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Leadership In Technical Resources And Teams

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REGIS UNIVERSITY

SCHOOL FOR PROFESSIONAL STUDIES

MASTER OF SCIENCE

IN

COMPUTER INFORMATION TECHNOLOGY

Leadership in Technical Resources and Teams

PROFESSIONAL PROJECT

Mike Bush

January 15, 2006

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2 Chapter One: Introduction

In today's business environment, organizations look to technology to solve a myriad of issues. These issues range from 24 X 7 X 365 shopping hours via the internet to dashboards that indicate the health of the business to knowledge management implementations where timely, accurate access to organizational knowledge is available. In all cases, the technology enables the business functions. Because of this reliance, technical resources and technical teams are expected to display leadership in actions, in thinking and on an equal plane as their business person counterparts.

Most Master of Business Administration programs require a 'management' or a 'leadership' section where students are exposed to leadership principles and practices. This is a major difference in technical master's programs. In most of those programs, a leadership section is not even offered much less required. Technical leadership has suffered tremendously because of this disparity. In today's environment, technical resources are not the people locked in the server room simply making sure that servers and computers are up and running. The technical resources are on the front lines, enhancing business decisions with technical possibilities.

This lack of leadership training hurts from two angles. First, the employees have not had exposure to leadership skills so they are unsure of how or when to apply them in different situations. Second, when these resources are promoted to management positions, they do not know how to attract and retain resources with leadership skills and they do not know how to build an

environment where those resources can do their best work. This project will define the reasons why leading technical resources is different, define a process of how to build and manage a successful, empowered team of leaders and propose master's level coursework to expose technical students to the same leadership concepts as their MBA level counterparts.

2.1 Current state of leadership in technology

Leadership skills are demanded of empowered, high-performing teams in a successful business. In the past, this was not the case for technical teams. If the network was down, the IT staff was expected to get it back up and running. If there was a bug in the software, a developer was expected to fix it. That was the limit of the technical resource's involvement. Today, the network engineer is expected to develop a process wherein the network never goes out and the development team is expected to provide an infrastructure where bugs are found before they are even compiled.

Strong leadership skills are demanded of all resources in a business. This puts technical resources at a measurable disadvantage. In general, IT people have spent their formative years focusing on hard technical skills such as how to set up a network, how to develop code or how to configure a firewall. Training for interpersonal skills is not even on the radar of needed instruction. Before an analysis of effective means of teaching leadership can be performed, a fundamental question must be addressed: Can leadership skills be taught?

2.1.1 Can Leadership be taught?

There is a battle of theories on leadership. In one camp, the thinking is that leadership skills are a God-given talent. A person is either a leader or they are not. As a matter of reference, people use the example of Gandhi in this respect. He had no formalized leadership training to speak of yet he was one of the most influential leaders of all time. While this is a very compelling argument, the other camp believes that leadership can be taught. This thinking is centered on the education and application of effective leadership principles to any person. That is, any person can be taught leadership. For example, Goleman (2004) asserts, "Interestingly, these [leadership] competencies are not innately inherent but are learned abilities." Goleman's entire leadership methodology of 'Primal Leadership' revolves around the belief that leadership is a learned skill.

For the purposes of this project, the underlying hypothesis is that leadership can be learned. While this project does recognize that there are, in fact, natural born leaders, it is also compiled with the belief that leaders can be developed through education, self-reflection, experience and on-the-job training. This analysis proposes to address the infant stages of this instruction. It offers guidance for desired outcomes of leadership training as well as a proposed methodology to deliver this exposure.

2.2 History of technological influence in organizations

Traditionally, technology has been viewed as a luxury in many organizations. Desktop computers, integrated applications, handheld devices and remote access could increase efficiency but it was no replacement for paper

copies, filing cabinets and a good amount of knowledge. More recently, technology has turned from a luxury item to an enabling philosophy. Business has seen huge efficiency gains in increased productivity, cost savings and the opening of new markets.

Several recent studies have concluded that both IT production and IT use are driving the aggregate U.S. productivity revival. (Stiroh, 2001) Technology has made several business functions much easier resulting in improved efficiency of the workforce. For example, advanced general ledger systems available today save innumerable man-hours of entry, calculation and roll-up of the books. In days past, an accounting clerk would be responsible for receiving invoices from the mail, writing an entry in a ledger book to record the transaction, manually writing a check to pay the invoice, compiling all of the transactions in a month, reconciling the accounts to make sure they balance then closing the monthly books and rolling the balances. At year-end, this process was even more in-depth. Now, a vendor can submit an invoice to a web site, an approver can approve it on-line, the transaction is recorded and rolled-up automatically and the balances are closed with the push of a button. In the case of Parent Organization, the month-end close process was cut from 3 weeks to 1 day.

One other significant increase in productivity is related to storage and look-up of information. In the past, data were stored on paper and filed away in a file cabinet. The process of filing the information was extremely inefficient. In addition, if the information needed to be retrieved at a later date, it was potentially a long, arduous process of manual lookup. The process was fraught

with potential for error, mismanagement, data loss and inefficient lookup. Now, electronic storage can help in all of those situations. Document imaging can aid in the storage of images of paper documents. Metadata attributes can be assigned to the documents to aid in the referential lookup. Good decisions may depend on years of acquired data and may not instantaneously lead to profits. (Brynjolfsson & Yang, 1996) Electronic data storage mechanisms increase the efficiency of the lookup and the storage of historical data. In addition, 30 blade servers take up much less room and hold much more data than 30 filing cabinets.

Because of these advances and improvements in productivity, technology is driving more and more functions within business. Organizations are discovering novel ways to implement technology. From gaining operating efficiencies to providing self-service support to opening new markets via the internet, technology is influencing the landscape of business now more than ever.

2.2.1 Convergence of business and technology

Technology is responsible for either running many business functions or providing the required infrastructure for the business activities. Because of this convergence, technical employees are more critical to the business than ever. If a developer's computer goes down or if a staff accountant's desktop computer is down for a day, that resource's efforts are essentially wasted for the day.

2.2.1.1 Business motivation

Businesses are motivated by increasing their bottom line as much as possible and increasing shareholder wealth. Technology helps accomplish both of these goals. If a business requires a storefront that is always open, technology provides the solution by offering an eCommerce-enabled website. This offering accepts orders 24 hours per day, increasing revenue and having a positive impact on the overall bottom line of the business. The scope of IT has broadened significantly in the past 15 years. Business leaders have recognized the importance and advantage of effectively leveraging technology in an organization's normal business operations. This includes utilizing computers in both the back office and on the front lines of the organization. For example, Wal-Mart has spent billions of dollars investing in IT initiatives completely automating its supply chain from the store's inventory system to the cash registers to deplete the inventory to the inventory ordering system to the order fulfillment at the regional distribution center. This billion dollar investment has saved Wal-Mart billions more in operational efficiency. This has become a huge competitive advantage and is now the standard for the industry. This could not have happened without business and IT leaders working hand in hand. Business leaders shared their inefficient or repetitive, manual, prone to error processes with IT professionals. The IT professionals designed a solution to increase the efficiency of the process. They solved some major pain points while increasing the bottom line and ultimately increasing shareholder wealth.

2.2.1.2 Technological motivation

The technical motivation for innovating in a business context has its roots in making a successful company but it is much more than that. In general, technical resources like to play with the latest and greatest technology and apply it to their work setting where feasible. They like to show everyone how smart they are and use technical advances to assist in proving this fact to others. Within a business setting, this behavior can have a symbiotic outcome. The business benefit of this new technology has provided the financial backing for continued research into even newer technology.

2.2.2 Information worker presence within executive management

Executive management has identified the importance of technical staff and is forcing the leadership evolution of technical resources. This fact is proven by the representation of technical staff within executive management. 20 years ago, there was no such thing as a Chief Information Officer or a Chief Knowledge Officer. Today, many companies recognize the importance of these positions and hold them in the same regard as other executives such as the Chief Operating Officer or the Chief Financial Officer. Technology has not in itself drastically changed the role of CIO in an organization. It is more an ancillary affect of technology than the actual technology itself. For example, many organizations have recognized the marriage of technology and core business functions so they have elevated the role of IT Manager buried somewhere in operations to CIO reporting to the CEO or the board of directors. This has little to

do with the actual technology and a lot to do with the importance of having a clear, defined, aligned direction of the technology vision and the empowerment to accomplish this goal at an organizational level.

A CIO has changed from a pencil-neck geek hidden in a server room somewhere to a strategic, politically savvy executive team member. The new job requirements include successfully being able to survey and play well in a politically charged environment, being able to build and elicit respect from all facets of the organization, showing strong leadership skills and handling oneself with emotional intelligence. Goleman (1998) states, "The rules for work are changing. We're being judged by a new yardstick: not by just how smart we are, or by our training and expertise, but also by how well we handle ourselves and each other." This statement reflects on a CIO more than any other executive. This means that just because someone is the best developer it does not mean that this person will become an effective leader.

Leadership is the key skill a CIO needs in today's environment. Before, a CIO could make technology decisions in a vacuum and if anyone challenged the decision, she could bury the inquisition in technical jargon. Now, a CIO has to build consensus, inspire a team, define a vision and implement new processes without substantially upsetting the business operations. That is quite a load. These activities can all be wrapped up into leadership. Kouzes and Posner (2002) break leadership down into five major categories; modeling the way, inspiring a shared vision, challenging the process, enabling others to act and

encouraging the heart. These are all areas that a CIO must worry about where they may not have had to in years past.

Lastly, a CIO has to worry about credibility. Before, things would happen because the IT guys said so. Now, credibility in the technology function is extremely important. If a CIO fails on many attempts to implement technology, their credibility will be shot and they will have to build it back up with small successes. Kouzes and Posner (2002) say, "Credibility is the foundation." A CIO has to be honest, forward-looking, competent and inspiring but more than that, they have to do what they say they will do. This feeling is consistent across the organization but it is extremely more important now than before because of the strategic fit between the business operations and technology.

The new leadership and strategic challenges are what has changed most for today's CIO. Now, they are looked at in the same light as a COO, CFO or any other executive. They must lead and inspire others to build a common vision. The difference is that now business and technology are synonymous in many cases.

2.3 Why do technical resources fall short in leadership and influence?

Leadership deficiencies in technical resources are a result of several factors. First and foremost, the general personality types attracted to technical positions do not fit with traditional leadership responsibilities. In general resources in technical positions are introverted and do not enjoy being in front of others. (More discussion on this topic is presented in Chapter 2.) Traditionally,

developers and IT staff prefer to be in the back room, tinkering with their cool new toys and interacting with people as little as possible.

Another key deficiency in a technical resource's leadership ability is the lack of exposure to leadership methodologies. This is a failure within the academic institutions that provide technical education. A person does not know what a person does not know. The individual could not be expected to know that they need leadership qualities until they are on the job. This is a recipe for failure. Schools need to recognize the trend in the industry and develop leadership skills in all students, especially students whose personality types are leadership-averse. That is not to say that every technical resource should be prepared for a long, distinguished career in leadership but they should be prepared to use leadership skills attained in school on day one of a new job.

By contrast, all Master of Business Administration (MBA) programs researched for this project offer some sort of leadership or at least managerial training. Most programs offer emphasis areas in the area of management. Although the two words (management and leadership) are not synonymous, some of the principles are. For example, Regis University offers MBA students sections in:

- Managerial Leadership (MBAM 604)
- Organizational Structure and Design (MBAM 606)
- Professional Communication (MBAM 609)

(Regis University, 2006)

All of these sections prepare the MBA student for leadership roles from different perspectives. MBAM 604 prepares a manager to be a leader, MBAM 606 prepares a student in organizational concepts and MBAM 609 prepares a student to effectively communicate. There are no such offerings in the Master of Science in Computer Information Technology program. At the University of Colorado, the MBA program offers:

- Management Behavior in Organizations
- Decision Modeling and Applications
- Team building

(University of Colorado, 2006)

Each of these sections is designed to give the student leadership skills at the individual, team and organizational level. The point of all of this research is that MBA students are afforded the opportunity to learn these leadership skills.

2.4 The key is training and exposure to leadership principles

Training is the key. Exposure to leadership methodologies and principles is just as important to developing technical resources as any .NET or networking class. This project presents many of these methodologies and principles. Again, an expert level understanding of the concepts is not the goal. The goal is exposure to a variety of effective means which will encourage leadership in the individual. The proposed syllabus presented later in this project outlines a week-by-week cumulative introduction to these models. If universities adopt courses like this and require them for all technical students, the leadership gap between

the business function and the technical function in an organization could be bridged.

2.5 Sample company background

Subsidiary Organization Software (Subsidiary Organization) is a small division of Parent Organization Corporation based in Denver, Colorado.

Subsidiary Organization has two main products. There are three development teams.

In a bit of an anomaly, the Subsidiary Organization business unit reports into the business development section of Parent Organization Business Division. The reason for this odd internal reporting structure (development reporting into a business development function) is that Subsidiary Organization is an end-to-end business unit whereas most Parent Organization product teams contain only development functions. An end-to-end business unit includes not only development and testing but also marketing, sales, support and consulting.

The main focus of this project will be the core design and development team. This team has eleven development resources, eight test resources and one development manager. The team reports into the Director of Development who in turn reports to the Subsidiary Organization general manager. Of the eleven developers, five come from the Parent Organization, three have been with Subsidiary Organization over six years and three are new comers to Parent Organization/Subsidiary Organization. Of the testers, three transferred from support and have been with Subsidiary Organization for over five years and five are newcomers. The development manager has been with Subsidiary

Organization for six years and rose through the ranks of the test organization.

This is the manager's first management position but has four years of management experience.

At the beginning of this project, Subsidiary Organization used a standard toolset. For development, Visual Basic 6 was used for most projects with C# and .NET 1.1 used for some add-on components. Source code was managed in Source Safe and requirements were managed in Word or Excel documents on a network share. Automated testing was accomplished using Rational Robot. Projects were managed using a standard waterfall software development life cycle. Project schedules were managed by project managers using Microsoft Project.

3 Chapter 2: Why is leading technical resources different?

Leading technical resources is much different than leading other types of resources in an organization. First and foremost, the primary reason for this difference stems from is the logical nature of the people themselves. The analytical nature of developers, for example, leads to a much different learning style, personality type, and emotional intelligence than employees in other departments. The key is understanding the general personality traits that knowledge workers possess. Providing a positive work environment for a technical resource is extremely important. If a manager treats a knowledge worker the same way that a sales manager would treat their sales then the environment will seem hostile to the technical resource and they will leave. This is an extremely costly consequence. When a knowledge resource leaves, even if they do a great job of documenting their work, a great deal of tacit knowledge leaves with them. Tacit knowledge includes insights, intuitions and hunches. This knowledge is difficult to express and formalize, and therefore difficult to share. Tacit knowledge is more likely to be personal based on individual experiences and activities. (Becerra-Fernandez, I, Gonzalez, A, & Sabherwal, R., 2004). For example, at Subsidiary Organization a developer who wrote a key add-on application left the company in September. This developer documented his code quite well with design documentation, comments in the code and training of his replacement but it took that replacement over 6 months to fully

understand the logic by which the application was written. This is solely because the tacit knowledge of the logic left with the developer.

Another key difference is the value system held by technical resources. The first problem is that these resources do not necessarily agree on the measures of individual success. According to Glen (2003), "Because they tend to see the world through technology-colored lenses, they often believe that the only valid criterion on which merit should be measured is technical knowledge." This means that the best developer, for example, should get the best reward, even if that person is impossible to work with and delays a project. They have little to no value for managerial skills, communication skills or any other 'soft' skills. They think that hard technical skills should be the only basis for evaluation.

3.1 Myers-Briggs Type Indicator results

3.1.1 Myers-Briggs Type Indicator explained

The Myer-Briggs Type indicator is a personality survey that has been developed over the past 50 years. Over two million people take it each year and it is respected as one of the most accurate personality profiling tools in history. All factual references in section 2.2 of this project are reference to (Briggs-Myers, 1998).

The Myers-Briggs Type Indicator (MBTI) is a self-report questionnaire designed to make Jung's theory of psychological types understandable and

useful in everyday life. MBTI results identify valuable differences between normal, healthy people, differences that can be the source of much misunderstanding and miscommunication.

Psychological type is a theory of personality developed by Swiss psychiatrist Carl G. Jung to explain the normal differences between people. (Briggs-Myers, 1998) Based on his observations, Jung concluded that differences in behavior result from people's inborn tendencies to use their minds in different ways. As people act on these tendencies, they develop patterns of behavior. These patterns were categorized into four groups of two opposite preferences. Preferences are general expressions of how people act. There is no right or wrong mix of preferences only the identification of a person's personality traits. The preferences are extraversion and introversion, sensing and intuition, thinking and feeling, judging and perceiving. Each of these preferences will be described and contrasted in the following sections.

3.1.1.1 Extraversion vs. introversion

Extraversion and introversion in the context of the MBTI do not necessarily have their traditional meanings. Normally, an extravert is pictured as 'the life of the party' and an introvert is pictured as a loner who does not talk to others. In the terms of the MBTI, a person with extraversion preferences gets energy from other people and being around other people whereas a person with introverted preferences gains their energy from within.

Extroverts like to focus on the outer world of people and activity. Energy is directed outwardly and gained by personal interaction. Some general characteristics of the extrovert type are:

- Prefer to communicate by talking
- Learn best by doing and discussing
- Attuned to external environment
- Sociable and expressive

(Briggs-Myers, 1998)

Conversely, introverts focus on their own inner world of ideas and experiences. They direct their energy inward and receive energy from reflecting on their thoughts, memories and feelings. Some characteristics of the introvert type are:

- Prefer to communicate in writing
- Learn best by reflection
- Drawn to their inner world
- Private and contained

(Briggs-Myers, 1998)

3.1.1.2 Sensing vs. intuition

Sensing people and intuitive people differ in the way that they take in information. In general, sensing people deal better with facts and data and usually need real world examples of past experiences to help them learn lessons. Intuitive people just understand how things work. They generally are adept at

identifying patterns and relationships between experiences and can derive conclusions and learn from the relationships between things.

Sensing people take in information about the real world. They consume data that is real and tangible and need to know what is actually happening. They are observant about the world around them and can recall very detailed specifics about past experiences. Some characteristics of the sensing type are:

- Focus on what is real and actual
- Build carefully and thoroughly toward conclusions
- Understand ideas and theories through practical applications
- Factual and concrete

(Briggs-Myers, 1998)

Intuitive people like to take in information by seeing the big picture, focusing on the relationships and connections between facts. They can see new possibilities by identifying patterns. Some characteristics of the intuitive type are:

- Move quickly to conclusions, follow hunches
- Imaginative and verbally creative
- Want to clarify ideas and theories before putting them into practice
- Focus on patterns and meanings in data

(Briggs-Myers, 1998)

3.1.1.3 Thinking vs. feeling

The thinking and feeling preferences deal with how people make decisions. Some differences include the involvement of logic while others base their decisions upon their own personal priorities. This is similar to sensing and

intuition but these preferences deal with data input whereas thinking and feeling has to do with how people actually make decisions.

Thinking people look at logical consequences of a choice or action in making decisions. They usually remove their personal interest from the situation and look at the situation objectively. They enjoy identifying what is wrong with something and solving the problem. They attempt to apply standards or principles to similar problems. Some characteristics of the intuitive type are:

- Fair – want everyone to be treated equally
- Strive for an objective standard of truth
- Solve problems with logic
- Analytical

(Briggs-Myers, 1998)

Feeling people consider themselves and others involved when making decisions. They try to identify with everyone involved to gain an understanding of the different perspectives so a decision can be made that honors everyone's feelings. They are energized by appreciating and supporting others and look for qualities to praise. The goal is to create harmony. Some characteristics of the feeling type are:

- Empathetic and compassionate
- May appear tenderhearted
- Guided by personal values
- Strive for harmony and positive interactions

(Briggs-Myers, 1998)

3.1.1.4 Judging vs. perceiving

People deal with the outer world in one of two ways, they are judgmental or perceiving. The difference is whether the individual can effectively deal with chaos or if they need structure in their world to be successful. Perceiving types deal well in chaos and can spontaneously act on environmental influences.

Judging people prefer to live in a planned, orderly way seeking to regulate and manage their lives. Once a decision is made, they prefer to leave it in the past and move on. They are structured and organized and they need to live by a plan. They become energized by getting things done. Some characteristics of the judging type are:

- Systematic
- Methodical
- Make short and long term plans
- Try to avoid last-minute stresses

(Briggs-Myers, 1998)

Perceiving people live in a flexible, spontaneous way seeking to experience and understand life rather than control it. Detailed plans and final decisions feel confining to them; they prefer to stay open to new information and last-minute options. They enjoy adapting to new circumstances and revel in their resourcefulness. Some characteristics of the perceiving type are:

- Casual and flexible
- Like things loose and open to change
- Open-ended

- Spontaneous

(Briggs-Myers, 1998)

3.1.2 An information worker's typical results

Because of the nature of information technology work, most of these resources fall into one of two types:

- Introverted, Intuition, Thinking and Judging (INTJ)
- Introverted, Intuition, Thinking and Perceiving (INTP)

Although the two types share three preferences, they are very different. For example, the dominant function for an INTJ is intuition whereas the dominant function for and INTP is thinking. (Briggs-Myers, 1998) This means that the people have very similar personality types but they must be managed very differently.

3.1.2.1 INTP

Myers-Briggs (1998) says, "People with INTP preferences are independent problem solvers who excel at providing a detached, concise analysis of an idea or situation. INTP's best work may emerge when they are allowed to work independently on a problem whose solution requires an approach that runs counter to prevailing wisdom or knowledge." In technical context, this type fits perfectly. They find new, logical approaches to problems and have the ability to analyze a problem independently to derive a novel, logical answer. In general, they are logical, analytical and objectively critical. (Briggs-Myers, 1998) They see possibilities and connections beyond the present and

obvious. According to Isachsen & Berens (1995), "INTPs are adept at determining the most efficient and effective structure, figuring out the simultaneous placements of parts of a whole, be it a building as in architecture, a schematic, or a theory." This is especially important for an information worker. Users require that technology provide 'impossible' solutions to business problems. An INTP has the skill and analytical ability to understand the problem in great detail and intelligence to provide a number of solutions to the problem. An INTP is especially adept at thinking 'outside the box.' They are curious and seek knowledge for its own sake. They love to theorize and discuss abstractions. These attributes are extremely helpful in a development organization. A developer who enjoys staying current on new technology for the sake of expanding their knowledge is an extremely valuable employee.

INTPs can be extremely challenging to manage. For example, they highly value intelligence and competence but despise the opposite or what they perceive to be the opposite. If they have not had the opportunity or environment to develop their natural gifts, they can become cynical, negative critics or sarcastic or even completely isolate themselves. (Briggs-Myers, 1998) In a team environment, not having a handle on the potential negative behavior could rip the team apart. The INTP can be destructively critical. They also could fail to consider the impact of their ideas or style of expression on others. (Briggs-Myers, 1998) INTPs abhor redundancy and hesitate to state the obvious, so their communications are frequently terse and that they assume that they are understood. (Isachsen & Berens, 1995) Even worse, because sensing is an

INTP's worst preference, they may be oblivious to their affect on other team members. Under great stress, INTPs may erupt outwardly in inappropriate displays of emotion. The resulting explosive anger or hurt tearfulness is quite unnerving to others and embarrassing. (Briggs-Myers, 1998) Again, this personality trait could manifest itself at inappropriate times and have an extremely negative influence on the team. Although this behavior could lead the team to isolate the INTP, the individual could actually prefer this reaction. The trick is to help the INTP find appropriate outlets for stress.

3.1.2.2 INTJ

According to Briggs-Myers (1998), "People with INTJ preferences have a clear vision of future possibilities coupled with the drive and organization to implement their ideas. They love complex challenges and readily synthesize complicated theoretical and abstract matters." Utilizing this analysis of the personality type, an INTJ fits perfectly with technical work. INTJs use their thinking to make logical decisions. INTJs trust logical reasoning above all. (Isachsen & Berens, 1995) They are independent, trust their own perceptions and judgments more than those of others and apply their high standards of knowledge and competence most rigorously to themselves. The dominant function of the type is intuition with the auxiliary function being thinking. (Briggs-Myers, 1998) This independent and logical mindset lends itself to technical positions. For example, a developer who gets a new set of requirements can call on specific traits in the personality type to evaluate them. She can call on her global view to develop visionary goals then has the ability to break these broad

range goals down into smaller, achievable, organized subtasks. Tireless in their work, they drive themselves and others to achieve the organization's goals.

(Isachsen & Berens, 1995) In addition, she can draw on her rational, detached nature to be objectively critical of the requirements to ensure that they are technically feasible and meet her interpretation of the user's needs. The irony of the INTJ is that although they are fiercely independent they tend to be quite loyal to the organization and the ideas they are pursuing to improve. (Isachsen & Berens, 1995)

INTJ personalities have areas for growth as well. In the case of many technical resources, they have not developed their thinking traits and may not have reliable ways to translate their valuable insights into achievable realities. (Briggs-Myers, 1998) This means that many people of this personality type can not actually convert the ideas on paper into viable systems. They have the intellectual horsepower but may not have developed the competence. Of all of the types, they are weakest at feeling and have trouble with sensing. (Briggs-Myers, 1998) Sometimes INTJs can become aloof and abrupt and can seem insensitive to others who do not understand their point of view because the INTJ did not give enough information about their internal processing. They can become critical of those who do not see their vision quickly. (Briggs-Myers, 1998) They can be bitingly critical and sarcastic and may be seen as cold, distant and unapproachable. (Isachsen & Berens, 1995) This may be perceived by others very negatively. The INTJ can seem inconsiderate, like they think they are better than everyone and rude. In addition, they abhor a lack of willpower.

(Isachsen & Berens, 1995) They interpret this trait in other people as mental weakness and quickly lose respect for those who they perceive as lacking resolve. This may also be very challenging to manage. The key is to use a combination of the tools listed in Chapter 3 to provide a positive, creative environment for the INTJ to produce their best work.

3.1.3 A business person's typical results

In nearly direct contrast to a typical technical resource's personality type, a general business person's type is Extroverted, Sensing, Thinking and Judging (ESTJ) or Extroverted, Sensing, Feeling and Perceiving (ESFP).

3.1.3.1 ESTJ

An ESTJ is practical, realistic and decisive. They have a clear set of logical standards and systematically follow them and expect others to do the same. According to Briggs-Myers (1998), "ESTJs enjoy interacting and working with others as long as the others are responsible about meeting deadlines and completing assigned tasks. They work best in situations where clear, known problems can be solved with proven techniques." This is a direct contrast to a typical technical resource. The business person wants to use a proven solution to solve a similar problem whereas a technical resource wants to develop a novel solution to a problem. An ESTJ can be counted on to follow through. While they tend to comprehend the whole operational picture, they can be sticklers for detail. (Isachsen & Berens, 1995) This is prevalent in the traditional setup of an organization. In many companies, systems are set up to assist business people

in making decisions. General ledger systems, customer relationship management (CRM) systems and knowledge management systems are generally put into place so business people can draw on prior organizational learning. In addition, an ESTJ can be quite gregarious and generally enjoy interacting with people, especially around tasks, games, traditions and family activities. (Briggs-Myers, 1998) By contrast, a typical information worker is an introvert who is fiercely independent and gains energy from introspection and reflection.

3.1.3.2 ESFP

According to Briggs-Myers (1998), "People with ESFP preferences are exuberant lovers of life. They live in the moment and find enjoyment in people, food, clothes, animals, the natural world and activities." They have a hard time learning from studying or reading so they typically immerse themselves in activity and learn as they go. ESFPs are at their best when responding to crises. They especially work well with people in situations calling for immediate action and finding solutions to exciting problems. (Isachsen & Berens, 1995) These traits are especially useful in salespeople. They are able to think on their feet and adapt easily to any situation. This is a direct contrast to a typical technical worker who needs structure in social interaction and does not typically deal well with change in that social structure. ESFPs make decisions by using their personal values. They use their feeling judgment internally to make decisions by identifying and empathizing with others. (Briggs-Myers, 1998) The feeling and sensing preferences are completely foreign concepts to a typical information

worker. In fact, the feeling and sensing preferences are the weakest preferences for a technical resource. (Briggs-Myers, 1998) Business people utilize these preferences in effectively dealing with customers, other departments and each other. Their careers foster this collaboration in a way that they develop the needed skills everyday. They are resourceful and supportive and thrive in human interaction. Typical knowledge resources are resourceful but prefer to work independently then show people in authority how they solved a technical problem by themselves.

3.2 Emotional Intelligence

Emotional Intelligence is a concept developed by Daniel Goleman and written about in his book *Working With Emotional Intelligence*. Daniel Goleman, Ph. D., is CEO of Emotional Intelligence Services in Boston Massachusetts. For twelve years, he covered the behavioral and brain sciences for The New York Times, and he also taught at Harvard. (Goleman, 1998)

3.2.1 Definition of Emotional Intelligence

According to Goleman (1998), “Emotional intelligence refers to the capacity for recognizing our own feelings and those of others, for motivating ourselves, and for managing emotions well in ourselves and in our relationships.” This means that a person who is emotionally intelligent not only has control over their own feelings and reactions but also possess the ability to recognize and manage the emotions of the people they interact with. It is not only important to

manage an individual's own emotions but also those emotions present in the environment which the individual participates.

There are two kinds of intelligence, emotional and intellectual. Typically, technical resources are very adept at intellectual intelligence. That is, they can easily identify patterns and use logic to understand and relate to the world around them. Because many of the emotional intelligence principles are based in the sensing and feeling preferences (explained in detail in sections 2.1.1.2 and 2.1.1.3), typically the two weakest preferences for information workers, emotional intelligence is a very difficult concept for them to understand.

3.2.2 Using Emotional Intelligence in hiring

Typically emotional intelligence in a hiring context refers to 'team fit.' A hiring manager must evaluate a candidate not only for technical skill and experience but also for emotional intelligence. The hiring manager must ask questions like, "How will the candidate respond to stress?" or "How will the candidate fit in with the team?" and "Can the candidate be self-critical?" If the manager can respond to these questions positively and assuming the candidate passes muster from a technical perspective, the candidate may be a good fit for the job.

3.2.3 Using Emotional Intelligence in leadership

Emotional intelligence usage in leadership is a very interesting and valuable concept. In a leadership context, emotional intelligence has four dimensions. According to research, an effective leader typically demonstrates at

least one competence among the four dimensions. (Goleman, Boyatzis & McKee, 2004) The four dimensions are:

- Self-awareness. A leader who can recognize their personal emotions can more easily recognize and manage other's emotions. This self-awareness helps the leader identify emotions in team members and how their emotions affect their performance. In addition, self-awareness helps the leader identify personal strengths and areas for improvement. This is important as a leader because it shows the team that the leader is not perfect and can be self-critical. (Goleman, Boyatzis & McKee, 2004)
- Self-management. This dimension refers to a leader's ability to keep their emotions in check. A leader must strive to keep disruptive and discordant emotions at bay in order to create harmony and achieve goals. (Goleman, Boyatzis & McKee, 2004)
- Social awareness. According to Goleman, Boyatzis & McKee, (2004), "Empathy or social awareness is a requisite for resonant leadership. There is a neurological explanation to empathy. The amygdala reads another person's face and voice for traces of emotions and sends signals to the prefrontal zone on what the next course of action should be. A leader must then be able to gauge their manner of expression in order to avoid dissonant outcomes. Empathy is a key factor in relaying messages in order to tune in to people's emotional channels not only in the workplace setting but also in dealing with clients."

- Relationship management. This is the dimension that ties the other three together. A leader must have a handle on self awareness, self management and social awareness for the purposes of relationship management. In many organizations, relationship management is synonymous with politics. Goleman, Boyatzis & McKee (2004) contend that relationship management is, “friendliness with a purpose.” In either case, the key to this dimension is personal relationships with people.

A leader must incorporate these dimensions in different situations for different purposes. The key is to know which dimension to draw upon to solve a leadership situation in an emotionally intelligent manner.

4 Chapter 3: Fundamental leadership concepts to which information workers respond

A variety of tools and concepts exist that help a technical manager evolve into a technical leader. According to Pierce & Newstrom (2000), “Leaders who simultaneously communicate high expectations of, and confidence in, followers are more likely to have followers who accept the goals of the leader and believe that they can contribute to goal accomplishment and are more likely to have followers who strive to meet specific and challenging performance standards.” This chapter reviews several ways to meet the challenge of the preceding sentence and presents many key concepts that technical resources generally respond well to. Many of these concepts are good general leadership practices but are emphasized with the technical perspective for the purposes of this project.

There is one overlying assumption that requires explanation. This analysis uses the terms loyalty and productivity synonymously. Studies have shown that when a resource is loyal to their work, they become inherently more productive. (Kouzes & Posner, 2002) According to Hill Enterprises (2005) there are five levels of commitment:

- I don't want to and you can't make me
- I want the result but I don't want to do the work
- I'll try, I might, I could
- I'll do my best
- I'll do whatever it takes

These levels of commitment range from no commitment (I don't want to and you can't make me) to ultimate commitment (I'll do whatever it takes). A fundamental assumption to this project is that loyal employees trend toward ultimate commitment whereas non-loyal employees trend toward non-commitment. This concept is at the foundation of the rest of the chapter.

4.1 Take blame/give credit

One very effective way to build credibility with a team is to take the blame for the individual or the team when something goes wrong yet when major accomplishments are attained, giving credit to the key individuals. This sounds like a fairly straight-forward concept but it is extremely difficult to implement in real-life situations. This concept is somewhat contingent upon executive management supporting an environment where mistakes are viewed as a learning opportunity rather than an accountability issue.

The power of taking blame/giving credit lies in the loyalty to the manager this action creates. Taking the blame for a big mistake shows the employee that the manager values them and does not want them to look bad at the sacrifice of making the manager look bad. The employee will look at this very positively and feel like the manager 'threw themselves under the bus' to the benefit of the employee. Make no mistake, the employee should be held accountable in private and in their performance review but the public responsibility should fall on the manager. This behavior typically creates incredible loyalty to the manager.

At Subsidiary Organization, this concept played out perfectly. One of the more junior developers committed to developing a key new functionality in 3

months time. This new functionality was strategic to a large software distribution partner and was projected to lead to significant increased sales and maintenance revenue for both Subsidiary Organization and the partner. The developer underestimated the effort significantly. The development manager added two additional resources to the project but the project still took nine months in total. When the partner and Subsidiary Organization's executive management wanted answers for the delay, the development manager answered with phrases such as, "I underestimated the amount of effort involved" and "I planned poorly." The actual developer who underestimated and planned poorly noted the accountability of the development manager. During the annual review process, the developer noted on the manager's feedback comments like, "He is the best manager I have ever had" and "I would follow him into any battle." This type of loyalty is an extremely powerful management tool.

4.2 Empowerment

Empowerment is necessary in building an effective, high-performing team. An empowered team is not built quickly. According to Pinchot (1996), "A fire is ignited within people that unleashes their latent talent, ingenuity, and creativity to do whatever is necessary and consistent with the principles agreed upon to accomplish their common values, vision, and mission in serving customers and other stakeholders. This is what we mean by empowerment." It is built through individual contribution, risk taking and providing a great environment to work in. There are two keys to building an empowered team, hiring great resources and allowing them to take risks.

Hiring great resources is extremely important to building an empowered team. Again, this sounds very obvious but it is extremely difficult to implement. When hiring technical resources, there should obviously be an emphasis on technical skills but there should also be a focus on team fit and long-term potential. Team fit is crucial because if the new hire can not fit in then they will typically either withdraw from the team completely or push too hard for acceptance. Both extremes are incredibly detrimental to the team dynamic.

There are several effective strategies to hiring great resources. At Subsidiary Organization, the interview process is a means to this goal. An interviewee is expected to spend an entire day interviewing with several key individuals from the team. Each interviewer is assigned a specific area of emphasis for evaluation of the candidate. One person may be assigned C# syntax knowledge, another might be assigned to logical thinking, another to drive for results and yet another to team fit. There may be up to seven hour-long interviews for the candidate during the day. The assignment of specific topic areas cuts down on redundancy for the interviewee and it facilitates a broader range of questioning for the interviewers. When one interviewer is finished, they pass the candidate on to the next person and immediately write up their comments as well as a hire/no hire determination. Generally, if there are two or three no hires, the interview is cut short and the candidate is dismissed.

In the case where a candidate makes it completely through the interview, Subsidiary Organization has a good evaluation of the interviewee's skills from a variety of perspectives. In addition, each individual on the team get the

opportunity to interact with the candidate individually. The advantages of this fact are two-fold; first, the candidate will be evaluated from all key perspectives by all key employees so each interviewer will get a feel of the interviewee's team fit potential. Second, each interviewer gets a sense of empowerment because they, in effect have a 1/7 vote on whether the candidate will be hired and they can shut down the interview at any time. From this perspective, the interview process empowers the team in the front (hiring the candidate) and in the back (team member involvement).

Allowing resources to take risks is another extremely effective empowerment tool. Each risk should be looked at as a potential learning experience, even if it fails. This concept must be enacted in conjunction with the take blame/give credit concept analyzed earlier. Giving a resource the bandwidth to try something that is unproven tells the employee that they have been endowed with a great deal of trust, respect and confidence. It is a true vote of confidence for the employee. In most cases, this trust will be returned exponentially, even if the project fails. The fact that the manager allowed company resources to be spent on the risk that was spawned from the employee automatically earns trust and loyalty to the manager. Again, the key to this concept is that the manager must take responsibility for a failure but give all of the credit, including credit for the novel thought, to the employee if it succeeds.

4.3 Delegation

One of the hardest concepts to get comfortable with as a manager is delegation of responsibilities. Delegation is an extremely effective way to prove

to individuals that they are valued and trusted. According to Crispo (1998), “Delegation is defined as the process whereby a principal authorizes an agent to act on her behalf by transferring a set of rights to the agent for a specific period of time. We defined the grantor as the person who hands over the rights, the grantee, who accepts them, and usually what is handed over is a subset of rights owned by the grantor to the grantee while the responsibilities for these rights are always shared between the grantor and the grantee. There is always a share of responsibility on the rights and usually both of them, grantee and grantor, have the capability to exercise the delegated rights.” This is a very academic definition of delegation. In simpler terms, delegation means that a person in power transfers some of their authority to another. The grantor is still ultimately responsible for the duty about they are allowing another to take on the challenge.

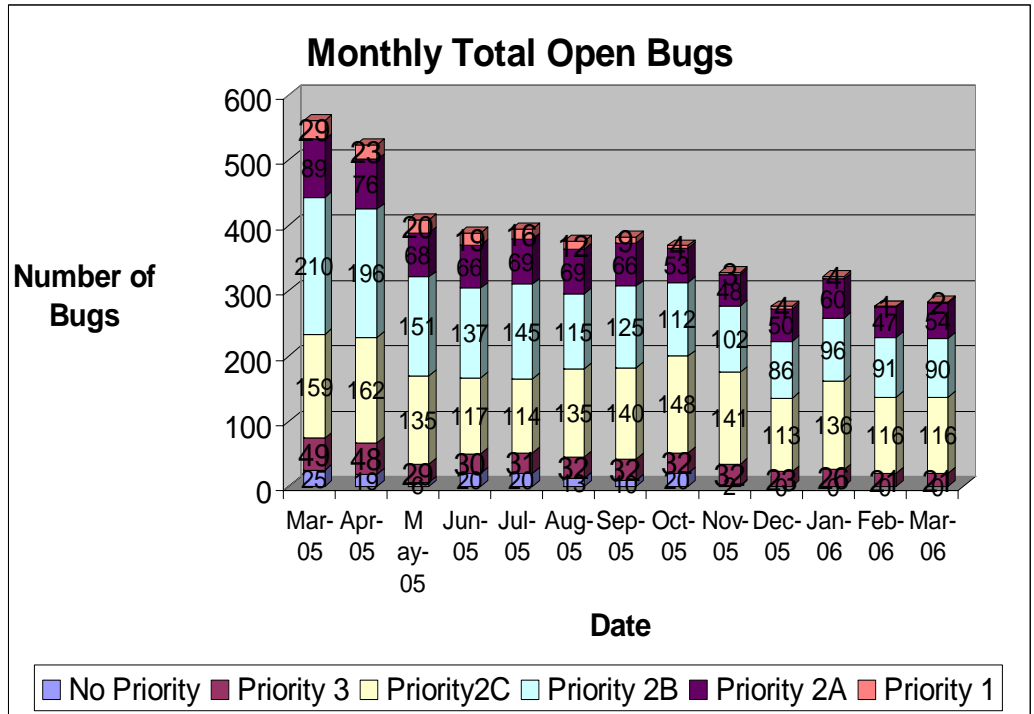
From an employee empowerment perspective, delegation is an extremely effective concept. It shows the individual contributor that he/she has the trust and respect of the manager. According to Pinchot (1996), “In a hierarchy, delegation is the primary tool for creating opportunity for more leaders. The subordinate leaders accept the scope of their command and use leadership to accomplish the tasks given to them.” The level of trust it takes to transfer responsibilities is a greatly effectual tool to build individual loyalty. For example, if a manager is ultimately responsible for implementing new processes that increase efficiency, the manager should open this responsibility up to each member of the team. If individual contributors come up with a great idea, the manager should free up the employee’s time to run with the implementation of

the process. Ultimately, the team will be better off, the individual will feel a sense of trust and power and the manager will build needed loyalty.

One pitfall with delegation is that the person delegating the activity must be willing to let go. This is the case even if the responsibility remains with the person giving up the duty. This person must be willing to accept the task being done the second best way. The best way, of course, would be the way the person delegating the duty would do it. This is a very hard concept to grasp even for the best of leaders. Once someone is able to overcome this obstacle, delegation becomes a very valuable, empowering and useful tool

At Subsidiary Organization, delegation was a great tool the development manager employed to build team empowerment. For example, traditionally a huge development manager time sink was the legacy bug triage committee. At Subsidiary Organization, customers report bugs through support, through consultants or through partners then these bugs are written up and submitted in the bug tracking system. Once in the system, the bug triage committee evaluated the bugs for completeness, duplication, priority and severity as well as estimated release. The triage meeting itself took over two hours per week and time was spent evaluating and discussing bugs throughout the week. In all, it is estimated that the development manager spent over a full working day per week dealing with this process. Once a decision was made, the employees that were affected by the decision felt like it was handed down to them with no consideration or their time or skills. Delegation solved all of these issues.

The
 Subsidiary
 Organization
 development
 manger
 dreaded
 spending time
 on legacy bug



tasks. The development manager’s employees dreaded the outcomes of the tasks. The process was not working for anyone. Recognizing the fact that the development manager was simply a middleman, a delegation strategy was developed. This strategy would take the development manager completely out of the process and empower the tester and the developer responsible for the work with the decision authority. After some initial pain, this revised division of responsibility worked famously. The development manager gained a full day per week to focus on other tasks. The legacy developer and the legacy tester felt empowered because their voices were now directly heard in the triage committee and their scope of influence increased from strictly the development team to organization wide. As a side benefit, because the release team was now part of the process, they gained a better understanding of how their work is consumed by other departments and the customers. Because of this new understanding, code churn was decreased which resulted in the lowest number of bugs in the

code in Subsidiary Organization's history. In the end, all affected parties were more productive because of effective delegation.

4.4 Personal interest

A good leader should get to know their team on a personal level. It is easier to work for someone when you actually like them. The larger the organization and the more direct reports, the harder it becomes to accomplish this goal. No matter how large the team, there are two great ways to show an interest in the employee in a very personal way; regularly scheduled one on one meetings and off-site team builders.

A regularly scheduled one on one is not a novel concept. The focus of the topic within the one on one is. If there are no performance issues to discuss, these meetings should not focus on performance management. Instead, they should focus on career growth and preparing for the next opportunity. One of the best ways to build loyalty, especially loyalty of technical resources is to spend time discussing their dreams and aspirations. The manager should not push a resource down one career path or another. They should instead assist the employee in planning for their net opportunity, even if that means ultimately preparing the employee to leave. This deep commitment by the manager indicates to the technical resource that the individual relationship is extremely important to the manager and, in turn, aids in building loyalty. The manager will appear concerned and generous to the employee and the employee will be grateful that they have the opportunity to explore other interests.

At Subsidiary Organization, this worked extremely well. One resource, with help of a career coach, decided that they would ultimately like to become a librarian. Subsidiary Organization has absolutely no need for these skills but the resource is extremely strong and would leave a great void. Instead of recoiling in horror at the thought of losing the resource, the development manager fostered the conversation. In the end, the development manager and the employee devised a long-term plan that would help the employee get into the newly chosen field but would also commit them in the short and mid term to the team and the project. The employee leaves with a sense of commitment from the organization and the organization gets a deeper level of commitment from the employee.

Team building activities are extremely important to developing a cohesive, productive team. This is especially the case in technical teams. Open lines of communication are important for technical teams. Team builders not only help the manager/employee bond but also foster the team/employee bond. When people get to discover each other on a personal level, a connection is made. This connection helps personalize the individuals which in turn aids in open communication, willingness to help and conflict resolution. Team building implies a very employee-centric approach.

At Subsidiary Organization, anytime the entire team is together a team building opportunity arises. For example, a major project was falling behind and management was getting extremely concerned. Mandatory overtime was invoked. Instead of looking at the mandatory overtime as a hindrance, the development manager looked at it as a team building opportunity. The manager

offered to buy the team dinner on the late nights and insisted that the team members break away from work and eat together. At first, there was resistance to the idea but after only two weeks, the team began looking forward to the dinners and the average attendance rate past 10:00pm was 70%.

4.5 Using Currencies

Currencies are mediums of exchange between entities. Traditionally currency means money. In a leadership context, currency means anything that is used for bargaining. (Hill Enterprises, 2005) They are negotiating points. Currencies can be tangible or intangible. Examples of tangible currencies are money, gift certificates, a corner office or a car. Intangible currencies can include values, political power, intelligence and communication. Using Currency is more than a simple reward system. The key to using currencies in leadership is to derive something that is mutually beneficial by bartering currency.

The use of currencies may seem blatantly obvious on the surface. A manager gives a paycheck in exchange for work. This is true. A leader takes currency usage another step. A leader knows what is important to the individual and can motivate them to produce more efficiently and effectively by knowing the currencies of the follower. In a very extreme example, a hostage negotiator uses intangible currencies in conjunction with tangible currencies to negotiate the safe return of the hostages. Explicitly the kidnappers may demand a plane or money but implicitly, they want free passage, control and a resolution. In exchange for this, they offer hostage's lives. Most of what is bartered is not tangible.

In a less extreme work environment, a leader must identify the individual follower's currencies. What do they offer and what do they want? Obviously, a worker wants a check and they offer work. The difference between being a manager and being a leader is to identify which currencies will drive an employee to produce a work product more efficiently. The currency could be public praise, a free day off or a hand written note. The key is to understand what drives the employee and trade motivational currencies for work toward a team goal.

4.6 Empathy

The ability to 'put yourself in another's shoes' is key to leading technical resources. If a leader can understand the perspective of the employee, it becomes much easier to manage them and the manager will seem more caring. The key to empathy is having the personal relationship mentioned in the section above. A manager should know the personal situation of the employee to help them strive for excellence at work. That is not to say that the manager should know every minute detail about an employee's life but they should know the general situation such as the current state of the employee's relationship with their significant others, what the employee's kids are interested in, hobbies and interests and anything else that the manager could find a common interest in. The importance of empathy is that it shows an employee that a manager actually does care.

Empathy can be leveraged in a couple of distinct ways. First, a manager can speak to the passions of the employee to help to motivate work. For example, if a worker is very interested in snow-boarding, instead of offering a

Starbucks gift card for a job well done, a manager should offer a lift ticket. The employee will be more likely to strive for the goal because the reward involves an activity they are passionate about. By putting the manager in the employee's shoes, the manager is able to motivate the employee more effectively.

Empathy can also be a very powerful tool to utilize in helping a resource through personal stress. For example, if an employee is going through a divorce, instead of implementing a rigid time reporting process, the manager should work with the employee to facilitate relieving the temporary stress. That is not to say that the resource should get to off-load all work responsibilities but care should be taken to address the personal anguish. Again, this involves a large amount of trust. Once the employee is through the temporary stress, they will reflect on how supportive the employer was through the process and this reflection will build employee loyalty.

4.7 Ego

Managing egos in the technical world is one of the most challenging aspects. Technical resources always think they are the smartest person in the room and like to show that off. The challenge comes when there are several technical resources in the room competing for the title of smartest. This problem can be solved in a very individualistic fashion. Each technical resource is intelligent by their individual accord. The trick as a manager is to find out the skills that the resource possesses and capitalize on those talents. Let the employee know that they are the smartest in relevant situations and make a big deal out of accomplishments tackled in this domain.

Another very effective way to stroke the ego of a technical resource is to assign responsibility for the resource to teach a class about their strong areas. The benefit to this tool is two-fold. First, it gives the developer a chance to show off their knowledge to their peers and, second, the rest of the development team gets exposure to the subject from an expert. The key to making this training a success in the eyes of the instructor is for the manager to make a big deal out of the offering publicly. At the end of the session, the manager should get up and publicly thank the resource for taking the time to prepare and teach the class as well as take the opportunity to brag on the instructor. The manager should publicly praise the intelligence of the instructor.

At Subsidiary Organization, a developer initiated the idea of weekly 'dev talks.' These learning sessions are one hour training sessions taught by different resources within the development and test organization. Past subjects have included SQL Server 2005 training, use of generics in .NET 2.0, Dr. Watson integration, how to use asserts in code and many other topics. Each training session resulted in an increase in overall knowledge of the larger development team as well as identification of the strongest resource on topical areas. From a management perspective, this is a prime opportunity to publicly praise the intelligence of the developer.

4.8 Accountability

Accountability is an extremely empowering ideal. When a resource is held accountable to deliverables, to dates or to a quality of work, that resource will rise to the challenge. The secret is the communication of the expectations. Holding

someone accountable to a scope of work, if done correctly, can be a hugely motivating tool. The project should be offered to the resource in a way that they feel like they are the only one that can complete the task or that the resource is the only one the manager trusts with such an important job. This approach may seem cheesy or hokey but it can be effective. This technique is along the lines of the ego management discussed earlier. Once the resource has signed up for the project, accountability must be maintained. This is a very thin line to walk. The worst thing a technical manager can do is appear to micromanage the resources. Constant reminders of accountability will be interpreted as micromanagement. The trick is to give praise for accountabilities that have been reached but appear sympathetic to missed responsibilities. That is not to say that the resource should be forgiven for not meeting agreed upon goals but providing a soft landing for the employee will help build manager loyalty.

Another factor to consider about accountability is employee overload. An employee can become overloaded by their own commitment setting or by a manager who piles on. Both situations need to be managed effectively. The manager needs to recognize when an employee is spreading themselves too thin. Great employees always think that they can get more done in a shorter period of time than is humanly possible. There are several tools to aid in this analysis. Microsoft Project provides graphical resource reports that easily identify when a resource is overloaded with commitments. In a more extreme scenario, the manager may have a tendency to overload the team with work. This scenario is very disempowering to the team because they will feel victimized

by the manager. The resource's work/life balance will become extremely skewed

toward work and they will

feel powerless to rectify

the situation. The

manager will suddenly

become a 'bad boss.'

The key to avoiding this

misstep is proper

resource planning.

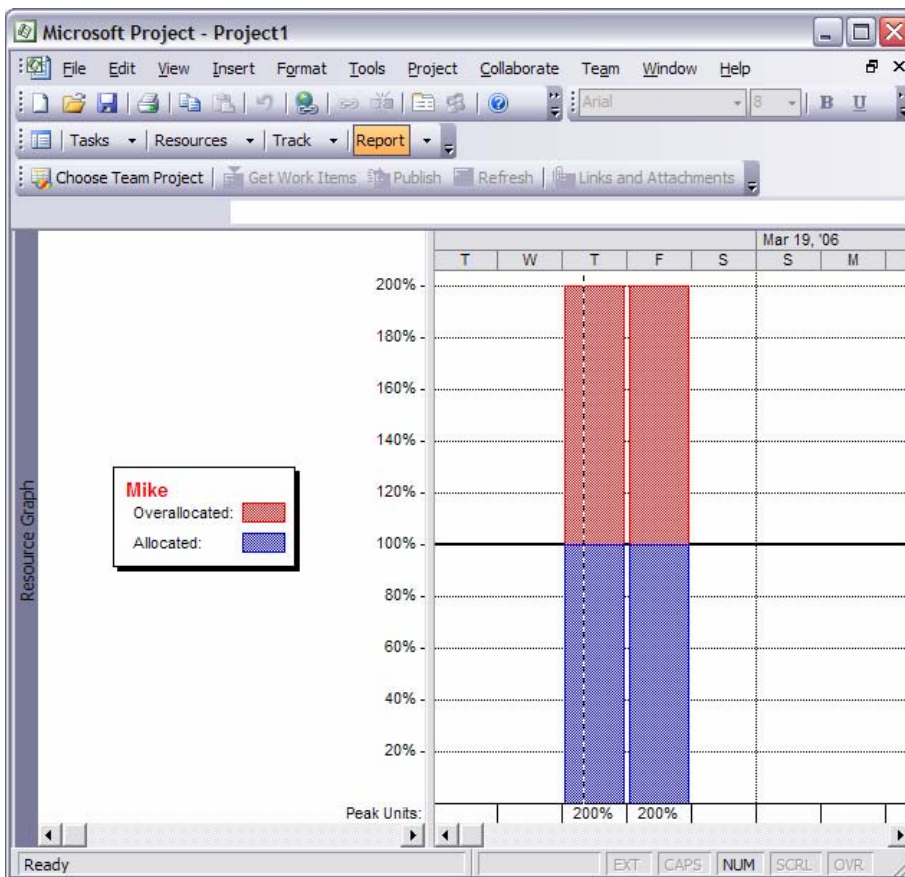
When the

schedule for a project is

planned, the manager

and the technical

resources should work



together on the resource plan. An effective means to accomplish this goal is to

invoke a three step process for project estimation:

1. The manager assigns work tasks to the employees.
2. The employees estimate the amount of time the tasks will take.
3. The manager increases the estimates by 30%.
4. The manager works out a project plan based on the revised estimates.

The project plan can be a simple Excel sheet or an elaborate project plan. The

main point is the graphical representation of the resource utilization.

4.9 Competition

Friendly competition between individuals or teams could be a very compelling motivator. The key to using this tool is to keep the competition friendly and productive. According to Glen (2003), "Competition brings out their [technical resources] macho, competitive spirit and love of games, allowing them to engage in seldom-expressed enthusiasm. The joy of creation is considerably enhanced by the thrill of participating in the defeat of evil with ingenuity." This is especially true if the competition can be limited to within the team. For example, the manager could buy an inexpensive, silly trophy that outstanding individual contributors win. On the flip side, if a developer has more than X number of open bugs the individual gets put in 'bug jail' which means that they can't implement new functionality until they lower their amount of open issues to a manageable level. The manager could purchase a ball and chain from a costume shop to let the rest of the group know that the individual is in bug jail.

Not all teams would be ready for this type of light-hearted competitive environment. For example, if a team is not skilled in the area of emotional intelligence, they may overreact. If the individuals can not keep their emotions in check and keep the competition fun, this suggestion is not appropriate.

4.10 Lead by example

Leading by example seems like such an easy concept to grasp but it is rarely seen in the technical world. For example, if a manager requires mandatory

overtime of the team, the manager should work the hours with the team. This builds credibility and tears down the manager/worker barrier. An effective manager has huge influence over the team and the team will take cues from their leadership implicitly. That is why it is extremely important for a leader to conduct business, management and leadership activities in an ethical and moral manner.

Conversely, there are toxic leaders. According to Lipman-Blumen (2005), there are several characteristics of the destructive behaviors of toxic leaders.

They include:

- Leaving followers worse off than they found them
- Deliberately undermining, demanding, seducing, marginalizing, intimidating, demoralizing, and incapacitating followers
- Violating the basic standards of human rights for their own supporters
- Stifling constructive criticism
- Misleading followers through deliberate untruths
- Maliciously setting constituents against one another
- Identifying scapegoats for their own failures
- Ignoring or promoting incompetence, cronyism or corruption

Many of these characteristics seem obvious but when people are living with a toxic leader, there is likely an environment of intimidation and fear and the employee may feel powerless in the situation. There are several other reasons people can not recognize toxic leaders. For example, people assume others care about people's feelings. A toxic leader can be personable and likable but may advance themselves at the expense of others. Another reason may be that

the follower believes that the toxic leader reciprocates loyalty and friendship. This is not the case. A toxic leader is only out for himself/herself and will advance their agenda at all costs. Chenoweth (2005) summarizes an employee's situation with a toxic leader when he states, "The majority of followers 'stay the course,' even in toxic situations, because they believe the barriers to escape are too strong and the costs too high from a financial, political or social standpoint."

4.11 *Break large tasks into small, manageable tasks*

Enormous tasks with never-ending task lists are extremely daunting to individuals and teams. If people do not know where to start or where to finish, the project will fail. This is especially true for technology projects. The market is evolving at an extremely rapid pace. What is current today is outdated in six months. If a project is projected to be complete in two years, it will be outdated when it is launched. Technical resources know this fact more than any other type of resource. That is precisely the reason that smaller subtask management with frequent check point review is necessary. The two year project mentioned above should be broken into monthly tasks.

There are two main advantages to this approach. First, the employees get a sense of accomplishment and can feel like they got something done more frequently than every two years. At Subsidiary Organization, monthly meetings where the developers get to show off the functionality that they completed the prior month are commonplace. The developer gets to tell the team how they solved a very difficult problem, the team sees the cumulative progress that was

made in the prior month and the manager can evaluate what was accomplished against the plan. Second, the project can be more actively managed with frequent milestone checkpoints along the way. This analysis is very important for not only the manager but all of the key stakeholders in the project. The schedule can be tweaked and scope can be managed on a monthly basis rather than these activities happening only when the project is due. Expectations can be actively managed and the entire team will seem more forthcoming because of the advance notice.

4.12 *Free stuff*

Free stuff is a quick, easy, immediate-impact tool a leader can use to get more out of a team. This includes free food for working late, free gifts when software is released, free lunches when appropriate, etc. The free stuff does not have to be extravagant. A hand-written note from the manager to the employee congratulating them on a work anniversary, during the holiday season or after a major accomplishment can mean as much to some employees as a more expensive gift. Offering free dinner is a great way to get employees to work late. Little tokens of appreciation should be given throughout the year. Celebrate birthdays by taking the team to lunch. Give a gift card to an employee's favorite restaurant on the employee's work anniversary (along with the hand-written congratulations card). Little incentives add up over time and confirm to the team that the manager cares about them as individuals, not just workers.

At major milestones such as project completion, the gift should be a little more expensive and a little more heartfelt. The gifts should show the team that the manager understands the personality of the team. An inappropriate gift could severely damage the credibility of the manager. At Subsidiary Organization when a prior version was shipped, the manager looked over the team and decided on very nice backpack/laptop bags as the ship gift. The team was comprised of hikers, techno-geeks who carried laptops daily and travelers who needed a bag that would fit as a carry-on. The manager had the bags embroidered with the logo of the software and the version and presented them to the team at a very nice release celebration at Morton's steakhouse. Every person who received the gift personally thanked the manager for such a great gift and carries it with pride. As an unexpected benefit, others in the organization have inquired about the availability of the backpacks only to find out that they were only available to the version ship team. The team relished the exclusivity.

5 Chapter 4: Effective ways to lead as a knowledge worker

5.1 Confidence

Confidence in one's own ability is a key to being a productive member of a team. Sharply distinguished from arrogance or egotism, a healthy level of self-confidence enables the resource to undertake the difficult ventures to meet his or her goals. In general, technical resources do not need help with confidence. Many of them think that they are the smartest in the room most of the time. The key is to communicate this fact with a quiet confidence. There are many factors to communicating with confidence. Two of the main factors are body language and speaking with conviction.

Some scholars, such as Munter (1993), estimate that 65 to 90 percent of what we communicate is, in fact, nonverbal. If a person presents a concept with their eyes looking at the ground or with a concave chest, it appears that they do not believe in what they are saying. The audience will not believe what the speaker is trying to convey because the body language does not foster credibility. A great way to enhance a speaker's credibility when presenting material is for the presenter to look audience members in the eye and to speak in a calm, clear voice. Even if the speaker is not looking at a particular audience member, the fact that the speaker is looking others in the eye builds credibility.

Speaking with conviction is another way to convey confidence in speaking. If a person is stuttering or talking in a soft voice, it will appear that the person presenting does not really know what they are talking about. That is not to say that the speaker should be yelling. They should instead speak firmly, in a tone that is loud enough to hear but is not intimidating.

5.2 Humility

Even if a knowledge worker is the smartest person in the room, they should not let everyone know that they feel this way. Technical resources must communicate technical concepts in a non-threatening, non-intimidating fashion. A stereotypical IT staff personality trait is to be condescending, rude and uncaring of other's feelings. This behavior was personified in the old Saturday Night Live skits where Jimmy Fallon and Chris Katan insulted every person who called on the IT staff for service. This is how many people think technical teams really behave. This should not be the case.

Technical resources need to understand that most other individuals in an organization do not understand technologies as well as they do. Coupled with this issue is the fact that most other departments depend on the IT staff for majors functions of their job. The opposite is not true. Factor in that most non-technical people are intimidated by technology and this can foster an adversarial and condescending interchange before it even starts. To prevent this from happening, the technical resource should use active listening skills.

Active listening is a skill developed over time that lets the person who is talking know that the listener is listening. Active listening involves subtle physical

and audible cues to the talker. For example, as a developer is presenting a new technical concept, the development manager nods in approval to points where agreement is reached and may go so far as to make 'uh-huh' and 'yep' verbal commitments to understanding. When more information is needed, questions related to the subject matter are asked. The key to active listening is subtlety. The listener should not appear overbearing in their enthusiasm to agree or disagree with the presenter's point. It is worse to overzealously agree with points made than to not respond at all. Utilizing this approach, the technical resource will appear compassionate, humble and helpful.

5.3 Knowledge

Technical resources should know about current trends in the industry, what is currently cutting edge and what is available. They must also have the ability to take this information and apply it to the current business problem. A good manager should allow a percentage of monthly time to be spent on technical research and the resource should take the time to research their particular area of interest. This time should be somehow work related. For example, a technician should not research ASP .NET solutions when the organization has no use for a web methodology. In an employee's annual review a commitment should be made that explicitly assigns the employee a research and implementation task. This is a win-win situation. The employee will get additional skills and implementation experience. The company will get a new, efficient process enabled by technology. The key for the resource is to possess a continually learning mindset.

6 Chapter 5: A proposed leadership syllabus for technical master's programs

6.1 Methodology

The course methodology will be to expose the students to a variety of leadership concepts, digging deep into the required readings, discussing issues not included in the text books and researching innovative leaders in the technical industry. The goal is exposure to leadership and leadership principles.

6.2 Required text

6.2.1 Kouzes, James and Posner, Barry. *The Leadership Challenge*. San Francisco, California: Jossey-Bass, 2002.

The Leadership Challenge is a very informative and easy to read book on the topic of leading people. It is scientifically grounded in data compiled over 20 years of research. Currently, it is in its third edition and continues to improve on the information available from prior editions. The book is comprised of seven major sections that roughly follow the flow of the proposed class schedule. The seven major sections are:

1. What Leaders Do and What Constituents Expect – This is the opening section that describes the five practices of exemplary leadership and defines the importance of credibility when trying to lead.

2. Model the Way – This section helps the reader discover their inner leader by guiding them through finding their voice and setting the example.
3. Inspire a Shared Vision – This section delves into effective ways to convince a team to follow. It has sections on envisioning the future and enlisting others.
4. Challenge the Process – This section helps the reader find ways to change the status quo. The book instructs the reader on how to search for opportunities and how to experiment and take risks.
5. Enable Others to Act – This section is about team empowerment. The focus here is fostering collaboration and strengthening others.
6. Encourage the Heart – This section helps a leader appropriately recognize contributions and celebrate the values and victories.
7. Leadership for Everyone – The final section describes why leadership is everyone's business, not just the business of managers, directors or executives. It gives very good examples of how a strong individual contributor is just as much of a leader as any manager.

This book supports the course syllabus for a few reasons. First, it is scientifically credible, citing hundreds of hours of research to develop its conclusions. Second, it is written in a scholarly fashion referring to actual data and use cases to reinforce points made by the authors. Third, it is interesting and should hold a student's attention. The writing style of the authors is very familiar, witty and attention-grabbing. The students will actually get more out of this style book as opposed to a text that only lays out

facts and data. Although the book refers to this information, leadership is a soft skill and may not be as black and white as many of the technical concepts the students are learning. Interesting, pointed examples of usage different leadership techniques will communicate the concepts more clearly than simply listing the concepts.

The Leadership Challenge has available an accompanying workbook. This workbook will be required for the class as well. It contains activities that support the student's success in three ways:

1. Reflection. The student is expected to think about how they approach leadership. The questions posed are designed to challenge the student's thinking and help them become more conscious about how well they engage each of the practices. The exercises will ask the learner to be more reflective about what their experience has taught them about leadership.
2. Application. The student is expected to apply the practices and commitments. To do that, exercises are provided to put The Five Practices of Exemplary Leadership to work. Independent exercises as well as group exercises are offered.
3. Implications. As a result of the reflection and application, the students will learn about themselves, their team, their organization, and their project. At the end of each chapter, the student is expected to summarize the implications of what they have learned about leadership. (Kouzes and Posner, 2003)

6.2.2 Goleman, Daniel. *Working With Emotional Intelligence*.

New York, New York: Bantam Books, 1998.

Working with Emotional Intelligence is a very good reference in the area of dealing with other people and not overreacting to stressful situations. The book begins with an explanation of why soft skills are more important than ever in an organization. Goleman (1998) writes, "The rules for work are changing. We're being judged by a new yardstick: not just by how smart we are, or by our training and expertise, but also by how well we handle ourselves and each other." This is a foreign concept in a traditional IT shop.

From the definition of the new yardstick, Goleman speaks to the concept of self-mastery. This is the section where he gives very detailed suggestion and examples of utilizing an inner rudder, utilizing self-control and evaluating what moves us as individuals. This section addresses skills and challenges people must address in themselves. From here, he discusses identifying emotional intelligence in others, influencing people and collaboration skills. He evolves individual emotional intelligence into group emotional intelligence and personal interaction. Lastly, Goleman discusses a new learning model and what it means to be an emotionally intelligent organization. This text does a very good job of evaluating emotional intelligence from an individual level to a team level to an organizational level.

This book is extremely significant to this proposed course. Because most technical students fall into the Types discussed in section 2.1.2, they are probably not skilled in the aspect of emotional intelligence. The goal of the reading is not to make the students experts in the field but to expose them to the concept. The hope is that they can take the learning from the book and from the class discussion and improve their work lives and organizations based on this learning.

6.2.3 Briggs- Myers, Isabel. *Introduction to Type* Sixth Ed. Mountain View, CA: CPP, Inc., 1998.

Introduction to Type is a brief, succinct, scholarly booklet that gives a high-level view of the different personality types as defined by the Myers-Briggs Type Indicator test. Although the booklet provides only high-level details, it provides enough information to understand the interaction of the different personality traits. "Type does not explain everything. Human personality is much more complex." (Briggs-Myers, 1998) The point of studying this booklet is to evaluate a student's Type as well as to understand the underlying energy sources of other Types.

6.3 Optional text

6.3.1 Glen, Paul. Leading Geeks. San Francisco, California: Jossey-Bass, 2003. (Optional)

Leading Geeks is very specific reference material for ideas on leading knowledge workers. The book is a very easy read with some interesting points. It is not based on scientific data and provides a methodology that has worked for the author in past experience. What the book does provide is exceptional focused guidance on the leadership of technical staff. The book presents specific, useful actions that could be utilized in real world applications. Some examples of this are the author's use of competition as a motivating factor, the idea that free food can persuade workers to work longer hours and other specific cause-effect ideas. This book would be optional for the course because if a technical student was taking the class only to get credit hours under their belt and has no interest in leading a technical team then the book would be lost on them. On the other hand, if a student has career aspirations in management this book could be a handy reference for the future.

6.4 Course Outline

Workshop	Text Reading	Topics	Deliverables
One	<ul style="list-style-type: none">• Chapters 1 & 2 (Kouzes and Posner)• Read Chapter 1& 2	<ul style="list-style-type: none">• Five exemplary practices of leadership	<ul style="list-style-type: none">• Write a short paper on what leadership means to the

	(Goleman)	<ul style="list-style-type: none"> • Emotional intelligence 	student.
Two	<ul style="list-style-type: none"> • Chapters 3 & 4 (Kouzes and Posner) • Chapter 3 (Goleman) • <u>Introduction to Type</u> in its entirety. 	<ul style="list-style-type: none"> • Modeling the way • Credibility • Trust • Myers-Briggs Type Indicator 	<ul style="list-style-type: none"> • Complete the Myers-Briggs Type Indicator self assessment
Three	<ul style="list-style-type: none"> • Chapters 5 & 6 (Kouzes and Posner) • Chapter 4, 5 & 6 (Goleman) 	<ul style="list-style-type: none"> • Challenging the process • Managing change 	<ul style="list-style-type: none"> • Write a short research paper on an individual recognized as an effective leader and analyze why the person is regarded as such.
Four	<ul style="list-style-type: none"> • Chapters 7 & 8 (Kouzes and Posner) • Chapter 7 & 8 (Goleman) 	<ul style="list-style-type: none"> • Challenging the process • Managing change 	<ul style="list-style-type: none"> • None
Five	<ul style="list-style-type: none"> • Chapters 9 & 10 (Kouzes and Posner) • Chapter 9 & 10 (Goleman) 	<ul style="list-style-type: none"> • Enabling others to act • Power of the team 	<ul style="list-style-type: none"> • None

<p>Six</p>	<ul style="list-style-type: none"> • Chapters 11 & 12 (Kouzes and Posner) • Chapter 11 (Goleman) 	<ul style="list-style-type: none"> • Encouraging the heart • Effective motivation techniques 	<ul style="list-style-type: none"> • Write a short research paper on an effective leadership concept, how it was implemented at a company and the student's personal reflections on how it could be implemented at their job.
<p>Seven</p>	<ul style="list-style-type: none"> • Chapters 13 (Kouzes and Posner) • Chapter 12 & 13 (Goleman) 	<ul style="list-style-type: none"> • Leadership for everyone • Effective hiring practices 	<ul style="list-style-type: none"> • None
<p>Eight</p>	<ul style="list-style-type: none"> • Ethical leadership handout 	<ul style="list-style-type: none"> • Ethical leadership • Leadership perceptions 	<ul style="list-style-type: none"> • Write a reflective paper about the differences between the student's pre-conceived notions of leadership and how those notions have

			changed as a result of this class.
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6.5 Prior to workshop one

Objective – The students will evaluate their pre-conceived notions of leadership.

Leadership means different things to different people. People’s notions of leadership are an evaluation of their cumulative experience. The intent of the reading and assignment prior to week one is to evaluate a student’s pre-conceived notions of leadership and begin to expose them the core fundamentals that the rest of the course will revolve around. The ultimate goal of the writing is to contrast the opinions and feelings of the student at the end of the section.

Assignments to be completed prior to workshop one

- Read Chapters 1 & 2 (Kouzes and Posner)
- Read Chapter 1& 2 (Goleman)
- Write a short paper on what leadership means to the student.

6.6 Workshop one

Objective – The students will learn the five exemplary practices of leadership and about the concepts of emotional intelligence

Goals –With the knowledge gained from reading the assigned material, by participating in the class discussions, and by satisfactory completion of the assigned exercises, the student will demonstrate and be knowledgeable in:

- The five exemplary practices of leadership; modeling the way, inspiring a shared vision, challenging the process, enabling others to act and encouraging the heart.
- Managing people using soft skills

Activities – In responding to these review questions, answer each question thoroughly with a Master’s level quality response.

- Explain the five exemplary practices of leadership and what they mean
- Why is credibility important to a leader?
- What is “EQ?”

Assignments to be completed prior to workshop two

- Read Chapters 3 & 4 (Kouzes and Posner)
- Read Chapter 3 (Goleman)
- Complete the Myers-Briggs Type Indicator self assessment
- Read Introduction to Type in its entirety

6.7 Workshop two

Objective – The students will learn how to model the way, the importance of credibility and trust and gain exposure to the Myers-Briggs Type Indicator.

Goals – With the knowledge gained from reading the assigned material, by participating in the class discussions, and by satisfactory completion of the assigned exercises, the student will demonstrate and be knowledgeable in:

- Self expression and clarifying personal values
- Aligning actions and shared values
- Personal Type indicators and the characteristics found therein

Activities - In responding to these review questions, answer each question thoroughly with a Master's level quality response.

- What are some effective ways to evaluate and communicate one's personal values?
- What are some effective ways to use personal values to inspire a team?
- What is the Myers-Briggs Type Indicator and how could it be used in leadership?
- What type is the student and what are the ramifications of being that type?

Assignments to be completed prior to workshop three

- Read Chapters 5 and 6 (Kouzes and Posner)
- Read Chapters 4, 5 and 6 (Goleman)

- Write a short research paper on an individual recognized as an effective leader and analyze why the person is regarded as such.

6.8 Workshop three

Objective – The students will learn how to inspire a shared vision as well as effective ways to author vision and mission statements.

Goals – With the knowledge gained from reading the assigned material, by participating in the class discussions, and by satisfactory completion of the assigned exercises, the student will demonstrate and be knowledgeable in:

- Envisioning future team endeavors as a leader
- Effective tools to author mission and vision statements
- Self-mastery and self-control as well as positive motivation tactics

Activities - In responding to these review questions, answer each question thoroughly with a Master's level quality response.

- How can vision and mission statements be written in a way that ensures team acceptance?
- What is the importance of developing a vision?
- How does a leader apply this vision to shared aspirations?
- What are blind spots?
- What is the relationship between self confidence and self control?

Assignments to be completed prior to workshop four

- Read Chapters 7 and 8 (Kouzes and Posner)
- Read Chapters 7 and 8 (Goleman)

6.9 Workshop four

Objective – The students will learn to challenge the process and learn positive ways to manage up and manage through change.

Goals – With the knowledge gained from reading the assigned material, by participating in the class discussions, and by satisfactory completion of the assigned exercises, the student will demonstrate and be knowledgeable in:

- Setting meaningful challenges for a team
- Identifying opportunities for the team
- The importance of learning from mistakes
- How small wins empower a team
- How empathetic leaders lead
- How to utilize the art of influence

Activities - In responding to these review questions, answer each question thoroughly with a Master's level quality response.

- Where are some good places to look outside the team for opportunities?
- How does a leader effectively break down large tasks into small wins?
- How does a diverse team benefit the leader?

- What is meant by the term 'active listening?'

Assignments to be completed prior to workshop five

- Read Chapters 9 and 10 (Kouzes and Posner)
- Read Chapters 9 and 10 (Goleman)

6.10 *Workshop five*

Objective – The students will learn to enable others to act and about the power of the team.

Goals – With the knowledge gained from reading the assigned material, by participating in the class discussions, and by satisfactory completion of the assigned exercises, the student will demonstrate and be knowledgeable in:

- Improving collaboration
- Creating an environment of trust
- Sharing power and delegation

Activities - In responding to these review questions, answer each question thoroughly with a Master's level quality response.

- What are some effective ways to open lines of communication?
- What is a collaboration audit?
- What is the difference between managing and coaching?

- What is Group IQ?

Assignments to be completed prior to workshop six

- Read Chapters 11 and 12 (Kouzes and Posner)
- Read Chapter 11 (Goleman)
- Write a short research paper on an effective leadership concept, how it was implemented at a company and the student's personal reflections on how it could be implemented at their job.

6.11 *Workshop six*

Objective – The students will learn to encourage the heart and how effectively to motivate a team.

Goals – With the knowledge gained from reading the assigned material, by participating in the class discussions, and by satisfactory completion of the assigned exercises, the student will demonstrate and be knowledgeable in:

- Feedback, why it is important and effective ways to give it
- Personalization of rewards
- How to create a spirit of community
- How individual efforts result in greater community spirit

Activities - In responding to these review questions, answer each question thoroughly with a Master's level quality response.

- What is a Pygmalion?
- What is modeling in the context of leadership?
- Can positive feedback be detrimental and why?
- Why are the fourteen best practices of leadership according to Goleman and why are they important?
- What is the Myers-Briggs Type Indicator and how could it be used in leadership?

Assignments to be completed prior to workshop seven

- Read Chapter 13 (Kouzes and Posner)
- Read Chapters 12 and 13 (Goleman)

6.12 *Workshop seven*

Objective – The students will learn how leadership is for everyone and a framework for effective hiring practices.

Goals – With the knowledge gained from reading the assigned material, by participating in the class discussions, and by satisfactory completion of the assigned exercises, the student will demonstrate and be knowledgeable in:

- Why leadership is everyone's business
- The organizational pulse
- Effective hiring techniques

Activities - In responding to these review questions, answer each question thoroughly with a Master's level quality response.

- What is an emotionally intelligent organization?
- What is a blind spot?
- What is an interview loop?

Assignments to be completed prior to workshop eight

- Read the supplied material on ethical leadership
- Write a reflective paper about the differences between the student's pre-conceived notions of leadership and how those notions have changed as a result of this class.

6.13 *Workshop eight*

Objective – The students will compare their pre-conceived notions of leadership to their new perceptions and ethical leadership.

Goals – With the knowledge gained from reading the assigned material, by participating in the class discussions, and by satisfactory completion of the assigned exercises, the student will demonstrate and be knowledgeable in:

- Ethical leadership
- Reflections of leadership
- Effective leadership practices

Activities - In responding to these review questions, answer each question thoroughly with a Master's level quality response.

- What is a poisonous leader?
- What are some ethical leadership practices?
- Why is it important to be considered an ethical leader?

6.14 Outcomes

The main outcome of this class is exposure to effective leadership skills that the students could use as both an individual contributor and a manager building a strong, empowered team. In addition, an analysis of the student's own Type will produce an awareness of their personalities and how they interact with others. The research projects will help them discover competencies others have discovered with the ultimate goal of influencing the student's leadership style. Finally, the student's should finish the section with an understanding of leadership and why it is important not only in a management capacity but also in an individual contributor role.

7 Chapter 6: How did it turn out?

7.1 Empowered development team changes corporate culture

The Subsidiary Organization core development team has made some significant and overwhelming changes to all facets of the software development function at Subsidiary Organization. Many changes had effects even outside of development. These changes included changes to the toolset and to the software development life cycle, the introduction of Program Management and began the shift in the company from a marketing company to a development company. All of the changes were made with the intent of shipping higher quality software, faster. Each tool or process will be presented and defined and efficiencies will be analyzed. In addition, the process by which the empowered team member proposed and implemented the change will be examined.

7.1.1 Employee satisfaction survey Results

The team itself was more satisfied with the work environment. This fact is proven by comparing the results of the annual Parent Organization employee satisfaction survey (the Employee satisfaction survey) to the rest of the Subsidiary Organization team, to the rest of the division's development team and to the full Parent Organization population.

The Employee satisfaction survey is an annual anonymous survey conducted by an outside research firm to gage employee satisfaction. The

questions range from very specific day to day happiness indicators to involvement in long term planning to the quality of work/life balance.

A sample questionnaire would look like the following

:

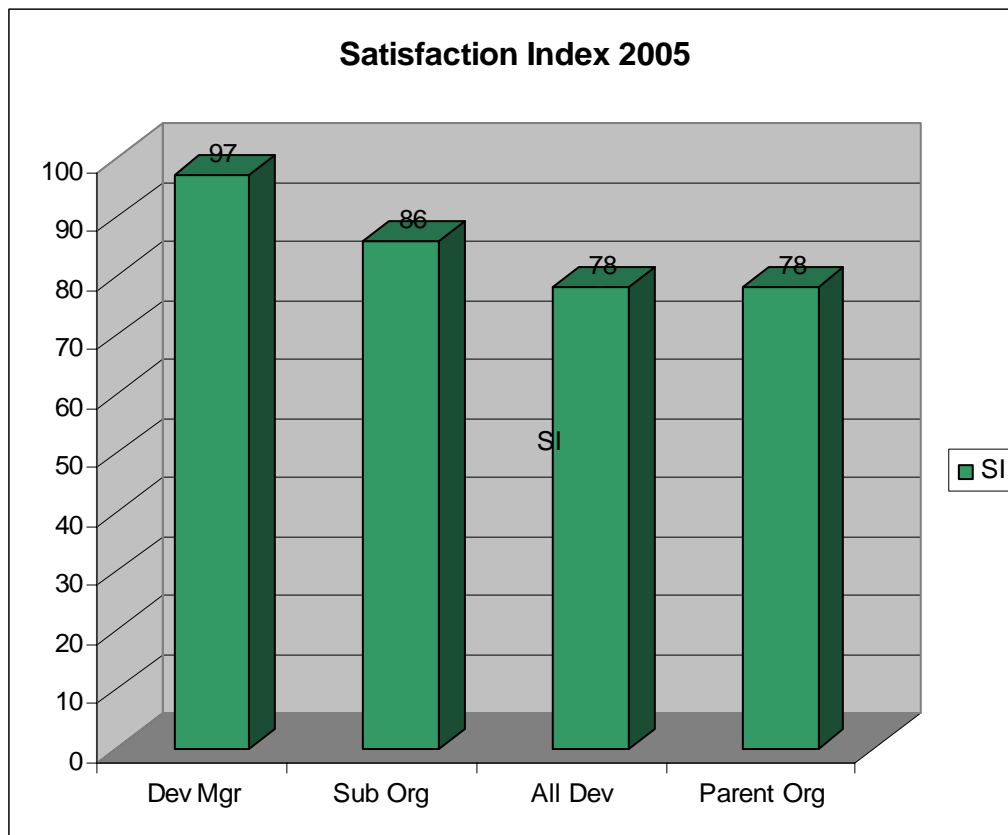
SAMPLE QUESTIONNAIRE

- My manager expects me to help others realize their potential.
- When I do an excellent job, my accomplishments are recognized.
- The people in my work group act with integrity.
- I can see a clear link between my work and Parent Organization's objectives.
- My manager and I have meaningful conversations about the next step in my career/professional development at Parent Organization.
- How do you rate the amount of pay you get on your job (base pay, bonus)?
- I would recommend Parent Organization as a great place to work.

The survey is conducted with a 1-5 ranking with 1 being lower satisfaction and 5 being higher satisfaction. The results are compiled and captured in a 100 point grading result, 100 being the best and 0 being the worst. The tallies are then computed with a weighting scale and reported as an overall satisfaction index (SI). The SI is the most important number a manager is evaluated on. The results of the individual surveys are compiled into statistics for the direct manager

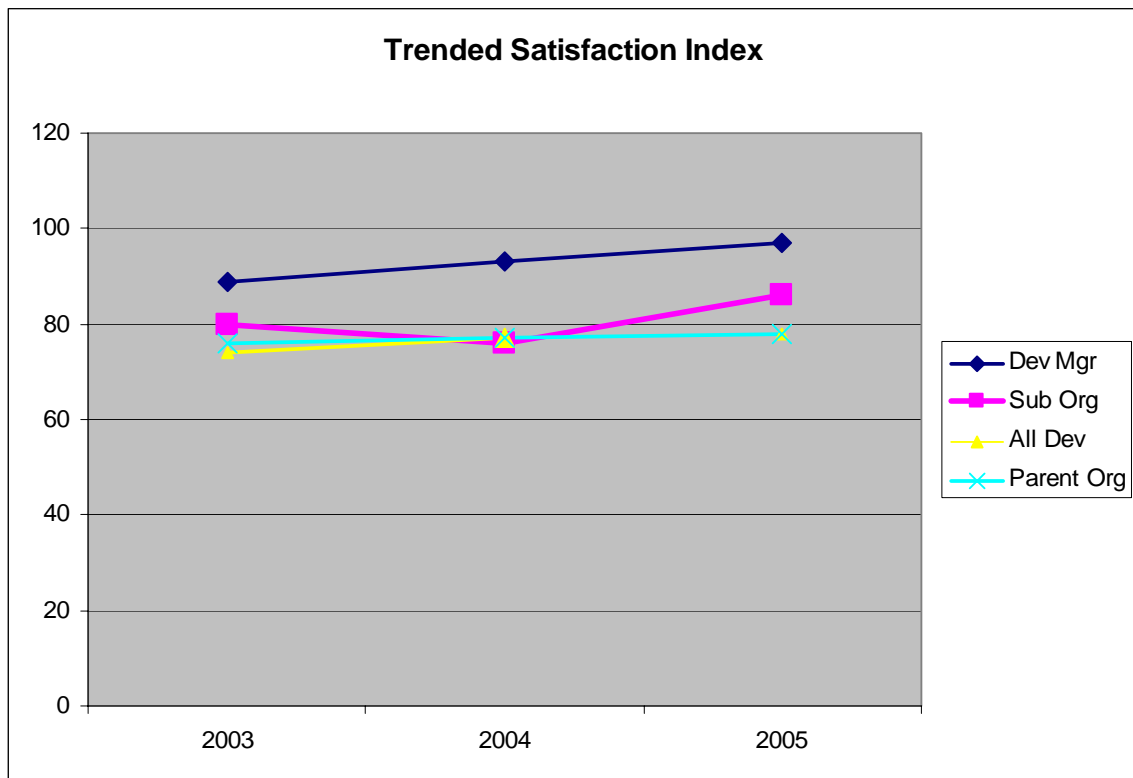
(Subsidiary Organization Dev Mgr), the division (Subsidiary Organization), all of the business solutions development staff (MBS) and all of Parent Organization (MS).

For the year ending 2005, the results were as follows:



As the graph clearly states, the Subsidiary Organization Development Manager's approach with the team is working. The team is responding and effective. For example, the major rewrite of the core product is on schedule and on functionality. The trended data validates the effectiveness of the Subsidiary Organization Development Manager's approach. The Subsidiary Organization team consistently rates the manager higher than the mean in terms of the manager's peers as well as Parent Organization in general. Although each year

the SI improved for the organization as a whole, the Subsidiary Organization Development Manager's results improved at an accelerated rate. There is a true sense of team validated by full participation in team meetings and team events as well as the SI results.

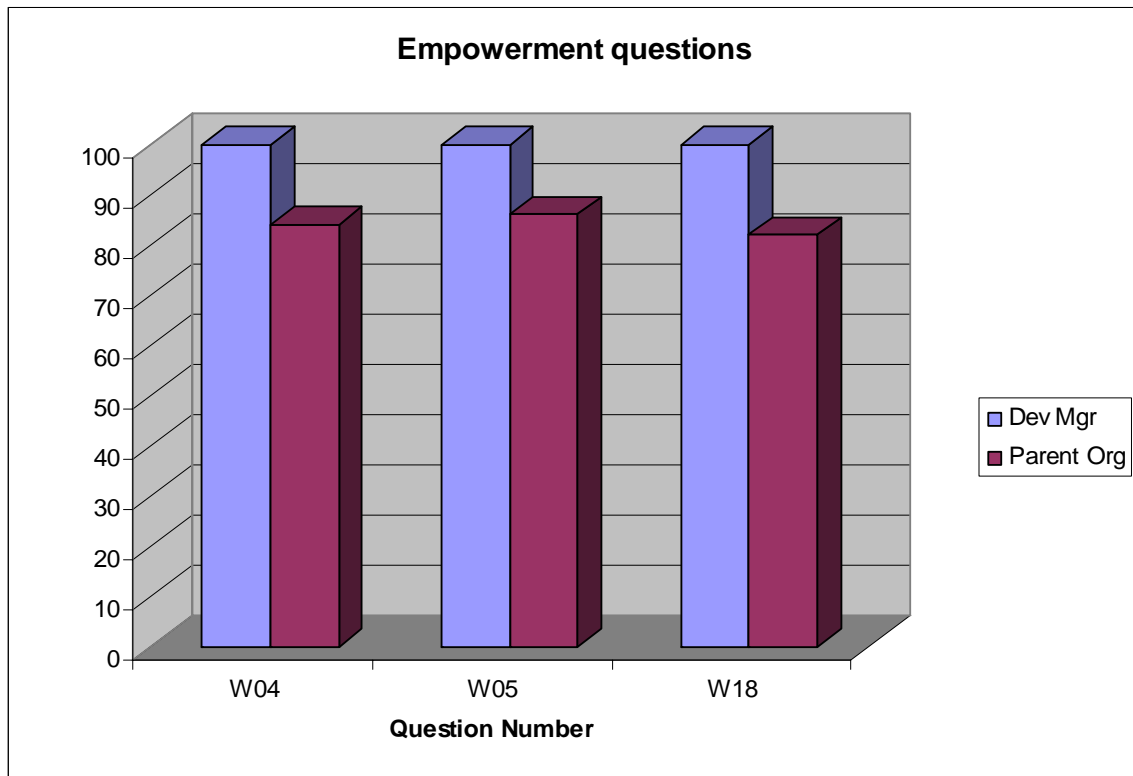


The team is also empowered. Three specific questions in the Employee satisfaction survey ask:

- W04. My manager expects me to help others realize their potential.
- W05. My manager encourages me to take on big challenges in my work.
- W18. I feel encouraged to come up with new and better ways of doing things.

In terms of a 0% of the team agrees with the statement (poor result) to 100% of the team agrees with the statement (best result) result set, the Subsidiary

Organization Development Manager's 2005 results compared to overall Parent Organization results were:



As the graph clearly shows, 100% of the team feels that the manager supports them in the manner requested by the question. In contrast, although most Parent Organization employees feel empowered in the same manner, many do not. The point as it relates to this project is that when the Subsidiary Organization Development Manager manages the different personality types in a customized implementation of the approach referenced in the project, each employee responds positively to the style.

7.1.2 Toolset

The toolset used by Subsidiary Organization is the collection of technologies that increase the efficiency by which the software is developed. In the past year, four major new tools were implemented at Subsidiary Organization; Visual Studio Team System, nightly automated builds, a new check-in process and Visual Studio 2005.

7.1.2.1 Nightly automated builds

Nightly automated builds may sound like a fundamental principle in software development but at Subsidiary Organization, there was no such process. In the past, the stability of the code was not evaluated on a consistent basis. The new nightly automated build performs the following actions:

- automatically begins a build
- compiles all solution files in the correct order
- builds a full install file
- installs the new build on a test image
- runs build verification tests
- sends an email to key stakeholders informing them of build success or failure

The value of this process is in the validation of the code. Within twenty-four hours, the team will know if a code check-in causes the build to fail or if it breaks key features. This cuts troubleshooting time to find the offending check-in significantly because the pool of possible check-ins is extremely limited.

Previously, Subsidiary Organization would compile and build as far as two weeks

apart. This means that if a developer broke the build that they would have two weeks worth of check-ins to review to try to determine the cause of the break. Now with daily builds, if there is a break, the time to research and fix is significantly reduced.

A developer brought this process to the development manager. The developer simply could not believe that Subsidiary Organization had never implemented this process. Instead of just complaining about it and letting someone else take care of the problem, the developer took responsibility and addressed the problem. The developer took three full days including two weekend days and created the automated infrastructure. It took approximately one more man-week over the next two months

90,000.00	Average salary X
10	Number of team members =
900,000.00	Annual team salary /2080 hours
432.69	Hourly rate X
2,163.46	5 Hours per week X
112,500.00	52 weeks per year

to work the bugs out of the system but the infrastructure has been running without error for over a year now. If a sample development team of ten makes \$90,000 per year each and potentially breaks the build once per week and now saves four hours of research per break, the company saves

\$112,500 per year.

7.1.2.2 New check-in process

Traditionally, Subsidiary Organization had very poor internal control structures as it related to code access and code changes. The Subsidiary Organization development team understood how this environment could lead to unstable, non-reviewed or even malicious code being introduced into the production code branch. As such, a developer proposed a new, integrated approach to the check-in process.

Integrated in the source control system is a check-in email that goes to all key stakeholders in the project. This list includes the development manager, all developers, all testers, product designers and the director of development. There are specific fields to let the testers or configuration management know if this change would potentially affect their function. The net effect of this email is the installation of a preliminary quality gate. The check-in must make sense to the stakeholders. If not, the change can be rejected. In addition, the email opens the lines of communication between development, configuration management and test. For example, a tester can plainly see which files were affected by the change and if the changes introduced additional testing in a completed component.

7.1.2.3 Visual Studio 2005

Prior versions of Subsidiary Organization were written in Visual Basic 6. At the beginning of the product cycle, it was determined that every component in the product should be rewritten to comply with current Parent Organization corporate standards. At the time the decision needed to be made, .NET 1.1 was

the current development environment and Subsidiary Organization had every intention of using this toolset. One lead developer thought this decision was a mistake. This individual knew of the eminent release of .NET 2.0 and specifically of all of the productivity enhancements available in the C# programming language therein. Subsidiary Organization had been burned by early adoption of a platform in the past and was reluctant to do so again. The developer gathered metrics, presented new tools and eventually talked management into taking a dependency on .NET 2.0.

This decision ended up saving Subsidiary Organization several thousands of dollars in gained productivity. For example, C# in .NET 2.0 includes the concept of generics. According to Clark (2006), “Generics are an extension to the CLR's type system that allow developers to define types for which certain details are left unspecified. Instead, these details are specified when the code is referenced by consumer code. The code that references the generic type fills in the missing details, tailoring the type to its particular needs. The name generics

90,000	Average salary /
12	Number of months =
7,500	Monthly average salary X
3	3 man-months =
22,500	Total savings using .NET 2.0

reflects the goal of the feature: to enable the writing of code while not specifying details that might limit the scope of its usefulness. The code itself is generic.” It is estimated that using this tool alone saved three total man-months time on the

project. Using the same assumptions from section 6.1.1.2 and analyzing only the generics benefit,

Subsidiary Organization realized and estimated total savings of \$22,500 during the development cycle. The number grows even larger analyzing all of the additional productivity gains available in the toolset.

7.1.3 Software Development Life Cycle

7.1.3.1 SCRUM methodology

SCRUM is an agile project management methodology that helps a long-term software delivery periodically take inventory to ensure the project still meets customer demands. The long term goal is broken up into small manageable chunks of work called sprints. Sprints typically run for one month or less. There are three central roles on the SCRUM methodology; the scrum master, the product owner and the team. Everyone else is simply a stakeholder. The scrum master is the focal point of the process. This person is responsible for managing every aspect of the sprint.

7.1.3.2 Architecture by committee

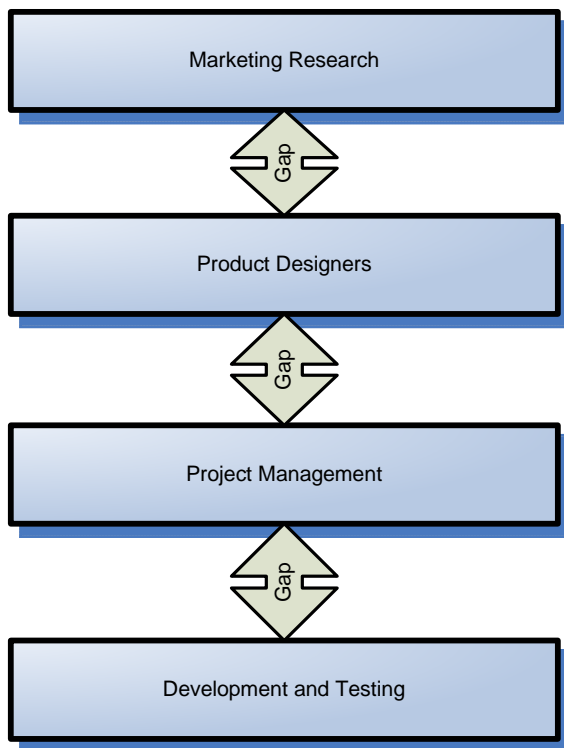
Architecture by committee was not brought to the group by one individual but it was decided to be the best approach by the team. Although the senior developers have final authority, each member of the team is expected to architect, design and code their specific feature set in line with the overall architecture of the product. This distributed model is advantageous because it gives Subsidiary Organization many individuals on smaller problems yet full team participation. This is extremely important not only to producing better software

but it is very important to the individual team members. The concept is extremely empowering to the individual. They are simultaneously increasing their skill set because even the most junior developers have some architecture responsibilities and proving that the overall architecture of the product is sound.

7.1.4 Program Management

7.1.4.1 New discipline introduced

Program Management is an extremely important discipline addition to the Subsidiary Organization. Program Managers have ultimate responsibility for specific functionality. Ultimately, this responsibility helps ship software faster because there is one central resource with authority to make decisions.

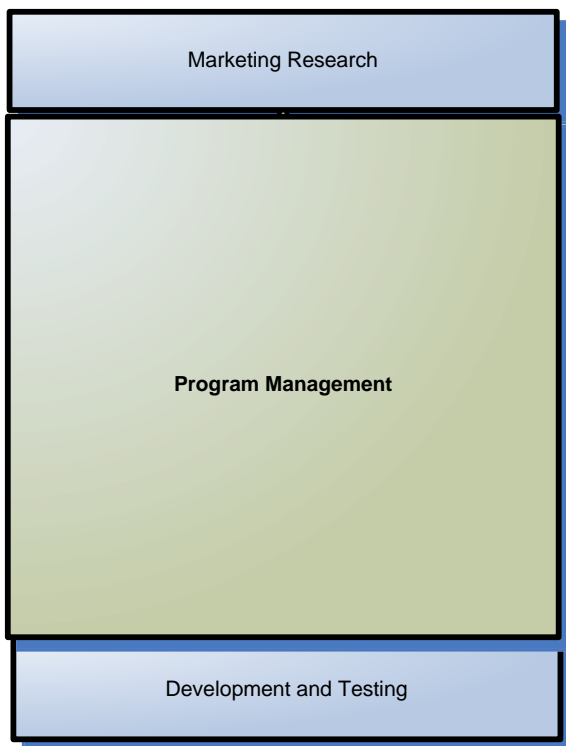


At Subsidiary Organization, there is a huge gap between the marketing research performed to shape the product, the product requirements and the actual implementation and testing of the features. Parent Organization has developed a separate discipline called program management which attempts to fill in all of these gaps with the ultimate goal of shipping a quality product that precisely meets the functionality

expectations of the market. Specific resources on the Subsidiary Organization

development team proposed program management to the Subsidiary Organization leadership team as well as what the program management function should be comprised of, the organizational structure to support a successful implementation of program management and examples of processes that could be revised and rendered more efficient by the implementation of program managers.

According to the internal Parent Organization Career Planning site, Program Management is defined as, “An Engineering Excellence training and education discipline focused on studying methods and processes for leveraging new technologies to deliver finished products and services that are responsive to customer requirements.” (Parent Organization, 2005) In a very rough form, this



means that a program manager is expected to be the glue that holds a software development project together. Program Managers are expected to analyze data collected by the marketing teams, study emerging technologies that may aid in filling the feature gap, write user requirements, develop prototypes, develop and adhere to schedules, and keep a feature team motivated. A feature team is comprised of a Program

Manager, a developer and a tester. They work in conjunction with each other to

develop a production-quality feature. The key to Program Management is that this function must manage projects through influence and relationships. A Program Manager has no direct managerial authority over the rest of the feature team.

There is a big difference between “given” authority and “actual” authority. Given authority is the kind that a General Manager or Vice President has - they are titled and organized into a position of power by virtue of reporting structures. Actual authority is the kind that people create for themselves by gaining the buy-in and respect of others who choose to follow them. (Kouzes & Posner, 2002) Program Managers must earn the authority to get the job done. A Program Manager’s power is derived through respect; by making sound decisions power is earned from peers & developers. Trust is not necessarily earned by telling people what to do but it is earned by convincing people through reason. (Berkun, 2004)

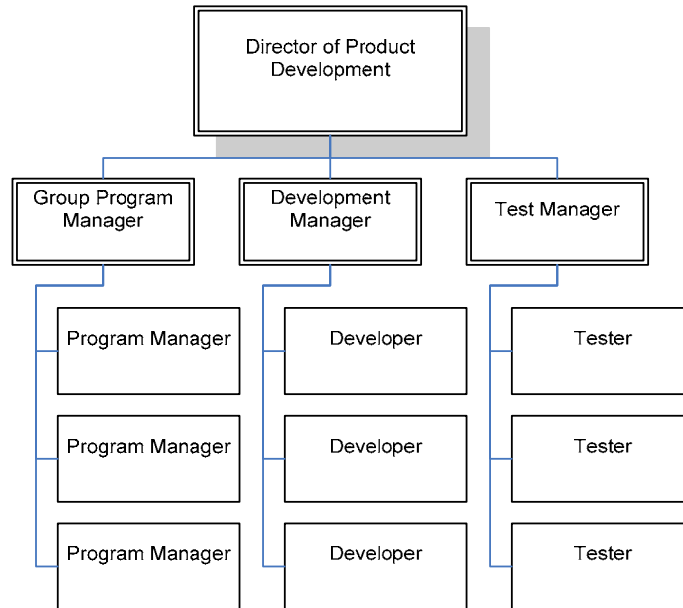
The ultimate benefit of the introduction of this discipline is that the centralization of the responsibility will result in shipping better software, faster. The Program Manager will have the final say on whether or not the software produced meets the specifications. If not, they have to influence the developer and the tester to change.

7.1.4.2 Shift of power from non-development resources to development resources

Along with the introduction of Program Management comes a shift of perspective within the organization. Traditionally, Subsidiary Organization development was guided by resources reporting into the marketing organization. These resources knew the customers and the product very well. Unfortunately, they did not know the technology behind the products. This hurt in two respects. First, they could not make commitments for future enhancements because they could not determine the amount of time or complexity involved in creating a new feature. Secondly, they could not challenge the development estimates because they did not have the technical background to do so. Program Managers change all of this.

Program Management should align as an independent, powerful discipline underneath a director of development. The Program Management discipline is just as important as development or test. Remember, this discipline is filling the traditional gaps from product marketing through product release. Because of this structure, it is necessary that the discipline is treated as a peer of development and test, with the Group Program Manager (the manager of all of the Program Managers) reporting directly to the Director of product development.

Program Management Organizational Structure



This structure will help to supply the organizational backing of the newly integrated team.

The real power of a Program Manager comes in the leadership of the feature teams. As stated previously, feature team is comprised of a Program Manager, a developer and a tester. They work in conjunction with each other to develop a production-quality feature. Ideally, this feature would be a small enough undertaking that one Program Manager could support development of the feature through completion. Again, this is a virtual team where the Program Manager has feature responsibility but no managerial authority.

8 Chapter 7: Conclusion

8.1 Lessons Learned

This project is a compilation of several years of research, implementation and experience. Over this time, many lessons have been learned. Conducting the research, it was determined that authors are not necessarily required to have scholarly credentials or experience before they write something. This is especially true of web postings. Anyone can post anything on the internet and they can even make it appear official or scholarly, even if it is not. For example, the Subsidiary Organization development manager referenced an erroneous definition of the different Types according to the Myers-Briggs Type indicator when trying to explain to the team what the test was all about. When the results were tallied based on the incorrect information, team members were confused and even outraged by the categorization of their personality. Once the outrage pattern was identified, the development manager researched the reference site further to discover that it was in no way associated with the test and that the site in fact had many glaring deficiencies. The concept of Type was lost on the team and the manager lost credibility over the whole ordeal.

Another lesson learned is that a manager can not use the same formula to manage every resource. The fundamental leadership concepts researched in Chapter 3 are fundamental principles that should be applied to leading technical teams but should be administered on an individual level at varying degrees. For

example, if a leader has one team member who is a fifty year old married person with two kids in the twilight of their career, they should be managed differently than a young hot shot developer just beginning. Each of them needs empathy, ego massaging, competition and all of the other principles defined in the chapter. The difference is that they do not need those philosophies applied at the same level. The older person will respond much more positively to a leader who understands that they have to stay home with a sick kid whereas the younger worker may not care about that. Conversely, the young hot shot will appreciate hearing how smart they are frequently where as the older developer may have enough confidence in their skills that they do not have to hear it as much. The key to becoming a great leader is finding that balance on an individual level and managing the people in a way that they respond to best.

This project was completed without a real discussion of reward systems. Although most workers are motivated by money, actual implementations of reward systems at Subsidiary Organization have shown that is more effective to somehow personalize the rewards. Although section 3.4 Personal Interest states the fact that it is a good for a leader to know employees on a personal level, lessons learned through the research validate that the employees receiving the reward find it even more motivating when it is personalized. This extra personalization does not even have to cost anything. For example, at an employee's annual start-date anniversary, Subsidiary Organization gives each employee a gift and a card. This is a nice perk yet it can be perceived as impersonal. The Subsidiary Organization development manager (and other

managers throughout the organization) has made this gift extremely motivating because they have learned that if they put some thought into what they write in the card, the employees respond more positively to the gift. For example, the Subsidiary Organization development manager spends at least fifteen minutes reflecting on the employee's accomplishments over the past year and since they have started. The manager notes how important the employee is to the organization and to the manager and thanks them for their efforts. This feedback generally has a lasting effect on the team member as they usually keep the cards on their desks, refer back to them periodically and even mention them in the manager feedback.

In researching this project, the data has proven that people can be taught leadership skills. Although there is a long-running debate that argues whether leaders are trained or simply naturally gifted, the research compiled for this analysis clearly shows that at least leadership concepts can be taught. The individual may still be missing that 'certain something' that makes them a natural born leader but they can learn from past successes of other leaders. For example, a person may not have the natural ability to instill vision in a team but they can follow the steps to build an effective vision based on the steps presented in week three of the proposed graduate syllabus and create buy in to a common vision for the team. This concept speaks to the underlying assumption of this entire project. Leadership methodologies can be learned. The best type of leaders, natural born or learned know that there are always more leadership

theories to research and novel principles to incorporate. The learning should never end.

The most important lesson learned during this project is that there is no 'silver bullet' to becoming an effective leader. The only pattern that can be applied to successful leadership is no pattern. Each instance of leadership is an independent, variable environment that must be evaluated and worked to find the most effective method. Even if a new manager inherits an empowered, effective team, the new manager can not simply use the previous manager's approach and expect the same results. The new leader must build relationships, manufacture credibility, earn trust and become a leader in their own rite. The physical team will not change but the team dynamic will. The new leader must discover the most effectual way to connect with the individuals and lead the team.

8.2 Application of Regis education

It is extremely difficult to apply the education received at Regis in the Master of Science in Computer information Technology degree to this project. As stated in the introduction, leadership and management concepts were not explicitly taught during the program. Courses such as 'Managing a Secure Enterprise' and 'Information Technology Project Management' are offered but they do not directly provide training on leadership skills. The Regis classes must be implicitly applied to the leadership principles presented. For example, the Subsidiary Organization development manager could apply the C# Programming class or the Programming with C# and .NET class to leadership concepts

because it helped the manager gain credibility from the team. As explained in three company background, the Subsidiary Organization development manager has a very limited background in software development and technical credibility has traditionally been a problem. After taking the two C# classes at Regis, several positive effects were felt by the manager. First off, the manager could credibly challenge development estimates given for constructing a piece of software. That is, the manager now understands the complexity of the logic behind the coding of the functionality but there is also an understanding of the productivity tools available in the language and the platform. Second, the manager was able to develop the user interface for a key component of the product offering, the Subsidiary Organization processing engine.

Developing this screen helped the manager understand not only the technical language but also the Subsidiary Organization coding standards, the newly refined check-in process as well as the humiliation felt by breaking a build.

Lastly, the manager was able to provide a two day training session for the new program managers about how to develop prototype software in C#. This training solved several problems. First, the developers no longer had to transfer the user interface from the requirements documents into C#. This is a mundane task that many developers feel is beneath them as there is really no logic defined in this kind of prototype. The program managers were thrilled because it gave them a new skill and they could see the screens that they defined shipped in the final product. All of these indirect benefits of applying a Regis education to the

Subsidiary Organization development manager's job ultimately result in increased credibility in the eyes of the team and, therefore, apply to this project.

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