analysis. It is a way of creating an organizational structure of the project on a time line. It has the

ability to put all the aspects of the project within a realistic time line in proper order and defining resources utilization. By creating a layout of the different parts of the project it will show the flow of the project. This helps in managing resources especially with regard to the people working on the project.

Microsoft Project is a good tool for this requirement. It is a flexible tool that can help the project management since it includes many internal tools like GANT charts. Compared with some of the project management tools available today, it is relatively inexpensive as well as useful for everyday scheduling.

4.5 *Life Cycle Management*

Information Systems run best when they are planned under a Systems Management Life Cycle. Though some people will look at this as part of the process this can also be considered a prequel to how involved in this project do you want to get. At this point if you can afford it, it is now worth looking at hiring an individual or a firm to start your Life Cycle. Remember that you must have control over this and be upfront about how much you are willing to spend. If you must do this yourself then spend a reasonable time collecting the information with a group of stakeholders that will be depending on these systems. If it is affordable it can be worth getting a recommended consulting firm to do this part of the project. It does cost money, yet it can save you money in the long run.

4.6 *Stakeholders and Buy-in*

Many people may not feel that stakeholders are a key part of the methodology, yet it is probably the most important consideration. In this project stakeholders will be emphasized over users, clients, stockholders, or a number of other groups of people you

can think of. The reason is that in any project there are many different groups germane to the project. When attention is focused on one group the big picture is missed. This can lead to missed opportunities and new problems that will need to be fixed either during the project or after.

The reason that the Stakeholder is so important is because the thing that really makes a project move is Buy-in. Buy-in is the ability for the Stakeholders to manage and appreciate ownership of a project. By giving the individual or group ownership it also gives them purpose in the project. This leads to the individual or group to want the project to succeed and be willing to put extra effort into it.

Though Buy-in is from the individual or group, this makes the stakeholder more important. Each stakeholder's interest in the project will be different. Getting all stakeholders together helps acknowledge their own concerns and special needs, and to understand the same from the other stakeholders in the project. To understand all aspects of the project and that there is ownership of the project with a Buy-in, everyone will be more willing to support and assist in the project. The end result will be a more efficient process to deal with the project creating more success results.

Chapter Five: Projects

The scope of the project was to build a new network for a Trade Union. As stated in many course books, System Analysis is the process of looking for problems within a system or its work flow and to create a project or process to fix the problem. In a positive sense, it can also be looked at for ways to build and improve present procedures. Either way a project will improve present systems for better performance and efficiency.

The first step is to analyze all the detriments and assets in the project. It is important to turn some of those detriments into assets. First thing is to look at the systems both present and past and look at past recommendations. However good past recommendations are, it is still good to do a new discovery of the system so that the people who will be doing the new project will be able to create a system that they feel the stakeholder will be comfortable with.

With the complexities of this project it was decided to be done in several sections. A three year project would deal with the complexities and keep the project within budget. Using the Scope Triangle model the money and resources could be limited to what was available for the project. This allowed the ability to work within prior commitments and allow contracts to elapse before certain part of the project could be continued. There were also certain projects that needed to be completed before others, such as circuit improvements since the database was still going to have connection problems to the remote offices.

Once the discovery process was completed a stakeholder meeting was setup to discuss the project and its components. The project was divided originally into three steps. First was to deal with stabilizing the network and securing the infrastructures. Second

was to improve the WAN lines and get greater bandwidth and service with Service Level Agreements (SLA) contracts. Third was to rebuild a new Membership database and consolidate all the other databases onto a couple of secure databases. Later and forth step was created that was performed on an extended forth year of the project. It is not usually advisable to add to an existing project to avoid scope creep. It is recommended to start a second project once the first project is completed.

The next segment includes details on the individual steps of the project in order to internalize the problems, reasons, recommendations, and resolutions of each step and decide the final outcome and lessons learned.

5.1 Project 1: Infrastructure

5.1.1 Problems

Basically the IT infrastructure was not robust enough to deal with the amount of usage it was designed to take. None of the systems were setup properly, and as other locals had been integrated into the present system, no forethought was exercised when integrating the other system into the new system. The users were having many problems during the day with workstations, applications and in many cases the whole network would completely crash. The help desk was receiving an average of over 30 calls a day. In the interim only two consultants were available to come to try to resolve these outages. The helpdesk is supposed to deal with everything from problems getting files to the database being down, or the computer not working properly. This had caused greater problems for the organizers dealing with their members and potential members.

5.1.2 Reasons

The network was not sufficient for the necessary usage and was never configured correctly. Cheap clone computers were breaking down after 9 months with only 90 day warranties. The intermediary consultant would cost too much to fix the system and did not have the time they needed for other clients. Servers were underpowered and could not cope with the user load placed on them. The server room was on an inside porch that connected to an outside balcony with constant traffic. Even with security policies, people left the door to the server room open so that the servers were open to the elements.

The other problems included network hubs which created collision zones so the network would fail during heavy business/traffic. Some offices had bad wiring. A few offices were using CAT 3 instead of CAT 5e or better. The routers were not configured properly to route information correctly or achieve maximum bandwidth.

Users were not trained properly on equipment. There were no procedures setups for users to contact the service desk. A computer committee was established, but without guidance it turned into a complaints meeting with no real resolutions and other users were not getting input. The executive board was spending enormous amounts of money - over \$900,000 dollars a year to support this system.

5.1.3 Recommendation

The recommendation of the IT Administrator after making a discovery report was that the system was going to have to be rebuilt over a three year period for cost and quality reasons. This recommendation did not help with the immediate problem. So a three step program was created with the first step dealing with the basic infrastructure.

The first step in the project was to start with fixing the problems that could be resolved without spending a great quantity of money with the purchase of expensive equipment. By using the first three months to patch the network, it would give some stabilization and relieve pressure from the helpdesk. This would also give a sense in what equipment should be installed and purchased for best optimization of the system to utilize existing equipment while setting up a foundation for the new Network Infrastructure.

So in the first three months several tasks were assigned the routers were reconfigured to work with the WAN Lines. By the hiring a full time helpdesk person to deal with the daily desktop maintenance and helpdesk problems, time was freed up so the IT Administrator to concentrate on other important matters. Also a server was added to take pressure off the Domain Controller and some of the other systems. Also all new computers were bought by a single vender. Group Policy Scripts were added to start shutting down unused ports and secure the network. The proxy server was canned and systems were rebuilt and reorganizing to work more efficiently within the first year. All servers were upgraded to Windows 2000 Server. Critical servers were replaced starting with the Exchange Server.

5.1.4 Resolution

In the first three months inventory of software, computers, and data was taken. The Cisco routers were reconfigured to fallback to different paths in case the main system went down; the two major offices had backup controllers setup in the two large remote offices of Fresno and Pasadena. Since all the routers were Cisco we were able to get rid of the RIP protocol and utilize EIGRP which is a much more efficient routing protocol

with less broadcast traffic, increasing bandwidth. This helped people keep working when the main office went down.

The Internet connection was a DSL line that went down every other day. The problem was that it was placed too close to electric power sources which made the system go down very frequently. It is recommended that these modems kept far away from power supplies. A \$3 timer purchased at a local hardware store was installed to cause the DSL modem to refresh once a day - this took care of the problem until a more robust T1 line could be installed.

The second step started with the purchase of a new server with hot swappable bays for future expansions. This server was setup with Windows 2000. It was decided that the network was going to be setup with Microsoft Active Directories technology using Microsoft Windows Server 2000 Domain Controllers. The system was already Microsoft and the users were familiar with the system. Other systems like UNIX would need least hardware, yet the cost of IT personnel is expensive and harder to find than Microsoft certified personnel. The system would also have to be completely rebuilt from the ground up. The new server would then be used for extra programs that were tying up other servers. It also had a greater hard drive capacity to use for archiving older data to help clean up the other servers. This allowed for increased server life. It was also decided to rebuild existing servers with windows 2000. This allowed the servers to be setup correctly from the start with only needed software and data.

The other place where money was spent was the purchase of a master manageable switch in the central office and a second manageable switch to control access to the server room. This took care of all collision zones created by the hubs in the main office.

Also implemented, was the rewiring all of the faulty wiring in the office and the creation of a dedicated server room with dedicated air and electrical systems. By having the wiring centralized we could then control the traffic with the creation of virtual Local Area Networks (VLANS).

By the sixth month of the project a full time helpdesk person was hired to deal with the user side of the network - mostly helpdesk calls and workstation related issues. A new hardware vender was chosen. The important factors considered: they had a business line that was reliable and would be consistent in design over time. All new computers were bought at Dell, based on their recommendation and an 18 month time frame for business models, and each had a three year warranty. Of interest is that the company saved about \$300 dollars a computer going this route. This also turned out to be cheaper since the existing consolidated components added up to more than the cost of a whole unit from Dell or any of the major vendors.

Of concern, is that we had a year left on our WAN contract. This was an issue because the existing service provider customer service was lacking. The only saving grace was that the IT department had access to the communications equipment.

5.1.5 Software Upgrades

Once you have stabilized your system then you can start looking at upgrades. Some problems can not be fixed until you upgrade your software, yet it must be in a stable environment before the next step is started. Two main things that were done were centralize all software and hardware contracts. The other was to implement efficient freeware software.

Contracts are now in a special area and procedures are part of the IT Business Plan and the Business Continuity Plan. This allows for a chain of command, ease of access, and optimizing work efficiency during regular business practices or in the case of disaster recovery.

5.1.6 Freebees

Something of interest when you are on a tight budget get freebees! Of course this is better known as Freeware or Shareware. Many of the larger software companies have programs for free or for a nominal cost. These companies include Microsoft, Apple, Redhat, FreeBDS, SUN, and a host of others. There are also many reputable sites where you can get shareware such as AVG, MySQL and Oracle.

5.1.7 Final Outcome

Within the first three months the network went from going down daily to once every two weeks. It was discovered that most of the network problems were from the WAN lines going down on the ISP's side. The internet was no longer an issue. Computers went from losses of two a week to about one a month and those were the older computers. Helpdesk calls also went down from 30 a day to around 30 a week.

To make the IT department more efficient the design part of SEIU Local 535 internet was handed over to the new communications department with support from a new program from the SEIU International. This allowed the IT department to concentrate on working on the internal network. It also helped us to get into other programs with the international office to help standardize our own Infrastructure and obtain a better price for future products.

The helpdesk person was helpful in dealing with user problems leaving the IT Administrator time to work on the Infrastructure and documentation.

5.2 *Project 2: Network Datalines*

5.2.1 Problems

Office to office speeds is slow. The connections go down several times a week or even within the same day. The Internet Service Provider (ISP) was charging outrageous monthly charges and not providing contractually agreed service. For instance, they provided no contact person, for services or emergencies; agreed bandwidth speeds were not available and they failed to monitoring and updating the Cisco Routers.

5.2.2 Reasons

There are many reasons for this. First is that the lines were not large enough to support the traffic. The routers were not setup correctly and even when this was done by the IT staff it didn't solve the problems emanating from the ISP centers. The provider did not upgrade the lines when needed and did not configure and maintain the routers as specified in our contract. No contact person was available and when a contact person was appointed they would then move to a different position within a month.

5.2.3 Recommendation

It will take about a year to get the system stabilized. By that time our contract with our service provider will be over. It was recommended that about six months before the contract is over, we need to begin the process for getting new lines. Interviews with the three last contending companies were done and a discovery of the last two was taken. The New WAN lines would be installed into a special network called a Multiprotocol Label Switching (MPLS) where the service provider would be responsible for the lines

and Routers. All parties agreed to a 24 X 7 SLA with a 4 hour guarantee that all problems would be dealt with quickly.

The new system would be installed for future growth and be capable of accommodating new products by replacing DSL to a T1 Frame Relay system to have immediate upgrade of bandwidth when needed, and increase stability. All routers would be upgraded to address Quality of Service (QoS) and load balancing.

5.2.4 Resolution

After six months researching different Internet Service Providers we found a provider that could deal with our needs. For \$1000.00 less each month than the previous contract, the ISP would setup T1 Frames to all Local 535 offices and manage a mixture of Cisco 2400 and 1700 routers using EIGRP with 4 hour restore service. Another consulting firm was brought in to help with the internal wiring for 8 offices throughout California.

The phone systems were updated so that Voice over Internet Protocol (VoIP) could be used, integrated call centers could manage traffic, and Video Conferencing could be introduced.

5.2.5 Final Outcome

Since the installations of the MPLS Multiprotocol Label Switching there has only been only one time that the offices have been down in over two years. An average of two offices fails annually and that hasn't occurred since for some time. Also as the cost of services goes down, a savings of over \$3000 a month has been saved since the original lines were replaced.

The present ISP has been diligent in making sure that our lines are up and that we are notified of any maintenance or problems that might arise. They also provide access to expensive monitoring tools to monitor the Routers and WAN links, and Network Tools such as OpenView, Tivoli, and Cisco Works. Not only does this make company workflow improve dramatically, it also allows for reporting tools to show the Executive Board the result of the money they have been allocating to the project (return on investment).

5.3 *Project 3: Databases*

5.3.1 Problems

Californian Local has a number of databases. Many are separate databases with the same information. An audit indicated information was being duplicated five different times. This is inefficient and ties up resources.

One major problem was the personal databases were on desktops and laptops that were not secured and outside sources could access critical data. This creates a security problem as well as a Health Insurance Portability and Accountability Act (HIPAA) violation.

There were also several problems with both the flow of information and database design. The flow of information problem was caused by the fact that most procedures had between 3 to 5 different people entering the same information into word documents, excel spreadsheets, lotus notes, lotus 123, and access databases. There were too many separate documents and the main membership database we created had over 1000 different reports - most of which were only used once a year.

5.3.2 Reasons

The California Local is an older more established local with staff having worked an average of 17 years. There was much resistance with the staff to change how they did these daily work procedures. This was prevalent in the Database that was created to manage the workflow. Many people did not have access to some of the larger databases and in the remote offices they were having problems with inputting, and getting their information to create their needed reports in a reasonable timeframe.

Even after the network was stabilized and new WAN lines were installed the database was still having the same problems. A discovery of the software showed the flaws and a rewrite of the software would be necessary. Part of the problem was it was still based on a DOS based program that was not able to deal with the amount of use the database was suppose to take, which caused most of the downtime and corrupted the data.

The last problem was that only one person knew how to work with the software. When the IT Administrator would do changes the changes were also sent to the programmer. Yet when the programmer made changes that person would generally overwrite all changes. Then when the programmer when away for vacation and the system went down there was no one to assist in the restoration of the program causing work related problems throughout the different offices of the Local.

5.3.3 Recommendation

First the creation of two separate discovery reports had to be performed. One discovery report was to fix the present system and the other to install a new Membership database. It was found to be cheaper to cut loses and install a new database. Plus the company chose specialized Trade Union Membership Databases. This become the focus

and held all essential information for the other databases. Then it got rid of all non-essential databases and all necessary databases were run on a safe network.

Once a new Membership Database was completed, a security check of the database and network was performed to check for security leaks and HIPAA compliancy. Then once all security leaks were resolved another discovery was performed over the next year to see how other improvements could be made.

5.3.4 Resolution

Research on this project went on for two years as the IT Administrator and The Administrative Director worked on getting funding from the Executive Board. The database project was awarded to Unionware a company that only does Union Membership Databases.

The Membership Database project team consisted of the IT administrator, the Financial Director, the Database Administrator, two people from Bookkeeping and the membership department. The Unionware team then supplied a project manager and two of their best programmers to deal with the adaptation of the program to the locals needs.

5.3.5 Final Outcome

Now all essential data was going through one central database – good result. The membership information now was entered only once with a single point of entry. This made the system more efficient and increased security.

All other databases were slowly incorporated into the membership database. People then could get access to the database by a server client connection, a VPN connection, and Web Access.

5.4 *Project 4: Integrating other locals*

5.4.1 Problems

Recently this company has gone into reorganization. To mitigate problems in the future and to help save fellow locals extra expenses the larger local created a site for them to use the main information databases.

The California Nurses Local is one of the largest locals in the United States with 8 offices and a substantial budget. Many locals are smaller and do not have the same resources.

5.4.2 Reasons

The International Union started their campaigns to help strengthen their membership. The California Local being a premier local was trying to assist smaller locals in dealing with back office technology.

5.4.3 Recommendation

It was simpler and not very expensive to have these functions added to the California Local infrastructure, and then have the smaller locals do business by remote access and other functions. This could be done by this local's larger staff with very little difficulty.

5.4.4 Resolution

A focus group was created consisting of members of the participating locals. The outcome of this focus group was that the largest local would create connections to their resources to the smaller locals and integrate their back office procedures like financial, membership, and Information Technologies.

The technology used the present databases as templates to make new corporation databases for the other locals and then to reformat the information into the new databases.

The actual building of the new companies in the database was very insignificant since it was a direct copy of the existing company format. Most of the work was reformatting old data from the other database for purposes of integration.

For the other locals to use this configuration, a couple choices were available. First the installment of a Citrix Server was considered. The server could be opened by a web site or a client suite on the desktop. Then the IT department of the local would create a separate terminal service and VPN connection if desired.

5.4.5 Final Outcome

This initiative has released resources for the smaller locals so they can be more productive. This has also given us extra funds from the International Union and the smaller locals we are supporting. Also the added terminal server and Citrix are also used by our own members.

5.4.6 Finalization of Project

The establishing of a “Go Live” date was facilitated by a tool used to monitor all stages of the project and to keep the project in perspective. One month after the Go Live date a Project overview meeting was scheduled to review the project status and to compare and contrast the old to the new. It was also a time to make sure that all maintenance agreements were developed properly. It was also a good time to figure out if there should be a new project and what the scope should consist of.

After the final project was complete a meeting was held to discuss what had been done and what seems to be working. This also set a final, overall Discovery Report in motion the final Discovery of the project would take three months to complete, and ending with a management review meeting at the end. Utilizing the discovery process

will likely generate the need for the other project or provide guidance when another project was needed.

5.4.7 Conclusion of Project

In retrospect, the overall project and was a success. The new systems and procedures have worked well by reorganizing the work flow so the staff can concentrate on their specific job without getting bogged down with other tasks. The stabilization and speed of the network has allowed for a constant work environment.

However, some of the equipment bought doubled in size and sometimes tripled the cost. Yet return on investment and realized savings resulted in the yearly budget dropping from \$900,000 annually to under \$350,000 annually.

Lessons learned? First lesson was the need for advanced preparation. It was easily realized that it is important to do the research using a methodology that works for different projects and can be easily and legally replicated.

5.5 *Project 5: Future Project – Reorganization*

5.5.1 Problems

The future is already setup in that a super backbone is being created to support the locals. This was one of the ways to mitigate the cost and to get more buying power. This project is supposed to be modeled after the New Australian Union model created after the collapse of the Australian Unions in the mid 1990's.

The Australian model was created by taking all back office and technical services away from the smaller unions, basing them around a central call center. By doing this it created a more efficient system. The computer network, financials, membership and most clerical positions were done in one centralized center. Centralization allowed the unions

to combine their resources to leverage more buying power and utilize their office staff better. The actual Unions could then concentrate on Membership Representation and Organization to rebuild their organizations and bargaining power to provide better services for their members.

5.5.2 Reasons

Since the late 1970's union membership in North America has dropped from 25% to 13%. Most analysis showed that many unions had become stagnant and not focused on their memberships needs. Like any company this has hurt business since as Bob Marley said in Charles Dickens A Christmas Carol, "Our Business is People!" Like most businesses, if Labor Unions are keeping up with the needs of its customers they survive, and if not they enter into bankruptcy.

Since the basic reasons for the shrinkage of North American Labor Unions is similar to the Australian decline, the Australian model works great as a reference. Yet since North America is much larger and more complex, the unions and their smaller locals will have to come up with their own model.

Smaller locals can not afford the technology to be competitive and to support their membership. This allows for the smaller locals to utilize the resources of the larger locals and be able to concentrate on their membership.

5.5.3 Recommendation

By membership voting on this reorganization project, the small locals in the different regions are starting to meet between themselves to deal with how best to reorganize their resources. IT staff are also organizing into larger groups throughout United States and Canada. By establishing standards there will be greater buying power.

Groups like the New York and Californian groups which have become the centers to spearhead these discussions. After all, they have already setup the basis for reorganizing and restructuring the back office processes.

5.5.4 Resolution

A large restructuring plan is going through North America. Most of the Atlantic and New England States have already been reorganized under the New York Local. In California and the Western States they have gone with voting and the start of reorganization. It has been projected that this will take longer because of the complexities of how the locals in California were setup in the first place. This is the main reason the International waited until the Northeast locals were mostly completed before starting this transformation of the western states.

5.5.5 Final Outcome

To date it seems promising, but it is only in the planning stages out in the western states and can take between two to five years to complete. The northeastern seaboard is in their last stages with great results and Canada is starting to prepare for their reorganization. The consensus is that if this can be done correctly with the understanding that reorganization will become a standard with the changes of business then this process shows great promise to complete the goals of the unions and their stakeholders.

5.6 Conclusion

In conclusion it seems that this project is a template for future projects. With the pace of business in the 21st century it is safe to say that this pace will only accelerate. To keep up with the needs of the client or in the case of unions its membership, it must find new ways to help support their needs. By upgrading technology to trim workflow burden

and optimize resources thru consolidation and reorganization it will make the unions work more efficiently by utilizing present resources and spending the time needed to do an infrastructure project correctly.

Chapter 6: Final Words

This project was a success from the hard work and dedication of the people who have put in long hours to make it a success. The one thing this paper did not cover because it was not necessary for the premise of the thesis is analysis of the actual people involved. The reason why? It is usually recommended not to put new thoughts into a paper at its conclusion unless they are relevant to the reader to better understand other parameters when creating their own projects.

All the stakeholders including new hires, vendors, and consultants were brought in not only for their technical expertise, but their abilities to work within Project Managed Work Groups. They were made available to be able to go beyond their own sphere of understanding and to understand enough of the stakeholder's needs to work within everyone's parameters to make the projects work. The main ingredient to any successful networked infrastructure is to provide support. Everyone who works on a project of this magnitude should be able to not only have the technical ability, but the personal prowess to work with their clients. That is why this is so important for a network project manager.

Appendixes

A. Support Documentations

Here is a sample project plan that I use during the project. As the project was being completed I also changed them into Business Plans. I was able to send as emails or put in mail slots to keep people informed during the different phases of the project.

IT Project Plan for 2006 – April 10th, 2006

Here is the Information Technologies Project Plan for (Month, Week, or dates 2006). We have several items planned.

Mission

This is the objectives that you company is want to do this project. This can be the objectives for this part of the project mission for the result you need this completed.

Objectives

The objectives for (Month, Week, or dates 2006) are to allow us to be more productive.

This is what needs to be completed for this Project Plan. That with in the time frame certain parts of the project will be completed.

Objectives for (Month, Week, or dates 2006) are some of the following. Part of the project can be new functionality that is built into our system with new tools.

1. Intranet with Share Point Portal for File management -
April (Network Staff)
2. Citrix and Terminal Services Site - 4-10 (George and Jim)

3. Training – 4-12 to staff (trainer Rolf)
4. In-Progress: Secured Internet for Staff
5. In-Progress: Secured Intranet for the Members

Action Plan and Strategies

o **Month, Week, or dates 2006** – we will be our WAN lines for All offices International MPLS standards with ISP. This will give us better communication, more flexibility and the final ability to use a call system through out our Local.

1. MPLS data lines for all offices
2. Intranet Site for Staff and Document Management
3. Install new Security Active Detection System – Still working on it
4. Work on Training Strategy. (Rolf, George, and Jim)
5. Share Point Portal for Office functionality

This month is working on WAN Lines, Automation of Work Flow systems like Staff reports, and of course Electronic Signatures.

As of today this is the general IT upgrade project plan unit next upgrade or the monthly revision on or around next month 2006. As with every year I start off with a draft and update quarterly till this year.

Information Technologies Administrator

Business Name

Date April 10, 2006

B. Forms

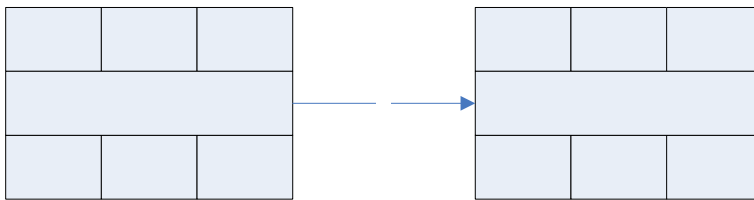
Work Breakdown Structure Form – for each step of the project we used this to keep track of each component of the project being done.

Element Definition for Work Breakdown Structure (WBS)

1. Project Title / Participation		2. Project Date	3. Identification number
4. WBS Element		5. WBS Element Title	
6. Index Line	7. Revision no. and Authorization		8. Rev. Date
9. Approved Changes			
10. System Design Description		11. Budget and Reporting Number	
12. Element Task Description			

PERT

PERT Table 1

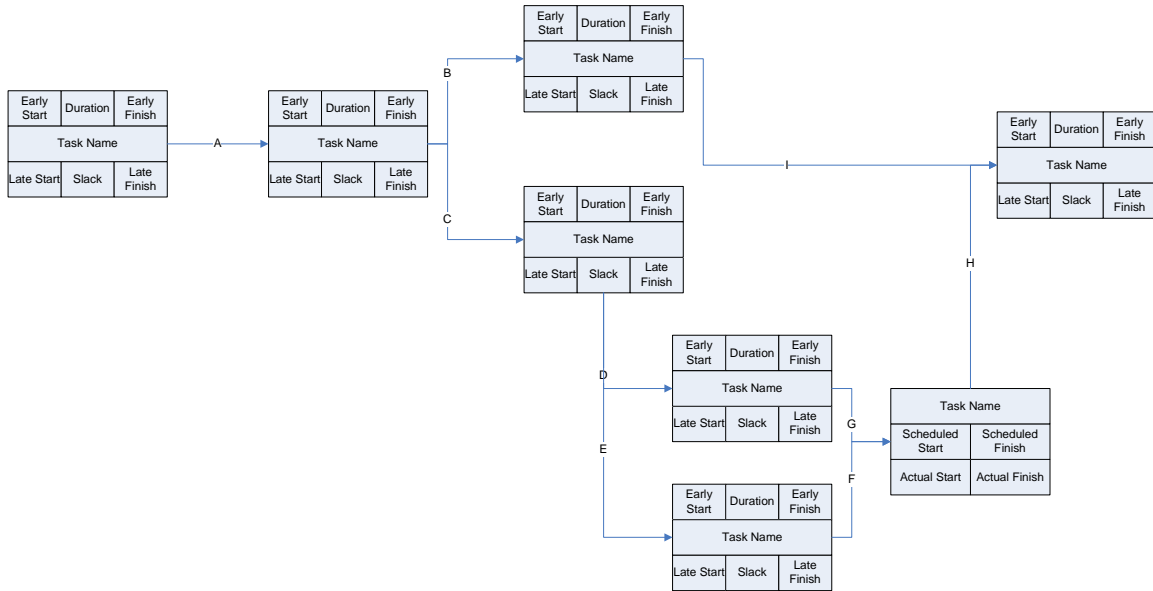


Legend: Example

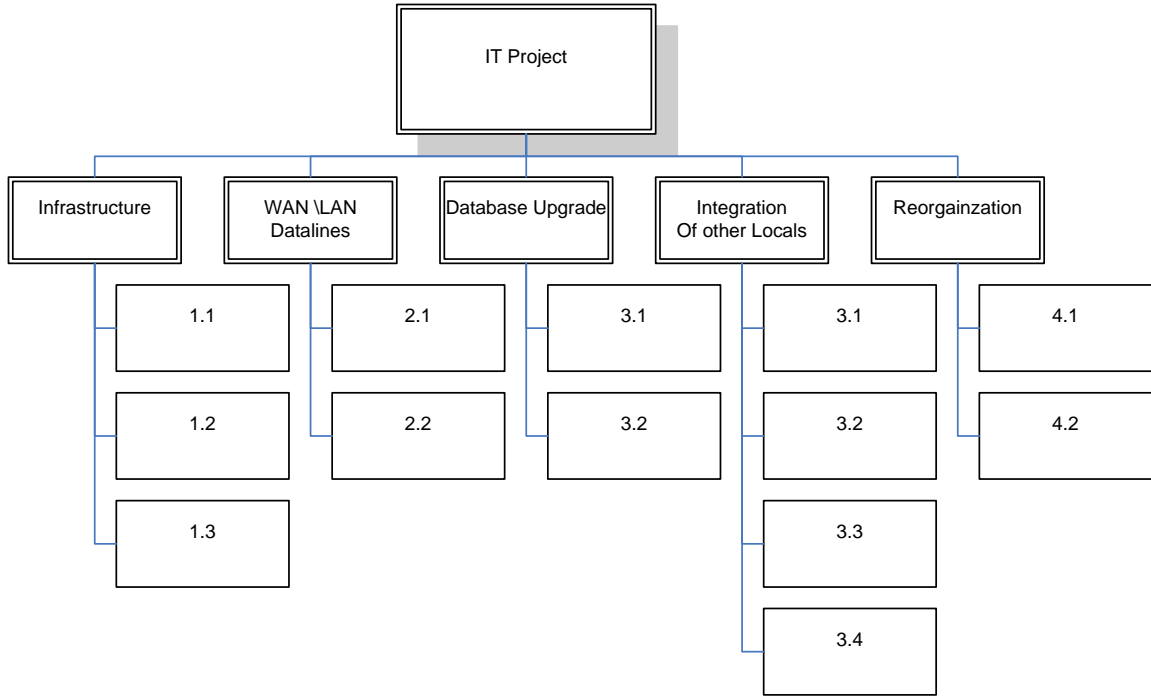
Scheduled

PERT Table 2

Legend: Example PERT for Project		
Scheduled	Actual	Current



Work Breakdown Structure (WBS)



C. Equations

Basic Pert Formula (Program Evaluation and Review Technique)

$$Te = \frac{To + 6Tm + 6Tp}{6}$$

Reference Material

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Whitman; Principles of Information Security; Thomson Course Technology

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SecureAssure Information Security Service

<http://www.secureassure.com/professional/policy.html>

For Mitigation

<http://www.secureassure.com/managed/mva.html>

Disaster Recovery

<http://www.commerce-database.com/disaster-recovery.htm>

(Again I used this as a great reference to find other references)

Software –both of these are great software for Project management (they are a price prohibited,
but do have free trial versions)

Expert Choice Website

<http://expertchoice.com/>

TreeAge Software

<http://treeage.com/>