

EMGT 835 FIELD PROJECT

A Case Study on Managing a Multi-generational Workforce During the Implementation of a Major Technological Change

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Executive Summary

In the highly technical globalized business world technological change is unavoidable to stay competitive and relevant. With more employees working longer into their careers and younger generations flooding into the workplace, managing a multi-generational team can be a challenge. For the first time in U.S. history there are now six living generations with four active in the workforce at the same time.

Each generation looks at life through a different set of lenses each honed by unique experiences throughout their lives, and because of that, each generation reacts differently to changes in technology. Understanding the difference in those generations and how they handle change will determine how successful the company is at making the required changes.

As the members of the Silent (born 1926-1945) and Baby Boomer (born 1946-1963) generations retire and more members of Generation Y (born 1977-1995) and the Homeland Generations (born 1996-Present) come into the work place, the business world will drastically change especially as it pertains to technology. The scope of this field project is look at the experiences that shaped the different generations, how those generations react to technology changes and how best to manage a multi-generational workforce in today's world of ever changing technology.

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Glossary of Terms

Cohort – A demographic profile of a person such as their generation.

Cusp (Cusper) – Someone born within four years either side of a generation. This person might feel connected to both their own generation as well as the generation directly younger or older than themselves.

Quantity takeoff – Determining the quantity of materials needed for a construction product by counting or measuring and calculating from a set of plans and recording it. Example: Measuring the length and width of a room multiplying the numbers and dividing by nine to determine to square yards of carpet required.

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INTRODUCTION

A Brief History of this Field Project

This field project came about due to the desire to understand how different employees adapt and handle a major change as it pertains to technology. For this field project, each employee needed to be placed into their respective demographic or cohort. Many different areas of demographic research could be used to better understand employees, but due to time limitations for this field project, only generational differences are researched and discussed.

Each generation looks at life through a different set of lenses each honed by unique experiences throughout their lives, and because of that, each generation reacts differently to changes in technology. Technology is at the forefront of the science and engineering industry, and technology is fluid; constantly changing. The gadget sitting on the shelf at the local big box store will be obsolete by next Thursday. The speed to market of new products is happening at break neck speeds and is only getting faster.

Due to the availability of technology at younger ages, each generation is better at adapting to technological change than the preceding generation. Technology has always been a part of the lives of the younger generations, However many have not acquired the basic skills required to complete the tasks without the technology. Many times knowing the steps to complete the task are just as important as the completed task.

In the ultra competitive globalized business world present today, managers need to know how to use the older generations to teach and mold the younger generations on how the system works without being totally dependent on technology. Simultaneously the

managers need to understand how to motivate the older generations to embrace and use the technology required for the company to exist and remain relevant in the modern business world.

Project Scope

The scope of this field project is learning about the different generations and how best to manage within an organization with a multi-generational workforce in today's world of ever changing technology. The major technological change that was observed during this field project was the transition within the estimating department at company ABC from a pencil and paper method of quantity takeoff and pricing to a fully computerized estimating software and hardware system. It required a complete overhaul of a system that has been in place for many years. The old system worked and had to be maintained until the new system could be fully implemented.

During the new system implementation, the multi-generational team was pushed out of their comfort zones to overcome many organizational challenges. The ultimate goal in implementing the system changes are to improve accuracy, increase production in quantity takeoff and pricing, make an easier transition from the procurement phase into the construction phase of the project, create a standard estimating nomenclature and provide better historical data. Although the implementation of the change will be discussed in the field project report, the goal of this field project is to better understand how to manage and lead the employees from a generational standpoint.

LITERATURE REVIEW

During the research for this paper multiple names and varying dates were associated with the generational cohorts. Each author has their own opinion and reason for assigning the years for the specific generation and a different reason for the generation label assigned to them. To keep the original meaning and to correctly site other works the name associated to the cohort has been left the way the original author wrote it. However, even though names might be different, they all represent the same cohort. To see a list of names associated with each group see table 1 below.

Table 1 – Cohort Names and Aliases

Cohort names used in this report	Also know as by other authors
GI Generation	Veterans, The Greatest Generation
Silent Generation	Traditionalists
Baby Boomer Generation	Boomers
Generation X	Gen X, The Thirteenth Generation, Baby Bust Generation
Generation Y	Gen Y, Millennials, Echo Boomers, Net Generation
Homeland Generation	Nexters, Generation iY, Generation C

(Elmore 2010, Martin 2002, Liotta 2011, Wolfe 2009, Howe 2007, Johnson 2011)

Our Changing World

It is a time unlike any other; for the first time in history, six generations are alive at the same time, each with its own viewpoints, values, attitudes and beliefs. To heighten the pressure, the middle four of these generations are actively working, competing, purchasing and often colliding in the marketplace. (Liotta 2011) Not only do fathers work with their sons, grand-fathers work beside their grandsons and great-grandsons (Wolfe 2009). More and more workers are staying at work longer into their golden years

and an abundance of young workers are coming to work for the first time. As the Boomers reach the traditional retirement age, many will remain involved in the working world. (Howe 2007) This adds a dynamic to management that has not been seen in the past. It creates challenges and opportunities, but also can create nightmares when it comes to advances in technology. All employees grew up with a different norm as to what modern technology is and were during their lifetime and if an organization cannot quickly adapt to the newest change, it might just get run over by the competition.

Technology in Business

Business is dependent on technology; and while older generations deny it, the younger generations thrive on it. Additionally, technology changes in business are common place. Software is constantly being updated and new technology is being added every day. Technology has always been viewed as a mixed blessing. While it provides new efficiencies, and ultimately, an increase in productivity, all through history it has also brought great frustrations and challenges to the comfort levels and security of the more senior generations in the workforce. (Liotta 2011)

This can be a challenge to managers who themselves are part of the more senior workforce. To some, technology is an unknown and what many managers can't see they fear. (Wolfe 2009) Even many of the most proficient older learners of technology see technology differently than the younger generations. A Baby Boomer might be able to use a search engine, a tablet, a smart phone, or social media site quite easily; however they might not be able to understand the relationship and natural learning ability a Generation Y cohort has with the technology. Where that Baby Boomer might have

mastered the technology, they most likely had to read the manual, watch a tutorial on how to use it, or spent two or three evenings discovering how it functions; the Generation Y cohort most likely picked up the technology and was using it like a master within a few swipes of the finger.

Many factors are uncontrollable in today's business world. We now live in a global economy; where in the price of raw goods could change overnight due to a tsunami in Sri Lanka, or the threat of war in the middle-east. Outsourcing of services to employees in overseas companies is common because digital communication has made it possible to have a real time video conference with anyone anywhere in the world. The ability to change and adapt to the quickly changing world is required in order to survive.

Technology has made it easier to adjust to the uncontrollable factors but if a company does not prepare and change it will fail. How many Baby Boomers or members of the Silent Generation ten years ago would have thought General Motors would have filed for bankruptcy, or that Kodak would quit making cameras and developing film? Other companies too will fail and fall; they will be swallowed up in the abyss of resistance and procrastination. (Wolfe 2009) If companies do not stay in a position that they can change as technology changes they too will eventually have to close their doors. In today's marketplace technological change is not a matter of convenience; it is for businesses a matter of survival.

The Generations Explained

Generation is not merely an age or a birth year. Generational groups are not determined by the present age of the members, but by the social events and demographics

that were happening at their inceptions. (Johnson 2010) Each generation has been exposed to different key circumstances during their own lives that alter their view of technological changes. Each generation grew up in a very different world, with very different social conditions that helped define how they react and respond to life. (Martin 2002) As stated before, different authors and scholars have labeled the generations with their own name and time frame. For this field project report the label most commonly assigned to the generation will be used and a set of years will be assigned to each generation. There is no real consensus on how to determine when one generation ends and another begins. The most common definition is based on major fluctuations in the birthrate. (Johnson 2010)

The United States birthrate and its fluctuations can be seen in Figure 1 on the following page. There was a decline from starting in about 1926 and continued into the early 1930's, then a slight increase in the birthrate as the economy improved after the Great Depression through the end of World War II in 1945. These births are of the Silent Generation.

From 1946 through 1963 there is a "boom" in births after World War II when the when the country was returning to normal and the soldiers were returning home to start families. These births would be for obvious reasons the Baby Boomer Generation. From 1964 through 1976 there is a significant decline in births or as some call it the "bust" since it followed the "boom". This represents the generations commonly called Generation X.

Starting in 1977 there is again an increase in births that continues up through the 90's, this is Generation Y. The start of Generation Y has the widest range. Some place it as early as 1977 (Martin 2002) and some place it as late as 1985. (Elmore 2010)

Following Generation Y there is the next generation, it still has to gain a common name. But "The Homeland Generation" or "Nexters" are the most common. For this field report the Homeland Generation which was given the name by Neil Howe & William Strauss will be used to describe those born from 1996 until now. This is due to the fact that people born during this time were not old enough to know a world without living in a society guarded and protected by what is presently called the Department of Homeland Security.



To further understand the generations, looking at each generation individually can help when you look at them as a whole group to see their differences and similarities. When you get to the core of what people in a generation have in common; their shared

experiences as a collective, you begin to see the big picture of why, as a generation they see the world as they see it, and how and why they lead or micromanage a project, relationship, or team. (Liotta 2011)

The GI Generation (1905-1925)

The GI generation is now nearly completely out of the work place. They make up less than 1 percent of the workforce. (Liotta 2011) The few that are still working would mostly be considered in the cusp of the generation and would have many of the same traits as the Silent Generation.

They were born at the beginning of the 20th Century during a time of optimism. They suffered the most during the Great Depression and fought to save the world from evil during World War II. They earned their paychecks and built suburbs, miracle vaccines, plugged missile gaps and launched moon rockets. (Liotta 2011) They were called “The Greatest Generation” by Tom Brokaw in his book of the same name. But when it comes to modern technology in the work place they don’t have much control or influence. Therefore they will not be included in the research for this field project but only be referenced since they were the generation ahead of the Silent Generation and as the oldest living generation.

The Silent Generation (1926-1945)

The Silent generation, born from the mid 20’s to the mid 40’s has also been called the Traditionalists by many. They came of age just too late to be war heroes and just too early to be youthful free spirits (Howe 2007). Many were children during the Great

Depression and Roosevelt's New Deal. They make up 7 percent of today's workforce. (Liotta 2011) They are loyal to the company almost to a fault. Many were members of labor unions and in their work they see having a job as something to keep; many have worked for the same companies their entire lives and value job security.

They can remember what the country was like when there was 25 percent unemployment during the Great Depression and have tried to keep their children, grandchildren and great grand children from suffering through the same. Some still work because of need due to the economy but others work because of that same loyalty they have had growing up. They just cannot quit.

They helped to rebuild the American economy in the 50's and looked forward to the ultimate rewards: status as an all-American family owning its own home, lifetime employment in a solid organization, and a comfortable retirement. (Martin 2002). The Silent Generation, as a whole, is hard working and working for their "American Dream". They also grew up in a different world technologically than the other generations in today's work force. The few that do remain active in the work force are more apt to change than some of the younger generations because of their work ethic and desire to make the world a better place for the younger generations.

They are frugal with their money and resources. They see modern technology as a waste of money, and they can remember of a time when computers didn't exist. You will probably not see Traditionalist grandparents buying daily \$5 cups of coffee for themselves because of the vivid memories of scarcity and conservation, but will pay any amount for their grandchildren to have a better future. (Liotta 2011) They can see how

computers and technology can help but many see that they are past the time to learn it and just let the “kids” deal with it.

The Baby Boomers (1946-1963)

The Baby Boomer Generation is the largest generation of all time at 80 million strong (Loitta 2011). Because of its size, many books and articles divide this group into two waves. Members of the “Woodstock generation” were born in the 40’s and early 50’s. Even if they didn’t attend that event or participate in the hippie counterculture, they shared the idealism and optimism of the late 60’s and early 70’s. For the second wave, those born in 1954 through the cusper year of 1965, we borrow the niche term “Generation Jones”. (Martin 2002)

Boomers currently make up 42 percent of the workforce. (Loitta 2011) They are the children of the GI generation and came of age in the great prosperity of the late 40’s through the 60’s. The first wave is the hippie generation, and the first generation shaped by TV. They experienced free love and corrupt politicians, they watched on the nightly news, almost live, the devastation and horror of the Vietnam War and as a whole, they came to change the world. For many Baby Boomers, Watergate and the Vietnam War shattered their unquestioning faith in American institutions. (Johnson 2010)

The second wave rode through childhood watching the older Boomers change everybody’s attitudes. The Second wave was not yet out of adolescents during the major turmoil of the 60’s and the Vietnam War. They were not content to live in “Pleasantville”, where the parental imperative was “Get a job and settle down,” many set out to create a more open, free society. (Martin 2002) They were the original “me”

generation. Organizations and institutions would forever be altered by the Boomers' needs, desires, moods, likes, and dislikes. (Loitta 2011)

More Baby Boomers went to college than in any previous generation because more of their parents had gone. They became the best-educated generation the country had ever seen, and much of the credit goes to the GI Bill. Having been raised in families where they were celebrated rather than tolerated, Boomers constantly received messages from their Spock-educated parents that they were special. Consequently, they often entered young adulthood believing they actually were special without understanding why (Johnson 2010)

The Baby Boomer Generation filled the schools and clubs to an overcrowded maximum; they learned to work in teams and to feel comfortable around their peers. Demographically, the post-WWII baby boom has been described as an elephant swallowed by a python. (Johnson 2010) They brought their team based upbringing and their social proficiency to the workplace. As Baby Boomers moved in to management positions in the 1980s, teamwork began to occupy a greater and greater role in company operations. It was during this period that we first heard about quality circles, high-performance teams, self-directed teams, and executive teams. (Johnson 2010)

The youngest of the Baby Boomer Generation is now approaching 50 years old; they have all been working for approximately 30 years or more. Because many of them have done the same job for the entire duration; the Baby Boomer Generation has the potential to be the most resistive to technological changes. They may be convinced that

what worked in the past needs to continue, regardless of whether it's still the best way to do business. They can drag their feet when it comes to change.

As a manager, overcoming that resistance is important. (Johnson 2010) The Baby Boomer Generation is the generation with the most expansive corporate history. They are the ones that have the knowledge wrapped up in their heads and in the manuals they keep on their shelves. By allowing a Baby Boomer to opt out of a change effort, the organization and the team are cheated out of any increases in productivity the reluctant Boomer would have delivered with the new system or approach. (Johnson 2010) It is the manager's number one priority to get the older generations to buy into the new technology so the company can get the most out of the system.

Generation X (1964-1976)

Generation X is one of the smallest generations ever; only 44 million Xers make up 29 percent of the workforce (Liotta 2011). They followed the Boomers and are a generation of latch-key kids, Xers were born during one of the most blatantly anti-child phases of U.S. history. Their Silent and Baby Boomer parents had the highest divorce and abortion rates, highest number of dual-incomes, and most permissive parenting habits in our history. (Martin 2002)

As children, they experienced the world in an individual environment. They are very self-reliant; seeing work as a means to an end. They focus on their families and life outside of work, because they were the victims of their parent's divorces and dual-income life. They know that they will never have the "American Dream" their parents and

grandparents envisioned. In fact they were the first generation of Americans to be told that they would not be as well off financially as their parents. (Martin 2002)

Generation X survived a hurried childhood of benign neglect and low expectations. Growing up in the long shadow of the Baby Boomers, Generation X was largely ignored or criticized for not being more like the Baby Boomers. (Liotta 2011) Many from the Baby Boomer generation see the members of Generation X as loners who think they are too good to work in teams or put into the group effort. In fact, because of their upbringing, many just prefer to work on their own. They are great at working without direct supervision, they just desire to get an assignment then be left alone.

Because both their parents worked they were the most unsupervised generation. (Martin, 2002) Growing up they learned to deal with things without guidance and direction from older generations without the safety net that is in place for younger generations, such as afterschool programs, and bicycle helmets (Liotta 2011) Where the Baby Boomer generation see authority as someone not to trust; Generation X sees authority as someone not to count on.

Generation X has little loyalty to their employer, they see changing jobs not as a challenge but as a necessary part of life. Job hopping is common among Generation X employees and many plan for job changes into their career path. They prefer free agency over corporate loyalty. (Howe 2007) However, that lack of loyalty is not going to give them a propensity to share company information with a competitor any more than a member of another generation, it is just that they have no problem leaving one company to join another if a better opportunity presents itself.

The first group of Generation X was getting out of college and starting their careers when the “Decadent 80’s” came to an abrupt head with Black Monday on October 19, 1987 when stock markets around the world crashed. (Liotta 2011) They found that there were no jobs even though they had a college diploma. Their degrees earned them “McJobs”- low skilled, low paying positions that undervalued their talents and contributions. (Martin 2002). Again they were left to fend for themselves as the Baby Boomers regained much of what was lost and again began living the good life.

Generation X realized they had only themselves to depend on. Job security was an illusion; the only security lay within. (Martin 2002) Because of this Generation X is one of the most entrepreneurial generations ever. They forged their own way and found a new avenue for work through their technological skills and much of the Dotcom culture was created.

Another reason may of the Generation X employees are cautious of outsiders is that they grew up in a world much different than generations before. Other generations lived with the fear growing up of wars and possible nuclear attacks. During the Generation X’s formative years, the world was a terrifying place, even without a major war. (Martin 2002) The problems faced by earlier generations were far off such as wars in other parts of the world, but for Generation X, the fears were next door.

The oil embargo of 1973, the war on drugs and the AIDS epidemic hit hard during their adolescence, these were problems not half way around the world but halfway around the block. These problems affected their friends, families and peers from across the country, and they had firsthand knowledge from Kurt Loader and MTV News. They

could relate to the problems because they could see their peers in trouble and many were left to deal with them without an adult to help them understand the ramifications.

Generation Y (1977-1995)

Generation Y, whom are often called Millennials, are just now making it into their own in the work force, they are becoming managers and leaders and they are changing the rules. They are a whole new breed at 76 Million strong and make up 22 percent of the workforce. Only 50 percent of Millennials have entered the workforce so far. (Liotta 2012)

For Generation Y the work-life balance problem faced by older generations is simple. Keep a separate life from work, no balance required. Don't invest in the job, invest in family and friends. They will be there later in life and many of them believe they will be at a new job next year anyway. Many, in record numbers, are gravitating toward large institutions and governmental agencies seeking teamwork, protection against risk, and a solid work life balance. (Howe 2007)

To generation Y, more than any other generation, work is not what life is about. Many of the generation Y workers see their family and friends as the most important thing in their lives and work as just a job to pay the bills. They see their life as more of a service to mankind, and it shows in their attitudes towards giving and helping ideals they interpret as a good cause.

Combine the altruistic impulse of Yers with their facility with technology, and you have a generation on fast-forward with self-esteem. (Martin 2002) The generation as a whole is doing much better than the stereotypes depict them. Teen arrests, pregnancies,

abortion, and drunk-driving accidents are actually down among Generation Y. Overall Yers are doing better than most adults realize or admit. (Martin 2002) They did this growing up in a world that 50 years ago was unimaginable to most.

Yers and the generations to follow have seen and heard things some adults don't even know exist. They have consumed more data than ever. They go to school early and are exposed to huge amounts of information at relatively young ages. (Elmore 2010) They experienced first-hand growing up attacks on American soil for the first time since the American Civil War. In the 90's Terrorism became a national phenomenon with the Oklahoma City, World Trade Center, and Atlanta Summer Olympics bombings. (Martin 2002). As teens and young adults they watched live on TV jet planes being flown into the world trade towers and the pentagon.

This generation has been called a selfish and needy generation. A generation that cannot make up its mind, that stay living with or return to live with their parents well into their 20's. It is not necessarily that they are needy or that they are indecisive, many from Generation Y are just overwhelmed with adulthood – the obstacles, the opposition, the opportunities and especially the options. There are forty different kinds of coffee beans at Whole Foods market, several hundred channels on DirecTV, fifteen million ads on Match.com, and eight hundred thousand jobs posted on Monster.com.

Further, in 2009 the U.S. Census Bureau reported that there were nineteen million college students competing for those (eight hundred thousand) jobs. (Elmore 2010) this generation needs a mentor to guide them the way their helicopter parents did while they

were growing up. A mentor that can help them use the vast amount of knowledge they have to make the right decisions.

Generation Y has an ability to learn and adapt to technology at unbelievable speeds. Their technology and communication ability will change the landscape of business. Fueled by their facility with technology; a facility that makes Xers look elementary; this “Digital Generation” is ready to learn anywhere, anytime. (Martin 2002) They use social media and text or instant messages to communicate with their peers all over the world. Older generations need to watch limiting the newer forms of communication just because they do not use it. Forbidding a young salesperson to use Facebook would be like one taking a phone or a Rolodex away from a Boomer back in the seventies. (Elmore 2010) For them they need instant results, instant feedback and instant communication, for them is all about speed (Elmore 2010)

The Homeland Generation (1996-Present)

This is a generation that, in the work place is still mostly an unknown. They are the 16 and 17 year-old workers just now entering the workforce. They have not net shaped what they are in the world but we do know some things about them. They don't know a world pre 9-11, some of their first memories are of the towers falling in New York; but were too young to truly understand the significance. They have always had instant access to basically anything they needed, from instant gratification with entertainment to instant communication with the cell phone they have always had in their pocket. They have always known what their friends were doing via Facebook and Twitter, and where they were via Google Latitude. They have watched TV connected to

DVRs that allowed them to rewind even live broadcasts, they have been able to watch what they want when they want. This means we must connect quickly. As Communicators, we have to grab their attention up front, demonstrating swiftly our content is relevant. (Elmore 2010)

As the Homeland Generation makes its way into the work place over the next few years a whole new generation of digital natives will be using technology as part of their existence, much like food or sleep. The Kaiser Family Foundation reported in 2010 that kids between eight and eighteen are spending seven-and-a-half hours each day in front of a screen. (Elmore 2010) They understand technology, like the older generations understand breathing. It is just comes natural to them. They socialize with it and they get all their information from it, they use it for just about every part of their life. And even though they live and feel at home with their friends through social media, this very social generation is in danger of becoming one of the most isolated generations because so much of their relational contact comes via technology. (Elmore 2010) This generation has trouble communicating with older generations and even other peers face to face. As this generation get older and matures, it will take a different set of skills to manage and communicate with this group.

Only time will tell how this group operates in the work place and what it will take to lead and motivate this generation. It will take a new corporate philosophy for most companies. However this is not a new phenomenon, this is the same problem that has faced every other generation and will face all the rest in the future. As each generation ages, another will be there to takes its place.

Generational Difference and Similarities

Most people in their careers have had to work with a multi-generational workforce and have been able to see the differences among the generations. Some of those differences come from our pre-conceived ideas of the other generations and some of those differences come because members of the other generation are just different than your generation. All of the generational traits are typical to each generation but not absolute. Many people from each generation will not fit into all of the traits, but most will fit into the majority of their generations listed traits.

For Generation X or Y, job hopping is not just common, it is somewhat planned for. Where a Silent Generation employee would stay at a job until they were fired or retired, a member of Generation X might have 15 to 20 jobs during their career. Many of the common virtues our culture once celebrated are no longer visible or practiced in the emerging generations. (Elmore 2010)

The loyalty that was a point of pride for the Silent Generation is seen as a fault by many in the younger generations. They have watched the older generations put in years at the same company just to be let go when the economy crashed. It is just not important for a Generation X or Y employee to get a gold watch or plaque for twenty years of service. But they see their commitment to the company not by duration, but by the effort they put in while they are at the company. To a Gen Xer, seniority means nothing. They usually don't perceive tasks as beneath them, nor do they shy away from hard work, but they expect people around them to operate in the same fashion, title or no title. (Johnson 2010) This can be a sticking point as well, because some of the older

generations feel since they have put in their time they don't need to do certain things like typing or data entry; which is how some of them perceive working on a computer.

Younger generations learn so much in elementary school that took the older generations years to accumulate. Generation X and later have grown up with teaching methods that the older generations did not get in their formative years. Where members of the Silent and Baby Boomer generations were taught using grown up methods developed to educate adults, Generation X and younger grew up with TV shows like Sesame Street and Blues Clues; shows that were designed to teach kids the way they learned, not the way an adult learned.

Most of them already have the information in their head or can Google it in seconds, and have no problem doing so. And what kind of information do they have, all of it. They've consumed more data than ever. They go to school early and are exposed to huge amounts of information at relatively young ages. Most can handle multiple messages rapidly and assimilate visual information more quickly than adults. (Elmore 2010) Mostly the younger generations just need guidance on how to use the information. They have the knowledge, just not the wisdom on how to use it.

There is a new anxiety disorder paralyzing the rational thinking of managers today. It has little to do with the challenges of dealing with the economy. It has to do with their intolerance for the dependency and fascination of youth with the internet, technology, and online social networking. Many older workers, including quite a few members of the not-so-old Gen X generations, view this form of communication as

distraction. A Silent Generation employee wants face time or at least a phone call to discuss something an employee from Generation Y will just sent a text message.

In contrast, younger workers see technology as an opportunity to improve productivity. Caught in the cross-fire are the co-workers and customers. (Wolfe 2009) Companies need to realize that younger generations communicate and use the internet in ways that most in the older generations could not have imagined just a few years ago. In areas where the younger generations have moved ahead of the older generations (such as technology), have the older generation ask them for lessons, passing knowledge along to others is a great way for the younger generations to learn and grow. (Elmore 2010) It should be a symbiotic relationship where each generation gathers information from the others to be the most productive.

The good news about Baby Boomers is that they have a wealth of experience and a long organizational memory. They know what has worked and what has failed. They know how to use the system to get things done. The bad news is they may be convinced that what worked in the past needs to continue, regardless of whether it's still the best way to do business. They can resist change, especially when it comes to technology, and if that resistance can be overcome and the Baby Boomer Generation employee will buy into passing their information on to the next generation while learning the technology from the younger generation an optimum condition can be formed.

Companies need to recognize the double-edged sword created by the recession of 2008. On the one hand, it makes it easier to retain Baby Boomers. Their 401ks have been decimated, so they need the money. On the other hand, it makes them reluctant to share

their know-how because, as long as the knowledge is locked up in their heads, it is more likely they will keep their jobs. A manager's challenge is to reassure them that transferring what they know to younger employees will not raise the odds they'll become redundant. (Johnson 2010)

Employees from the Baby Boomer Generation are lingering in the workplace longer, Generation X employees are growing impatient waiting to acquire additional responsibilities and ascend into leadership, potential Generation Y employees are knocking at HR's door in record numbers, and technology including social media, is transforming the mode and pace of communication. This convergence of young, old, and technology is simultaneously creating opportunity and crisis. (Wolfe 2009)

As we move into the future many of the Generation X traits criticized for decades of survivalism, pragmatism and realism will be recognized as vital national resources. (Howe 2007) If the Silent Generation and Baby Boomer Generation managers believe they will get younger generations to conform to organizational leadership shaped by the agrarian and industrial age, they are mistaken.

The choice to bridge, not forcibly close, the generational gaps is not optional; it is critical for survival. (Wolfe 2009) Due to the sheer size of the Generation Y and Homeland Generation, the employees of those generations that thrive on technology for everything will be looking to use it for all parts of their job. If Boomer- and Xer-lead businesses adjust to the Millennial work style, economic productivity could surge even as job turnover declines. If they do not, they should brace for opposition (Howe 2007)

If companies can see the generations are who they are, like a balance sheet, each generation has assets and liabilities. Each generation has its strengths. Each has its limitations. Its understanding, accepting, and leveraging the different perspectives about how to work, live and play that is most important for managers of business. Managing a multi-generational workforce is about investing in the assets and minimizing the liabilities. (Wolfe 2009)

The differences in the generations should be understood by the managers of a multi-generational workforce. Not understanding why a Generation X employee prefers not to work in groups can be seen by a Baby Boomer manager as just opposition to their way of thinking. If that Baby Boomer realizes it is not opposition to them and just that they were possibly a latch-key kid that prefers not to count on another person to get the job done the team can work more smoothly.

If a Generation X manager is having a difficult time understanding why their Baby Boomer employees are frustrated that they leave the building at 5:00 to go and see their family, and their Generation Y employees are frustrated that they can't have more flexible hours so they can go volunteer at the homeless shelter, they could benefit from knowing how the different generations see work. For the Baby Boomer, work comes before family, and for the Generation Y employee, creating a better society for all tops work. Not that any of the generations are superior to the others, it just can be profitable for the manager to understand each of the generations, including their own.

For a breakdown of the generational differences see Table 2 on the following page. The information was gathered from Unlocking Generational CODES (Liotta 2011)

Table 2 - Generational Matrix

Birth Years	GI Generation	Silents	Baby Boomer	Generation X	Generation Y	Homeland Generation
	1906-1926	1927-1945	1946-1963	1964-1976	1977-1995	1996-Now
Names	Women	Traditionalists	Boomers	Gen X, Xers, The Thirtieth Generation, Baby Boomers	Gen Y, Millennials, Echo Boomers, Net Generation	No stars
Archetype	Hero	Artist	Prophet	Normal	Hero	Artist
Mood	Patriotism	Compliance	Prosperity	Individualism	Excess	Sensitive
Focus	Fighting the Good Fight	Nuclear Families, Community and Civil Service	Children in Spotlight, Growth of Business, Government, and Space	Leadership Failures, Lonely Kids, Consumer Boomers (Yuppies, DINKS)	Trophy Children, Rhetoric of Empowerment, School Violence, Deinstitution	They worry about saving money with their parents, wasting their bike helmets, using sanitizing gel, getting the flu
Technology	Radio, Telephones, Electricity	Radio, Silver Screen	Radio, Silver Screen, Television	PC/Computers, MTV, video games	Cell Phones, Internet, TXT, Reality TV, Social Media, "Run-Time"	IPods, iPods, Cloud Computing, Global Access
Starts	Great Depression, Child Labor Laws, Women Votes		Civil Rights Movement, Women's Liberation, Cold War, Rising divorce rates	Politically Correct, AIDS, Epidemic, Divorce, Title IX	Good Kids - Kindness, Soccer Moms (Dads, too), "It takes a village" Girl Power	Diversity, Strangers are Dangerous, Your every action hurts or helps the environment
Beliefs	Buy American, Obey your leaders without question, serve for a many day	Sacrifices for the greater good are necessary and honorable; hard work is its own reward; discipline serves lives	There are not enough resources or chains to go around. Competition is the way of life. Reach for the stars!	The world is not safe. If it is to be, it's up to me. Trust yourself, everyone else is suspect. Loyalty is an antiquated notion.	I am a gift from God, My parents wanted me, I've got options, I can be famous.	Children around the world are my friends, parents, we are global citizens
Anchor Points	World War I, Prohibition, Great Depression, Hooverville, World War II	Great Depression, World War II, Space Race	Lunar Landing, Assassinations of JFK and MLK, Bratles, Vietnam War	Watergate, Sagittarius, 1973 Oil Crisis, AIDS, Challenger Disaster, Fall of the Berlin wall, Wall street frenzy, Dotcom, Persian Gulf	9/11, Columbine, Virginia Tech, OKC Bombing, Katrina, Tsunami in Sri Lanka & Japan, Haiti Earthquake	Pandemics, Amber Alerts, Great Recession, Hand Sanitizers, Bike Helmets, Schools Closures due to flu
People	JFK, Ronald Reagan, Walt Disney, Judy Garland, John Wayne, Walter Cronkite, Hitler, Churchill	Joe DiMaggio, FDR, John Wayne, Ella Fitzgerald, Jackie Robinson, Colin Powell, Walter Mondale, Woody Allen, Sandra Day O'Connor, Elvis	Bill Clinton, Beatles, JFK, Deep Throat, MLK, John Glenn	Bill Gates, Quentin Tarantino, Madonna, MJ, O.J. Johnny, Depp, Obama	Prince William, Chelsea Clinton, Kurt Cobain, Leonardo DiCaprio, Venus and Serena, Clean Twins, Tiger Woods, Dakota Fanning	TED
Places	Normandy, Eastern Front, Western Front, Manchuria, Nazi Germany, Dust Bowl	Port Harbor, Normandy, Boardlines, Victory Garden	Vietnam, Chappaquiddick, Woodstock	Iran Hostage Crisis, Gaines Chemistry, Ing. Wall Street, Check Point Charlie	The World Wide Web, Myspace, Facebook, YouTube, Twitter, Africa, China	TED
Events	D-Day, Cold War, Manhattan Project, Renaissance, 1929 Market Crash	Roaring Twenties, Two World War II, Hitler invades Russia, Great Depression, Hindenburg Tragedy, GI Bills, Korean War	Ed Sullivan Show, Watergate, Women's Rights, U.S. walks on Moon, Assassinations of JFK & MLK, U.S. Sends Troops to Vietnam, Cultural Revolution in China Begins	Crack, AIDS, Desert Storm, Watergate, Berlin Wall Falls	9/11 & Terrorism, School Shootings, Natural Disasters	TED

(Compiled from lists in Unlocking the Generational CODES by Anna Liotta 2011)

Procedure and Methodology

Even though this research was conducted during a specific change at a specific company much of the research was general in relation to the technology and the company used and could be used for many companies during any number of technological changes. It is about acknowledging that each cohort has its own way and its own approach in handling change in regards to technology and that the proficiency with the technology does not mean that the employee understands how the technology completes the task.

Development of the Technological Change

Management at Company ABC realized a change was needed. As new younger employees were hired they would soon leave and many would give a reason as not wanting to work in such an out-of-date company or that the use of the technology they were accustomed to was not being utilized. As the existing employees aged it was apparent that the company required changing the system to a new way of doing business that could bring in a younger generation to replace the older generations as they retired and the company could grow and compete.

Company ABC is an older company in the construction industry. It is well over 50 years old and when the old estimating system was created, consistent with the construction industry at the time, incorporated a pencil and paper estimating system. The system used quantity takeoff sheets where the description and the quantity of the item is hand written. These descriptions and quantities were then transferred to a yellow columnar sheet where unit prices were added for labor, material and equipment; then the unit prices and quantities were extended and totaled by individual specification section

using a hand calculator. The totaled extended prices were then transferred to a green columnar sheet and totaled to the bottom of the page. After that the green sheet page totals were transferred to a recapitulation page and totaled down and across. It was a very time consuming, error prone process since it required physically entering the numbers into a calculator and then writing each one down.

Checks and balances were incorporated but if an error was found, many times all the sheets would need to be re-added until the error was found. This system also had become incapable of dealing with the rapid changes that many of the suppliers and subcontractors sent in using newer technologies, such as text messages and emails. Over the fifty years the process only changed slightly, in the late 1990s the final recapitulation page was changed from a worksheet totaled by hand to a computer based spreadsheet for final additions and subtractions to the bottom line. But for the most part, the system had stayed the same since it was developed over 50 years ago. The recent economic downturn has also made the company look to expand its efforts in the estimating department. To bid more work and do it more efficiently and requires the addition of more employees in the estimating department. This also requires bringing in new estimators, most if not all, that have worked with and become accustomed to, newer technologies.

The new system is much different than the system it replaced; it incorporates computers throughout the process and requires the user to understand both the computer software and hardware but also the methodology of what the work the computers are performing. Without knowledge of how the software and hardware works, the user will

struggle completing accurate estimates in the required time. Without knowledge of the methodology of how to complete the estimate without the computers, the estimators will not be able to recognize if the output made by the computers is incorrect.

In contrast to the old system the new system uses a digital quantity takeoff method where the construction documents are in either AutoCAD or Adobe PDF format and analyzed on a large computer screen. The items are color-coded and quantified directly on the computer screen with a stylus or puck. After the items have been quantified the description and a sort code referring back to the specification for that item and the location where that item was found are added by typing or choosing from a drop-down type menu to the quantity directly on the computer screen. Those items are then priced according to their sort code and totaled using a pre-established database integrated into the computer system. The items can then be sorted or assigned a different sort code to fit into the required bid form. The database must be constantly maintained to reflect current pricing and modified on a per estimate basis depending on the area of the country the project will be located in.

Even though ultimately the same process is completed, it is done in a much more streamlined procedure. With more checks and balances in place and the ability to change prices rapidly and accurately the system is far superior to compete in today's market. But caution must be used because since many of the steps to complete the estimate are performed by a computer an "autopilot mentality" can become part of the estimator's style and errors can occur from not paying attention or understanding what the final product is or is supposed to be.

Implementation of the Technological Change

The group that was making the transition was a seasoned group of employees. One employee had been with the company nearly 40 years. The average age of the group was 46 years old and the average tenure at company ABC was nearly 18 years. The group was divided on whether a computerized system would help productivity. The split was along the generational gap with three of the four Baby Boomer employees in the group not in favor of the change and all three of the Generation X and Y employees for implementing the change. The one Baby Boomer that was neutral on the matter saw the need to make the change, but just had reservations that the group would make the change. The undecided employee was a cusper in the Baby Boomer generation and aligned more with Generation X on the survey. This information can be good to know because, although the employee was in the Baby Boomer generation the fact that they lined up more with Generation X employees during the survey. As a manager, this information can be used to motivate and guide this employee in the future.

Another aspect of the change was some of the end users of information created by the system. The employees not directly affected by having to use the system but the project managers, field superintendents, and accounting department employees that used the completed estimates. For the project managers the change was welcome since they were able to find items and follow the trail of how the estimate was put together easier. For accounting and the field employees it was a difficult change since the output of the new system was not the same as they were accustomed to. It is also noted that the age of the employees is much younger for the project managers than for either the accounting department or the field personnel. During the first few weeks of the project it seemed

there was always somebody coming up with a better way of doing the work, and it seemed that the suggestion would come from a seasoned employee and their suggestion usually was to go back to the old way of doing the work.

Methods of collecting data

For this field project three methods of collecting data were used. Surveys were sent out to multiple employees that were either to be directly affected by the implementation of the technological change or were to be affected indirectly by the same change through using data produced both by the old system and by the new system. Interviews were also conducted with employees that were directly affected by the implemented change and used both the old system and the new system. The third method of collecting data for this field project was direct observation of the employees before, during and after the implementation of the technological change. Those methods are discussed more in-depth below.

Survey Procedures

The first method chosen to understand the differences in the generations for this field project was a survey. The survey consisted of 15 questions that had generalized multiple choice questions dealing with technology and change. The survey was emailed out to 36 employees within company ABC. A total of 16 employees responded by the deadline. Out of the 16 employees that responded 7 were from the Baby Boomer Generation, 5 were from Generation X and 4 were from Generation Y.

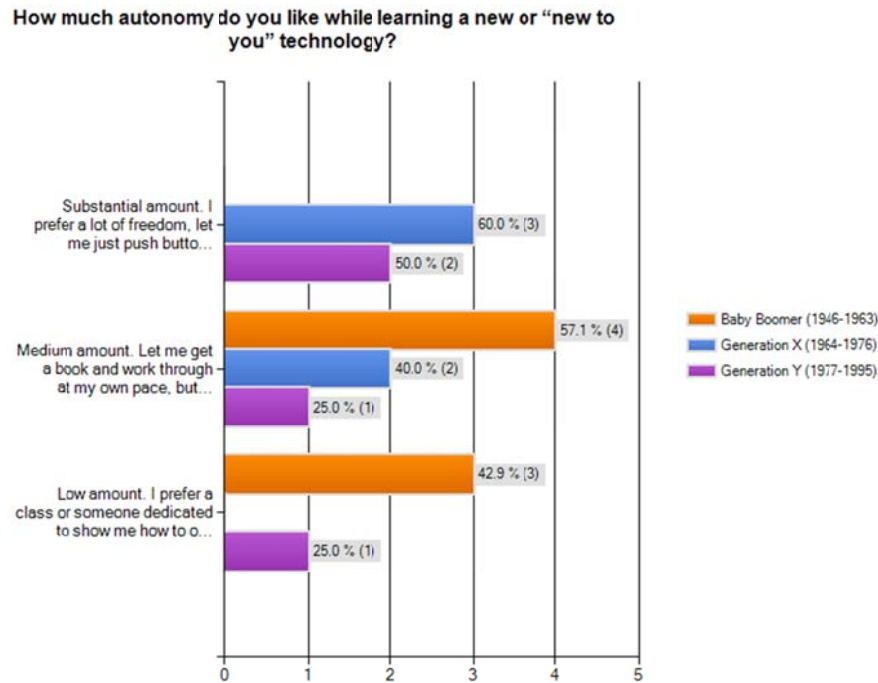
Each employee was given the option to not respond, to answer by replying to the email or printing the survey off and returning it anonymously in paper form. The survey

was sent out with responses due before the change to a new system had been implemented. The employees in the organization had knowledge that a change was coming and had been able to preview some of the available computer programs before the survey was sent out. Each survey was sent out with the instructions to answer honestly and that the data would be used for a master's level research project in engineering management at the University of Kansas. It was also noted in the instructions that management within company ABC would not see the results in raw data form and in no way would the results effect their employment.

The survey responses were manually entered into survey monkey and analyzed. The results of the survey, appendix B, along with a copy of the survey, appendix A, are included in this report. The survey did render good data that was, for the most part, along the expected generational lines. There were some answers that did not fit into the generational expectations assumed from the stereotypes of each different generation, but some anomalies are assumed since no one person exactly fits into the mold of any particular generation.

Since the data gathered was not available to use by management it is interesting to see how different situations were handled in comparison to how some of the questions were answered. As one of the questions, "How much autonomy do you like while learning a new or new to you technology?", was ask to get a better understanding on how the employees would like to learn a new system. After seeing the results it was concluded that the method chosen was correct. The results are shown by generation in Figure 2 on the following page.

Figure 2 – Survey Question #2 Chart



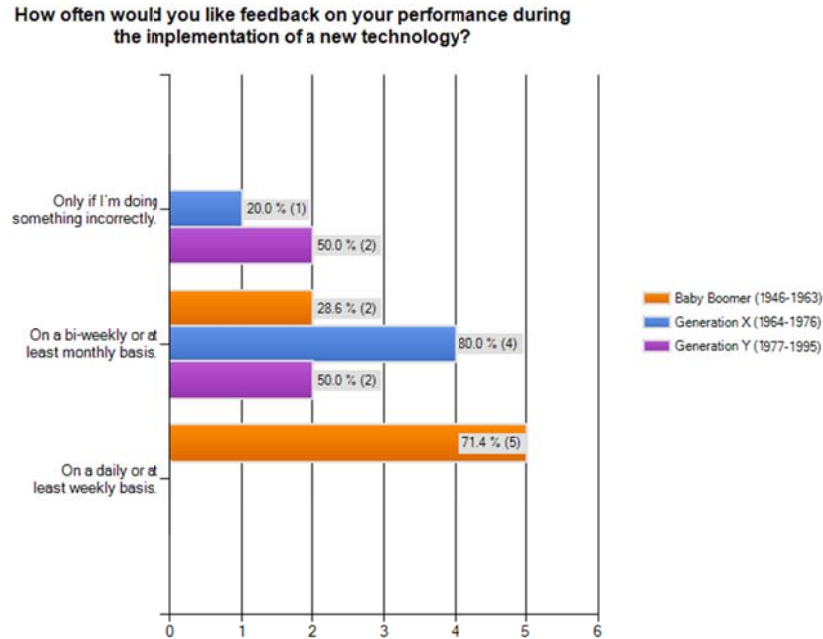
(Survey taken at Company ABC, Chart created by Survey Monkey)

The method chosen by management where each employee would be given a set amount of time to use the system as they see fit, learning how the software and hardware could be utilized. User manuals and tutorial books for the hardware and software were made available as well for the employees to reference. After the set time of learning on their own, the employees were sent to a training seminar to learn the fundamentals of the system after they had time to see how the system worked. This method fit for all the generation and gave the employees a chance to learn the system the way they wanted to learn.

Other methods may have been approached differently after seeing the results of the survey. For the question “How often would you like feedback on your performance during the implementation of a new technology?” it was concluded that more feedback should have been given during the implementation of the change more often to the

employees. Since feedback was only given to correct deficiencies and general feedback a couple times during the process.

Figure 3 – Survey Question #5 Chart



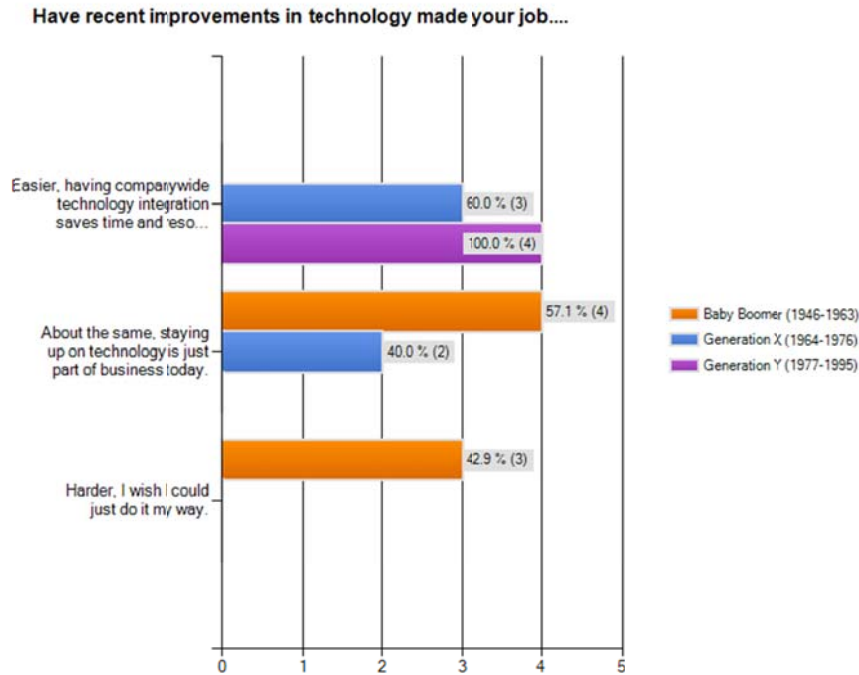
(Survey taken at Company ABC, Chart created by Survey Monkey)

The survey showed that daily or weekly feedback was preferred by five of the employees and bi-weekly or at least monthly by eight of the employees for a total of over 81% of the employees. The results are shown in Figure 3 above. The older employees wanted more feedback than the younger employees. The Baby Boomers all wanted feedback at least monthly and 71% wanted at least weekly or daily feedback.

Other answers to the survey were easy to see the difference in the older and younger generations. For the question “Have recent improvements in technology made your job easier, about the same or harder” a clear divide exists. The Generation Y

employees all see the improvements in technology as making their job easier. This can be seen in figure 4 below.

Figure 4 – Survey Question #10 Chart

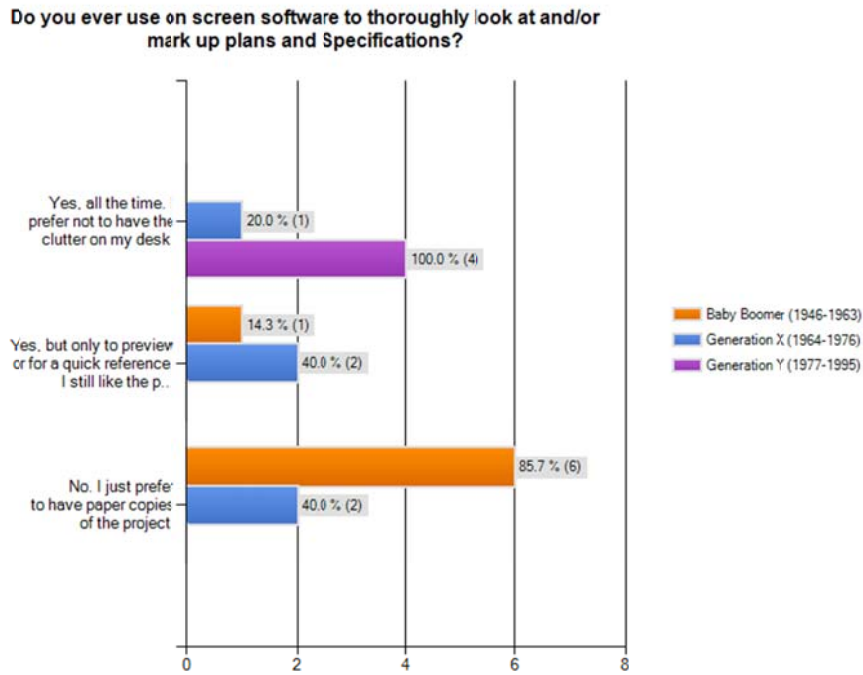


(Survey taken at Company ABC, Chart created by Survey Monkey)

The older generations are split on how it affects their job. The employees from Generation X are divided with two seeing it as staying about the same and three as seeing as harder. None of the Baby Boomers believed it made their job easier, four of them felt it was about the same and three of them thought it made their job harder. It is to note the three that felt it made their job harder put up the most resistance to the change.

The use of digital media is also split between the generations. Looking at figure 5 below it is easy to see this.

Figure 5 – Survey Question #15 Chart



(Survey taken at Company ABC, Chart created by Survey Monkey)

The question “Do you ever use on screen software to thoroughly look at and/or mark up plans and specifications?” Generation X is the most interesting being divided among all three of the choices with two preferring not to use it, two using it for preview and referencing, with one using it all the time. Generation Y prefers 100% to use the digital method. Eighty-six percent of the Baby boomer Generation preferred the paper copy only over previewing or using digital methods completely. Only one of the Baby Boomer Generation employees said they use digital methods to look at drawings and specifications. None of the Baby Boomers chose to use digital methods only.

It is to note that at other companies it has been observed that Baby Boomers are very proficient and use digital methods almost exclusively. The resistance to the digital methods at Company ABC more than anything is the fact that most of the Baby Boomers

have been working at Company ABC for many years and have been doing their job without technology for all of those years. The older habits are harder to change, and the “if it is not broke, do not fix it” mentality is strong within Company ABC. Even though the system was not able to handle the workload required to compete in today’s marketplace.

Interview Procedures

To better understand each generation, three interviews were conducted. One interview was conducted with an employee from the Baby Boomer generation that had been working at company ABC for approximately 30 years, one with a Generation X employee that had been with company ABC for over three years and has worked for five different companies since graduating college, and one interview was conducted with a Generation Y employee with less than one year experience in the post college workforce that had only work at company ABC. All three interviews had the same base questions but each generation had specific questions tailored to their generation included. Each interview took place in a one-on-one setting at a casual environment during lunch at a location away from the workplace.

The interview questions that were ask were dealing with both the implemented change that took place but also some general questions dealing with change, employee motivation, technology and management style. Interviewing more employees would have resulted in better data for each generation, but due to the limited pool of employees that were directly affected by the technological change and time constraints of this field

project, only the three interviews were conducted. A fourth interview was scheduled and rescheduled but the interviewee never was able to fit the interview into their schedule.

The interviews provided interesting results. During one of the interviews one of the interviewees was observed as being extremely nervous and seemed to be answering the questions in a manner that they felt would please the interviewer. The other two interviewees were both more comfortable during their respective interviews and the data is assumed to be more honest. This also leads to the assumption that some of the survey questions could be manipulated by the survey taker in an attempt to fit what they believed the survey results should be.

During the interview process, the member of the Baby Boomer generation that was interviewed seemed very eager as well to inject their opinions into how the new system should work and what it should not do. This person was chosen to be interviewed because of their vast experience with the old system. It was quickly understood that this employee felt very strongly that the old system was a better system, and using computers would only create more problems. The Generation X employee was very eager to change the existing estimating system and had been voicing their opinion that the system needed to change for the previous three years. The Generation X employee had experienced different systems at the five companies they had worked for in the past and was eager to change to a computerized system. The Generation Y employee, although eager to give the right answer was also understood to prefer working on a computer rather than by pencil and paper, and was more comfortable in front of a screen than with a calculator.

The question asked to all three generations that resulted in the widest response was “How good of an estimating system does Company ABC have, what would you change if you could, and what should stay the same?” The Baby Boomer who had learned on the existing system and never experienced any other system felt it worked great and nothing needed changed. They liked how all the details had to be written down, where the computerized systems they had used provided too little detail. The Generation X employee had some good ideas on what worked at other companies and what didn't. He could see advantages that the existing system had in defining scope, but felt the system needed a complete overhaul. The Generation Y employee had learned to use a computer to estimate in college and felt estimating by hand took too much time writing and hand calculating that it was hard to focus on the details.

This question provided the best feedback on how the new system should operate. It needed to be able to complete the data entry quickly and be able to provide as much detail as the hand written system could. This would allow the older generation employee the ability to read the details on the printout without having to look back at another sheet but it would allow the younger generation employees more time to focus on those details and allow the estimate to be more accurate. The information the Generation X employee offered was used to suggest the best way for the system to operate. The system needed to be rigid enough to maintain the standards that still could be used by other departments and for historical tracking of costs, but it also needed to be flexible enough to adapt to different users and for different types of estimates.

Allowing the generations input into how the system should operate has made the transition easier, but not easy. The input from the generations was used to help get the system up and running. Some of the functions that initially were thought to be needed are, as the system is being used more, are becoming apparent that they are not needed as the system can improve the time spent on the data entry associated with the older system.

Observational Procedures

The third method used to during this field project to better understand the generational differences was through direct observation and interaction of the employees before, during and after the implemented change. This method, the most informal, may have resulted in the best understanding of the employees. However due to the informalities of this method, much of the data gathered is more opinion and conjecture than other methods.

It was observed that the employees that had the most experience with the old system were less eager to change the system and the most combative during the process. As the new system was implemented many of the younger employees were able to get the work accomplished quicker than the older employees, which was a point of contention for the older employees, who were used to completing their work sooner or in the same amount of time as the younger employees. Since the group that was directly working with the system as a whole was older it impacted production greatly.

It was also observed that a few of the Baby Boomer Generation employees would not use the new system the way it was designed to be used. They would complete the takeoff and pricing on the old forms then enter each item one at a time. A couple of the

employees that had been with the company for many years even brought up the fact that the new system was discriminatory and that if they were let go for not being able to use the system they would file a lawsuit because of age discrimination. Even though management at Company ABC never threatened or even mentioned letting any of the employees go due to the inability to work with the new computer estimating system. This was an example of the frustration and fears of the Baby Boomer generation employees. It is noted that this was one of the survey questions asked on the survey but never posed by management.

It was observed that as the system started to be used more it was becoming apparent that the group was finding ways to use their talents to better use the system. Many of the younger employees were helping the older employees learn shortcuts on the system and how to properly use all the features, and the older employees were helping the youngest of the group understand some of the basic principles required to complete the work. The system was improving, it was a growing process for all the generations the older generations are starting to feel more comfortable using the technology and feel they can get help from the younger generations if they hit a snag in either the software or the hardware.

Some of the data realized during the observation was that generational differences are not the only reason that conflict can occur during a technology change. Some of the employees had personalities that were more receptive to the change than others and some had other issues they were dealing with that caused friction in the group. But as the team started to realize that they could benefit from each other, and that the technological

change was happening whether or not they approved, they started working together to get the new system implemented.

During one part of the process the software needed to be modified to work the way Company ABC needed it to and not the way the software was set up to work by default. To remedy this, the Generation Y employee in the group, who had very little experience in the means and methods of the company, or as a construction estimator in general, but was proficient with the software set down with the oldest of the members of the group and as the older member would explain and sketch out how the system needed to work, the Generation Y employee would enter the changes required into the software and one of the Generation X employees, who could easily complete the task both the old way and the new way would verify that the output from the new system modified from the default settings was correct. This increased both generations knowledge in areas in which they struggled.

Dialog also took place with management at Company ABC as to what they observed during the implementation of the new system. Their thoughts on what they observed are included below. They were able to offer examples of different situations they had gone through in their careers of different technology that was being used for estimating. Historically speaking some of the information was good but many of the changes that have taken place at Company ABC were minor in comparison to the major undertaking that is being implemented at Company ABC. Most of the past changes were examples such as switching from pay phones to cell phones to communicate with bid runners and how the fax machine helped facilitate bids.

RESULTS

As the system is still being implemented as of the writing of this report, the full results are not known how the system will perform after all the employees have used the system for a period of time. The old system is still being used for some estimates and some of the estimators are not fully using the system the way it is intended to be used. It is a slow process to convert some of the employees over to the new system. As they feel more accustomed to the new system the productivity will improve more than it already has and the department will be able to focus on different areas to improve upon.

Although the new system is in place and working, it will again change as updates for the software are released and as the existing hardware becomes obsolete. The system, just like the technology it uses is fluid, and will always be changing.

The generations' response to the change

Overall the response has been positive to the change among all the generations, the older generations have put up more resistance to the changes but it is hard to break old habits and ideas. Many of the older employees had been working in the old system for more years than the younger employees had been alive. But as the group started working with the new system, the resistance lessened and all the generations started working better together. The experience has strengthened the entire department as a whole and has helped the group work better together. The younger generations were more than ready to get the change implemented, but as they were forced to make the default system work to fit the Company ABC way. It was obvious to all that the younger generation employees did not understand the means and methods nearly as well as the

older generations. But in the end all the employees from the Baby Boomers to the Generation Y employee feel the system will pay dividends to the company in the future.

As a note it was observed for this field project that the one Silent Generation employee, who is not a full time employee of the company but has been at Company ABC over 50 years, and in the past was part of the estimating department, felt computers were going to create a situation that management was going to lose control of how the department was run and that the younger generations that don't know as much would be calling the shots and that would be the demise of the company. This is an example of the differences in the way a Silent Generation employee looks at the company, believing that only the older generations are capable of making the correct decisions and running the company. This is coming from the generation that believes an employee needs to out in their time and is also a vocal opponent that the company hires college educated employees instead of employees that gained their knowledge through hard work and time spent on the job.

The management's response to the change

Observation of the generations before and during the implementation of the change has allowed insight into how the generations adapt to the change and how they are motivated to work together to get the job done. The overall feel from management who knew the change needed to be made, but was very apprehensive of the process since they too were part of the older generations and not fully accustomed to how the system would function. One concern the management had before the implementation of the change was how the estimators would know if the system was outputting the correct

information. It took some time for the management to fully realize that the computer was able to calculate the answer as good as or better than the employee. It was realized that the system was just as good as the estimator running it and that if the estimators were careful and checked the output the way they checked the math before, not only was the system faster, it was also more accurate.

The management was also concerned with the cost of the implementation of the technology, since the technology had fallen quite a bit behind where it needed to be because of the reluctance of the older generations to not change because of their “if it is not broken, don not fix it” mentality. As for the response to how the generations are adapting and handling the technology change is all positive. Management has seen an improvement in how the generations communicate and work together. Management sees that as the older generations improve their skills with the new system it will allow the company to hire new younger estimators to fill the void left as The Baby Boomer generation retires and it will allow the knowledge to be passed on and retained better for the future of the company.

Conclusion of results

To conclude this report it needs to be noted that the overall objective of the field project was to better understand how each generation handled change and is pertains to technology. The information gained during the field project is not limited to a technological change the magnitude of the one used during this field project. The information gathered on the different generations can be used for many different areas of management. To better understand the employee should be a manager’s top priority,

especially in engineering and science where the employee is the greatest asset of a company. If the employee is not operating to the best of their potential the company is not performing to the best of its potential.

It was observed that while the system was functioning properly and all the employees were capable of performing the tasks, it was not until the employees “bought in” to the new system that the production started to increase. When the older generation employees started to help the younger employees understand why some of the steps were used, even though the younger generations could not see the point at the beginning, and the younger generations started to show the older generations how much time could be saved in the “busy work” that the older system required, a breakthrough took place.

To implement a change in any company is never an easy task; all the different aspects of the people making the change can complicate matters. For certain people all types of change are not a difficult task, for others it is one of the most difficult things to accomplish. However every person has areas where they resist change even if it is not technology. After conducting this research it should be noted that the confrontation to change in regards to technology is not necessarily a generational issue, but more a personal issue. With some of the older employees it was noted that after their initial resistance, they were some of the best learners and adapters to the new system and have been more receptive to ideas that have been floated around about other changes that are forthcoming. But again change is hard, particularly when you have been doing it the same way for 20 plus years and the person implementing the change is 20 years your junior.

Summary

The course of this field project has brought about a better understanding on how to manage multiple generations simultaneously. Knowing the best way to motivate each generation can be the difference in a smooth transition during a change or one that is difficult all the way through. Change is much easier if the person that will be changing is on board and motivated to make the change. Employees are more comfortable with change; if they feel it is the best thing to do for themselves or the company and that their job and career will be better off after the change.

For the older generation employee, relaying a message that they will still be relevant after the technology change and that passing on the corporate history and their vast years of experience will improve the company and help keep the company competitive. For the younger generation employee it is about helping them understand that the process is just as important as the result and that understanding why things are done is integral to their and the companies future.

For some companies it is difficult to make a technology change, the capital costs can be hard for management to commit to and not all new technologies should be adopted for all companies. However the ability to change is not only necessary for survival in today's marketplace it is necessary to be able to recruit new employees that will allow the company to remain competitive and relevant in the highly technical globalized business world for years to come. Generations will come and go, but the need to adapt and change to stay ahead in business will not.

Suggestions for Additional Work

Due to scope and time limitations other areas of research were excluded from this paper. Other demographics could be used to further understand the employee; understanding each demographic that an employee is in can help with motivating that employee and other employees in the future. Other areas of research could include Gender, Birth Order and Personality Differences.

Issuing a personality evaluation such a Myers-Briggs Type Indicator or a DISC assessment would offer more understanding to the management style required to lead different employees. Each employee no matter which generation they were born in has their own personality and has different motivators to get the job done. These personality tests offer an idea of the best approach to take with each employee during times of change. A personality test can provide a manager with information about why somebody might have reacted to a situation. Though the personality tests are not an absolute indicator of how an employee can or will react, it will help the manager understand that not all employees think or react to problems, issues and changes as they do.

Some employees might be good natural leaders where others would just as soon follow someone else's lead. Others might be more inclined to follow the rules and need specific instructions on how to complete the tasks required where as someone else is more comfortable just going with their gut. None of the personalities are bad and it is good to have a mix of those in a company. Each generation has members that fall into each of the types of personalities, and those personalities are also all valuable to have in every company or on each project team.

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APPENDIX A – Survey Questions

This information will only be compiled for use in my field project for completion of my Master of Science degree in Engineering Management at the University of Kansas. This Information will not be shared with company management and will in no way affect your employment or performance reviews. Please be honest in your responses and answer to the best of your ability. Your cooperation is greatly appreciated.

Please indicate your year of birth _____

Do you work in estimating or another department?

- a. Estimating _____
- b. Other _____

How important are technological tools (Internet, database management systems, mobile communication devices, state-of-the-art software programs, etc) for you to perform your job effectively?

- A) Unimportant. I prefer a Pen/Pencil and Paper; I'll let somebody else do the computer stuff.
- B) Somewhat important. I can function without them, but I need to interact with others.
- C) Very important. I couldn't be productive without technology.

How much autonomy do you like while learning a new or “new to you” technology?

- A) Substantial amount. I prefer a lot of freedom, let me just push buttons and see what it does.
- B) Medium amount. Let me get a book and work through at my own pace, but have someone available to answer questions as they come up.
- C) Low amount. I prefer a class or someone dedicated to show me how to operate it.

When learning a new technology for your job, how much time do you expect to put in during a typical week?

- A) Normal business hours with weekends off.
- B) Overtime during some weekdays.
- C) Overtime most of the time along with occasional weekend hours.

When new employees are hired, to what extent do you expect they will need technology training for their job duties?

- A) Not at all. I believe employees should be hired who already possess the technology skills for the job they are to do.
- B) Somewhat. I believe employees should be hired who already possess the basic technology skills, but should receive training in certain aspects of their job duties.
- C) A great deal. I believe that the company should fully train all newly hired employees on the technology required to perform their jobs.

How often would you like feedback on your performance during the implementation of a new technology?

- A) Only if I'm doing something incorrectly.
- B) On a bi-weekly or at least monthly basis.
- C) On a daily or at least weekly basis.

How often do you access your email?

- A) Once a day, if that.
- B) Multiple times a day.
- C) As soon as I get a new message.

Do you access information off of a Cloud drive or ftp site?

- A) All the time, it is integral to my job.
- B) Occasionally, only if I need a file from there.
- C) Never, What is a Cloud Drive?

If you need to get an answer on a project from a co-worker, would you rather...

- A) Walk down the hall or pick up the phone and talk with them.
- B) Email them the question and wait for the response.
- C) IM or TXT them to get the answer.

If you discover something you do not know the answer to in your daily work do you...

- A) Find someone in the company and have them explain it to you.
- B) Just pretend you know the answer and see if the answer reveals itself later.
- C) Google it and find out what the answer is.

Have recent improvements in technology made your job....

- A) Easier, having companywide technology integration saves time and resources.
- B) About the same, staying up on technology is just part of business today.
- C) Harder, I wish I could just do it my way.

How secure do you believe content stored on a computer is?

- A) It is more secure than if it were on paper filed in a file cabinet, I have everything backed up to the server and encrypted.
- B) As secure as anything else. If somebody wants it bad enough they will get it.
- C) Not secure at all, anybody can hack a file on a computer and see it, or the computer will crash and I'll lose everything.

Do you believe knowing how to use web-based software is important to you for your career?

- A) Yes, very important. If I want to succeed in the future I need to know it.
- B) Somewhat important. I'll learn just as much as I need to get by, it changes so fast I'll never keep up.
- C) No. I'll never need it. If something has to be done, I'll find someone to do it for me.

Do you believe that the company should mandate that everybody use web-based software in the future or lose their job if they won't use it?

- A) Yes, Absolutely. It's the way of the future and if you can't contribute we don't need you here.
- B) No, That is discrimination not all of us are computer geniuses.
- C) Depends on what they do for the company, reassignment might be a better option.

Do you think you would quit your job if your company decides to change technology and forced you to use it?

- A) Yes, I like the way I do things now and I don't need someone telling me how to do my job.
- B) No, I just do what I'm told.
- C) No. The job market stinks and I need this job.

Do you ever use on screen software to thoroughly look at and/or mark up plans and Specifications?

- A) Yes, all the time. I prefer not to have the clutter on my desk.
- B) Yes, but only to preview or for a quick reference, I still like the paper form.
- C) No. I just prefer to have paper copies of the project.

APPENDIX B – Survey Results

a) Please indicate your year of birth	
Answer Options	Response Count
	16

b) Generation (Automatically generated when date entered on a)		
Answer Options	Response Percent	Response Count
Baby Boomer (1946-1963)	43.8%	7
Generation X (1964-1976)	31.3%	5
Generation Y (1977-1995)	25.0%	4

c) Do you work in estimating or another department?		
Answer Options	Response Percent	Response Count
Estimating	43.8%	7
Other	56.3%	9

1) How important are technological tools (Internet, database management systems, mobile communication devices, state-of-the-art software programs, etc) for you to perform your job effectively?		
Answer Options	Response Percent	Response Count
Unimportant. I prefer a Pen/Pencil and Paper; I'll let somebody else do the computer stuff.	6.3%	1
Somewhat important. I can function without them, but I need to interact with others.	56.3%	9
Very important. I couldn't be productive without technology.	37.5%	6

2) How much autonomy do you like while learning a new or "new to you" technology?		
Answer Options	Response Percent	Response Count
Substantial amount. I prefer a lot of freedom, let me just push buttons and see what it does.	31.3%	5
Medium amount. Let me get a book and work through at my own pace, but have someone available to answer questions as they come up.	43.8%	7
Low amount. I prefer a class or someone dedicated to show me how to operate it.	25.0%	4

3) When learning a new technology for your job, how much time do you expect to put in during a typical week?		
Answer Options	Response Percent	Response Count
Normal business hours with weekends off.	62.5%	10
Overtime during some weekdays.	37.5%	6
Overtime most of the time along with occasional weekend hours.	0.0%	0

4) When new employees are hired, to what extent do you expect they will need technology training for their job duties?		
Answer Options	Response Percent	Response Count
Not at all. I believe employees should be hired who already possess the technology skills for the job they are to do.	12.5%	2
Somewhat. I believe employees should be hired who already possess the basic technology skills, but should receive training in certain aspects of their job duties.	62.5%	10
A great deal. I believe that the company should fully train all newly hired employees on the technology required to perform their jobs.	25.0%	4

5) How often would you like feedback on your performance during the implementation of a new technology?		
Answer Options	Response Percent	Response Count
Only if I'm doing something incorrectly.	18.8%	3
On a bi-weekly or at least monthly basis.	50.0%	8
On a daily or at least weekly basis.	31.3%	5

6) How often do you access your email?		
Answer Options	Response Percent	Response Count
Once a day, if that.	31.3%	5
Multiple times a day.	68.8%	11
As soon as I get a new message.	0.0%	0

7) Do you access information off of a Cloud drive or ftp site?		
Answer Options	Response Percent	Response Count
All the time, it is integral to my job.	25.0%	4
Occasionally, only if I need a file from there.	43.8%	7
Never, What is a Cloud Drive?	31.3%	5

8) If you need to get an answer on a project from a co-worker, would you rather...		
Answer Options	Response Percent	Response Count
Walk down the hall or pick up the phone and talk with them.	18.8%	3
Email them the question and wait for the response.	56.3%	9
IM or TXT them to get the answer.	25.0%	4

9) If you discover something you do not know the answer to in your daily work do you...		
Answer Options	Response Percent	Response Count
Find someone in the company and have them explain it to you.	56.3%	9
Just pretend you know the answer and see if the answer reveals itself later.	0.0%	0
Google it and find out what the answer is.	43.8%	7

10) Have recent improvements in technology made your job....		
Answer Options	Response Percent	Response Count
Easier, having companywide technology integration saves time and resources.	43.8%	7
About the same, staying up on technology is just part of business today.	37.5%	6
Harder, I wish I could just do it my way.	18.8%	3

11) How secure do you believe content stored on a computer is?		
Answer Options	Response Percent	Response Count
It is more secure than if it were on paper filed in a file cabinet, I have everything backed up to the server and encrypted.	50.0%	8
As secure as anything else. If somebody wants it bad enough they will get it.	25.0%	4
Not secure at all, anybody can hack a file on a computer and see it, or the computer will crash and I'll lose everything.	25.0%	4

12) Do you believe knowing how to use web-based software is important to you for your career?		
Answer Options	Response Percent	Response Count
Yes, very important. If I want to succeed in the future I need to know it.	62.5%	10
Somewhat important. I'll learn just as much as I need to get by, it changes so fast I'll never keep up.	31.3%	5
No. I'll never need it. If something has to be done, I'll find someone to do it for me.	6.3%	1

13) Do you believe that the company should mandate that everybody use web-based software in the future or lose their job if they won't use it?		
Answer Options	Response Percent	Response Count
Yes, Absolutely. It's the way of the future and if you can't contribute we don't need you here.	18.8%	3
No, That is discrimination not all of us are computer geniuses.	12.5%	2
Depends on what they do for the company, reassignment might be a better option.	68.8%	11

14) Do you think you would quit your job if your company decides to change technology and forced you to use it?		
Answer Options	Response Percent	Response Count
Yes, I like the way I do things now and I don't need someone telling me how to do my job.	6.3%	1
No, I just do what I'm told.	62.5%	10
No. The job market stinks and I need this job.	31.3%	5

15) Do you ever use on screen software to thoroughly look at and/or mark up plans and Specifications?		
Answer Options	Response Percent	Response Count
Yes, all the time. I prefer not to have the clutter on my desk.	31.3%	5
Yes, but only to preview or for a quick reference, I still like the paper form.	18.8%	3
No. I just prefer to have paper copies of the project.	50.0%	8