

Engineering Management  
Field Project

**Communicating Knowledge:**  
**A Case Study for Improving Technician**  
**Productivity in the Telecom Industry**

By

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## **Executive Summary**

Organizational success is based on productivity. Productivity at the Mountainside Moonpies Corporation is currently in decline due to the swift advancement of telecommunication technology, an aging workforce, and minimal investment in knowledge management solutions. The company predicament consists of a very large workforce with high productivity expectations and minimal communication and knowledge support for both Technicians and Technician Supervisors. This causes rework, poor customer service, lower sales and revenue, and higher costs for resource training. Although top-down communication may be effective for Human Resources activities and organizational announcements, applicable knowledge must be directly communicated to front-line Technicians, preferably by a Supervisor, to improve productivity. The contribution of this Field Project will outline “how to” guidelines for identifying gaps, addressing roadblocks, prioritizing knowledge, and standardizing avenues for communication. The goal is to demonstrate how following these guidelines will improve technician productivity, resulting in bottom-line benefits. This Field Project will identify methods for “how to” improve technician productivity in the telecom industry by communicating knowledge based on an Mountainside Moonpies case study and industry research.

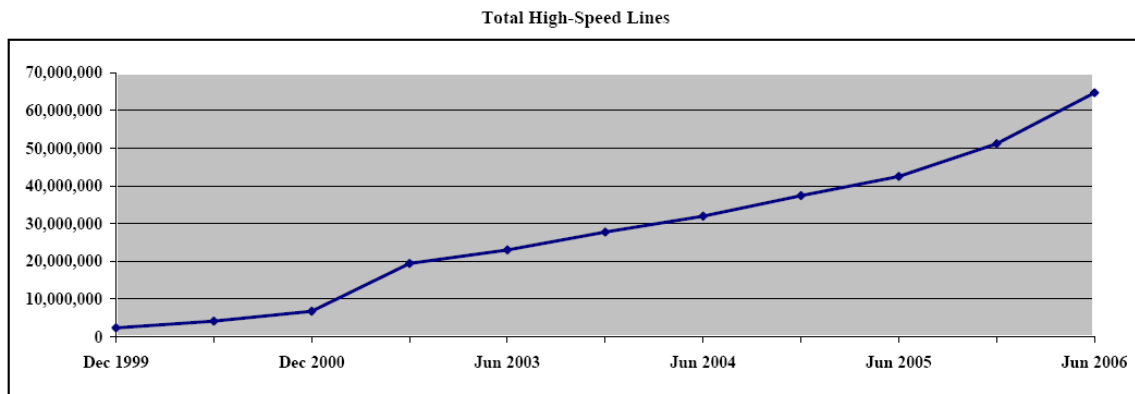
## **Chapter One – Introduction and Setting Objectives**

### **The Telecom Industry and the Mountainside Moonpies Experience**

The Mountainside Moonpies Corporation has been in the telecom business for over 100 years through significant change. With humble beginnings in rural Kansas, horse-drawn carriages upgraded customers from copper party lines, to an integrated network of advanced technology. Traditional Local Access Network (LAN) lines over copper have kept people in touch for decades. The transition from Plain Old Telephone Service (POTS) to High Speed Internet (HSI) and beyond has at times been a difficult one. The pioneering developments of change are countless. From mergers and acquisitions that required company brand overhauls, to competitive customer demand that forces innovative solutions, Mountainside Moonpies has relentlessly attempted to respond to a telecom industry that never rests.

In order to better appreciate volatility in the telecom industry, a brief overview is required. Today, telecom is a fast-paced explosive industry driven by demand, increasingly sophisticated hardware and software, regulation, and growing competition that results in dramatic drops in price (Newton 2000). For every wired access line lost to wireless, high speed internet access seamlessly takes its place. Customers are constantly asking “When will we get high speed internet in my neighborhood?” Communication vendors diligently work to provide cost effective switching and transport solutions. The Federal Communications Commission (FCC) regulates interstate and international communications as it is directly responsible to Congress. Additionally, competition provides a continuous threat to Mountainside Moonpies losing customers as bundled service packages and cheaper technology challenges prices. Mountainside Moonpies has

responded by heavily investing in high speed and Internet Protocol (IP) technology, taking advantage of significant growth in recent years (A):



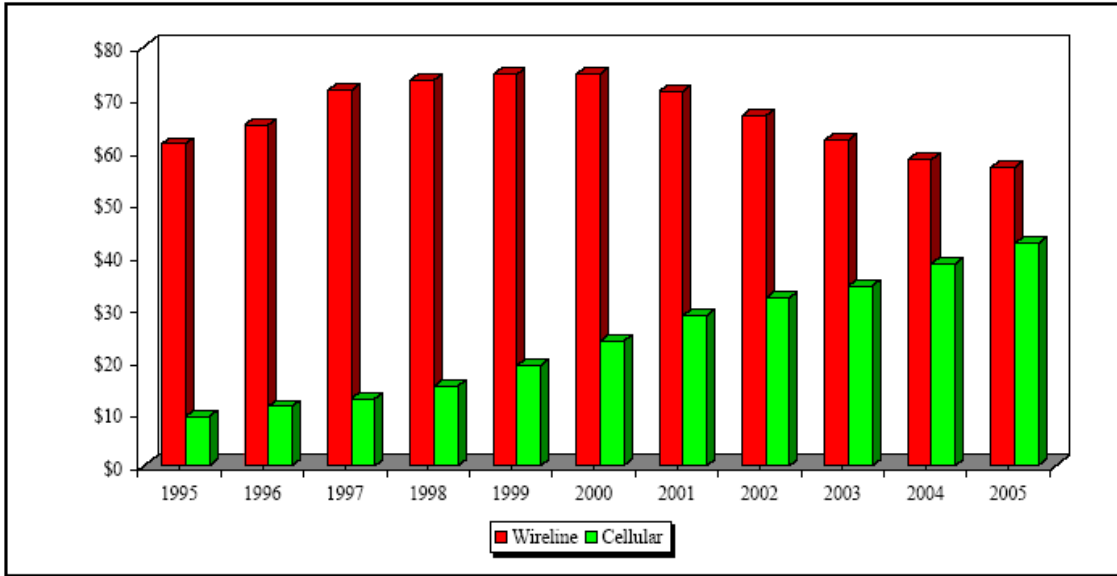
Residential high speed internet (HSI) lines, Mountainside Moonpies’s growing primary base of customers, have experienced similar growth. From approximately 3 million lines in 2000 to over 50 million in 2006, revenue opportunities are tremendous, reflecting in Mountainside Moonpies’s (then Sprint) rate of return:

**Interstate Rate of Return Summary \***  
**Years 1998 through 2005**  
**Price-Cap Companies Reporting FCC Form 492A - Continued**  
**(Final Reports for 1998 Through 2004 and Initial Report for 2005) <sup>1</sup>**

Reporting Entity	2005	2004	2003	2002	2001	2000	1999	1998
<b>Sprint</b>								
37 Central Telephone Company - Nevada Division	45.68 %	43.37 %	34.16 %	23.80 %	19.61 %	19.29 %	21.15 %	17.79 %
38 Sprint - Florida Incorporated	42.94	40.98 <sup>6</sup>	35.54	29.41	25.89	27.38	27.17	26.14
39 Sprint Local Telephone Cos. - Eastern (NJ & PA)	56.33	55.14 <sup>6</sup>	45.38	37.78	26.21	25.62	20.87	14.59
40 Sprint Local Telephone Cos. - Midwest (MO, KS, MN, NE, WY, TX)	32.3	29.17 <sup>6</sup>	25.24	18.89	16.63	18.88	17.69	19.66
41 Sprint Local Telephone Cos. - North Carolina	50.81	51.62 <sup>6</sup>	45.89	36.64	25.56	22.23	15.92	12.55
42 Sprint Local Telephone Cos. - Northwest (OR & WA)	33.81	23.90 <sup>6</sup>	33.51	34.62	31.55	32.77	31.86	32.54
43 Sprint Local Telephone Cos. - Southeast (TN, VA & SC)	38.73	36.14 <sup>6</sup>	34.34	33.76	25.33	23.32	17.50	15.87
44 United Telephone Co. of Indiana, Inc.	71.84	68.80 <sup>6</sup>	46.47	41.75	35.19	38.21	28.98	24.19
45 United Telephone Co. of Ohio	46.2	39.01 <sup>6</sup>	31.50	30.89	27.13	20.03	20.16	17.33

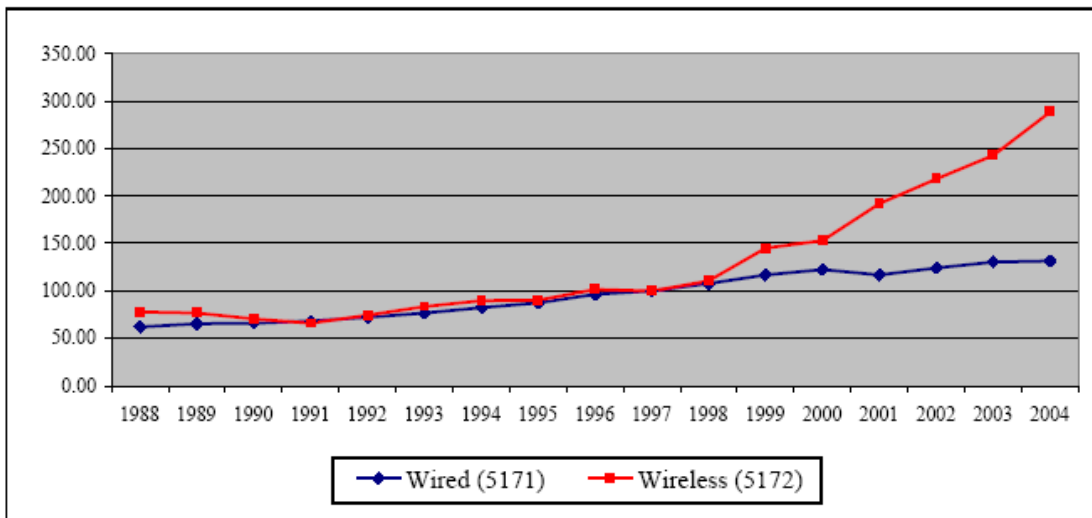
Even with increasing HSI sales and a consistent interstate rate of return, declining wired voice access lines are also vulnerable to wireless growth. In 2006, Sprint merged with Nextel and spun off the local division of the corporation, creating Mountainside Moonpies. This creates a new opportunity for the company as they find ways to re-package cellular service and provide bundled packages. As growth in the chart indicates, this strategy is critical to long-term success in the telecom industry (C):

**Monthly Personal Consumption Expenditures for Telephone Service per Household**



With industry pressure mounting from every direction, employment and labor productivity requires special attention. Stimulated by advancing technology, process improvement, standardization, and innovation, employee productivity for wired carriers is on a slight uphill slope. However, wireless carriers have taken advantage of rapid growth to significantly outdo wired labor productivity in output per hours (OPH) (D):

**Wired and Wireless Telecommunications Carriers (NAICS 5171 and 5172) Labor Productivity Index**



In this shocking statistic lies a vital objective of the Mountainside Moonpies case study. As productivity remains fairly flat, this results in loss to the bottom-line. This Field Project will prove that knowledge management and consistent communication has a direct impact on this productivity index for Technicians.

### **The Need to Communicate Knowledge to the Technician Workforce**

Centralized decision making determines National standards, methods and procedures, and process improvement opportunities for Mountainside Moonpies's Network Services organization. Policies for the Technician workforce are developed and communicated from Overland Park, Kansas to 18 states and 36 districts (the field). Supporting operational documentation is authored by National Staff and e-mailed via standard templates once they are posted to the National Standards Library (NSL). There are obvious pros and cons to this methodology:

#### Pros for Centralization

- Leverage economies of scales
- Greater buying power
- Ability to develop and implement standards
- Easier maintenance
- Quality control at the national level

#### Cons for Centralization

- More bureaucratic because of the need for a national standards group
- Takes longer to get the things you need
- Takes away from the entrepreneurial spirit of a de-centralized structure
- Takes away individual accountability as it exists in the de-centralized structure
- May need to spend more in overhead (staff)

The Network Services staff has flip-flopped from one organizational structure to the next depending on leadership direction. However, in a centralized structure, staff has greater visibility to common pitfalls to communication and has the ability to respond



appropriately. Additionally, a central repository for knowledge management is more easily developed and maintained as required by the field. Staff can quickly identify issues based on field leadership “squeaky wheels” and nationally communicate proposed solutions. This works in most cases, but it is influenced by several factors, particularly in the Technician workforce. The first is timing. If information is communicated too soon (yawn), the field is unsure how to respond and it is quickly forgotten if it is not immediately applicable. If information is communicated too late, decisions are already made and re-work may be required. The second is content. Quality is key. The third is placement. Information must be organized and communicated based on the workgroup that is ultimately impacted. Installation and Repair Technicians are wasting their time reviewing material related to Engineering. The audience only wants to know what they need to know in the way they need to hear it to properly do their jobs. Together, getting the right information to the right person at the right time allows for better decision making, quick turnaround, and productivity benefits. This is what knowledge management is all about: greater efficiency, greater customer service, and a better bottom-line. Since Technicians and their Supervisors is the largest and most influential customer-facing workforce at Mountainside Moonpies, representing over 6,000 employees of 10,000 in Network Services, it is extremely important to consistently get this right the first time. The need is pressing when the specialized skills of this workforce is critical to organizational success (Patton 2006). The literature review will discuss how stages of learning, succession planning, labor flexibility, and enablement all play a role in success. The next objective of this Field Project is to address the “How To” factor of addressing knowledge management and communication pitfalls.

## **How Communicating Knowledge Improves Productivity and Impacts the Bottom-Line**

Few care about knowledge management or anything in business for that matter, unless it can be measured and it shows direct correlation to productivity and therefore the bottom-line. Standard knowledge management measures have been defined by the American Productivity and Quality Center (APQC), a well-respected benchmarking and best practices organization. In the literature review, discussion will focus on standards, measuring impacts, concepts related to productivity, content knowledge, and technician productivity measures. The productivity measure used by Mountainside Moonpies and specific to this case study is Good Jobs in Eight (GJI8). This metric is a common, simple and reliable barometer of the overall technician workgroup used for quality and productivity within the telecom industry. At Mountainside Moonpies, it is a measurement that promotes teamwork based on district level objectives and is fundamental to business management and operating improvement. It measures the ability to drive customer satisfaction so Mountainside Moonpies is competitive in the marketplace by improving productivity and reducing rework. The final objective of this Field Project is to prove how the procedure and methodology of the case study and its results improve productivity and positively impact the bottom-line.

## **Chapter Two – Literature Review**

The dictionary defines knowledge as understanding gained by actual experience (Merriam-Webster 1997). But applying this definition of knowledge to complex organizations is easier said than done. Just as history teaches, individuals must first recognize the impacts of knowledge, and more importantly, the lack thereof. It must be viewed as a valuable and enabling resource. In order to achieve this, all organizations must truly understand knowledge dilemmas, people culture, how knowledge impacts the bottom line, and resource management for strategic goal setting. In short, it is crucial to get the right information to the right people at the right time. The literature review of this Field Project focuses on bodies of knowledge that define knowledge management and its organizational dilemmas, people workforce and culture, and productivity as it impacts the bottom-line. Knowledge management is a heavily researched topic and therefore a great deal of information is available both academically and as it relates to corporate operations. The summary, classification, and comparison of this review position a foundation for understanding the goal of the Mountainside Moonpies case study: To prove “how to” implement solutions that are supported by the following documentation.

### **Tacit Knowledge and Explicit Knowledge**

Tacit (or silent) knowledge is defined as what one does not realize he or she knows or what has been learned. It cannot be written down or formally communicated, but it is essential to the successful operation of any organization (Atherton 2005). In a technologically focused organization such as the Mountainside Moonpies Corporation, Installation and Repair Service Technicians are mostly successful at their jobs because of their individual experience. For example, although these Technicians utilize GPS

(Global Positioning System) devices, wireless mobile office technology, and outside plant facility maps at their fingertips, they usually can find any terminal, pole, or manhole at midnight in a snowstorm with their eyes closed because they know the area.

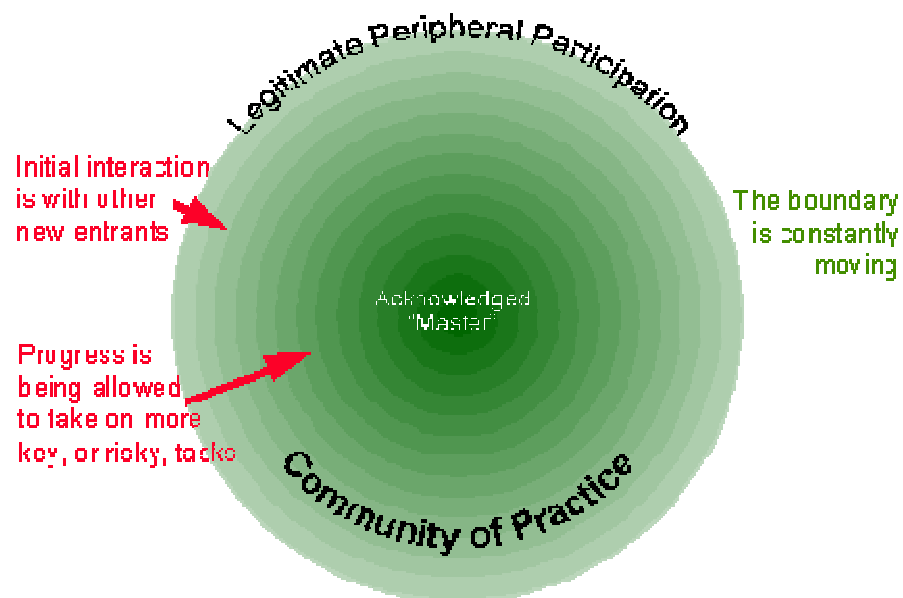
Knowledge of this physical outside plant ensures the customer receives service on time and on budget. There is no method and procedure that teaches these employees how to learn these important business requirements. It is tacit knowledge that cannot be taught, but is obviously learned. The most effective process for teaching tacit knowledge is to provide opportunities for other employees to learn with real-world exposure.

Explicit knowledge is much easier to see and define. It is characterized as an active process where people seek out the structure of any information that is presented to them (University of Winnipeg 2006). Explicit knowledge can be characterized as information that can be written down, memorized, and recalled in required circumstances. Technicians explicitly learn telephone exchanges and wire center codes to identify customer physical locations, and copper cable names to design developments, assign service orders, and trouble shoot issues. While much of what is learned is done implicitly, this explicit (or hard) knowledge can be duplicated in masses and is also measurable. For example, Mountainside Moonpies uses this knowledge to measure performance via productivity reports. This case study will discuss communicating both tacit and explicit knowledge to improve productivity. Research supporting claims throughout this case study includes the American Productivity and Quality Center (APQC). APQC is a nonprofit internationally recognized resource for process and performance improvement that helps organizations adapt to rapidly changing environments, build new and better ways to work, and succeed in a competitive marketplace by focusing on benchmarking and metrics, best practices, knowledge

management, performance improvement, and professional development (APQC 2008). Several articles, best practices, and benchmarking material are referenced as research in this Field Project.

### **Situated Learning**

Another important learning theory that impacts the Mountainside Moonpies Technician is situated learning. This is defined primarily by social impacts and originates from the 1991 Cambridge University Press research by Lave and Wenger of “legitimate peripheral participation” (Atherton 2005). This research is based on case-studies of how newcomers learn in different occupational groups without formal training (Atherton 2005). The learning is termed legitimate because otherwise unqualified individuals are members of communities of practice (this will be later describes as a knowledge management tool). It is termed peripheral because these individual work on the less important outlying work until they have the experience to complete more significant jobs. Finally, the learning theory is termed as participation individuals are actually “doing” knowledge that they acquire it. At Mountainside Moonpies, this technique is used in apprenticeship programs. For example, new employees hired as Technicians are partnered with experienced employees in order to observe procedures and participate in daily duties. The new hire is responsible for small administrative tasks and completes ride-a-long exercises, in which the new hire is carefully observed by a designated mentor. He or she may complete less complicated service orders, such as POTS (Plain Old Telephone System) until their experience has earned him or her trust among peers.



*Reference: (Atherton 2005)*

### **Skepticism and History**

The David Blair’s article, “Knowledge Management: Hype, Hope, or Help?” he illustrates many of the same topics outlined in most research, but takes it a step further by addressing knowledge management as a “buzzword.” Many skeptics believe this is just another avenue for consulting firms to increase revenue. They assume knowledge management is just a “re-badging” of earlier information and data management methods (Prusak 2001). However, Blair describes this as any system of thought that has value: “Knowledge Management is not an end in itself; it is a means to a further end.... (and as described by Thomas Huxley over a century ago) the great end of knowledge is not knowledge but action.” (Blair 2002) When utilized as a vital organizational resource via the tools later described in this paper, individuals can understand and leverage expertise better than how it is done today. But just like any concept, to find true benefit, it should be understood how it all started.

To understand where Knowledge Management came from, impacts on the business economy should be reviewed. Trends to globalization force the need for businesses to do more, faster than ever. Companies must make quick decisions that constantly impact the bottom line, so the need to have all the facts to make the best decision is vital. APQC supports this claim. Also, there is a clear need to support and benefit from factors less tangible than facts and figures (tacit knowledge). Knowledge management provides a platform to provide for these needs. However, it is important to remember as best stated by Huxley, successful organizations will act on this management concept, not just lecture about it at brown bag seminars.

The definition and history of knowledge management is convoluted, relative to experience, susceptible to skepticism, and heavily impacted by a number of factors. Otherwise, it would not be such an interesting research topic. The important thing to grasp from this literature review is that knowledge is everywhere, and in the fast-paced business world and it can make or break organizational success. Knowledge can and must be identified, codified and duplicated.

### **Systems versus Work Processes**

Consulting firms and Human Resources departments may provide a wealth of system solutions to address knowledge management gaps. At Mountainside Moonpies, managers have the ability to search databases for desired skills when filling positions. This database has the ability to match well qualified potential employees quickly and easily. However, this system is only as good as the information provided. If it is not well maintained and monitored for quality data, it may actually cause the manager to waste time. Therefore, companies must follow proper processes, methods, and procedures to ensure systems are utilized to their full potential. In the 1995 Ernst and Young working

paper, “Improving Knowledge Work Processes,” the authors describe categories of approaches to knowledge work improvement. This table compares two methods of improving work processes based on areas of organizational focus: Laissez Faire and Reengineering. Laissez Faire provides the traditional view of work knowledge in which workers are fully responsible for designing and executing their own work. Reengineering, a method Mountainside Moonpies often utilizes, describes a company’s method of identifying process constraints and making changes focused on cost reduction (Davenport 1995).

(Focus)	<b>Laissez Faire</b>	<b>Reengineering</b>
<b>Strategy</b>	Hire good people and leave them alone	Get people to do work differently
<b>Focus</b>	Inputs/Outcomes	Activities
<b>Detail</b>	Macro	Micro
<b>Evaluation</b>	Multi-yearly	Hourly/Daily
<b>Level</b>	Individual	Large Group
<b>Participation</b>	Broad	Narrow
<b>Commitment</b>	Persuasion	Mandate
<b>Analytic Emphasis</b>	Understanding existing environment	Design new environment
<b>Work Done By</b>	Insiders	Outsiders
<b>Primary Barrier</b>	Loyalty to discipline	Fear of change

*Reference: Two Approaches to Knowledge Work Processes (Davenport 1995)*

As described by the authors in this table, there are several ways organizations can influence work processes to improve knowledge, manage cost, and benefit business



plans. Implementing systems alone to address knowledge management gaps will not provide value. Processes must also be implemented by leadership and acknowledged by employees as critical to successful knowledge management. As it will be described in the Procedure and Methodology chapter of this Field Project, it is exactly this process implementation that is the basis of the Mountainside Moonpies Technician case study.

### **People: Culture and Workforce Enablement**

The single most important asset to any organization is its people. All successful organizations recognize their workforce as the key to creating a competitive advantage. To ensure each employee is utilized as a valuable resource, companies must create a culture of knowledge that captures, transfers, and shares information. There are several factors that can influence organization success. In this section of the literature review, knowledge culture will be discussed as an important measure to organizational success as described by Stan Oliver and Kondal Reddy Kandadi in their 2006 Journal of Knowledge Management article “How to develop knowledge culture in organization? A multiple case study of large distributed organizations” (Oliver 2006).

### **10 Factors that Impact Knowledge Culture**

The first factor that impacts knowledge culture in organizations as described by Oliver and Kandadi is leadership. Positive leadership characteristics at all levels is a vital aspect for developing culture. However, implementation of tools and procedures cannot be successful from only the top down. Executives, managers, and individual contributors in project management roles must integrate knowledge management in daily practices to be effective. Organizational structure also impacts culture. Companies with structures that allow for knowledge management officers and subject matter experts (SMEs) may be more successful. In this case, employees with expertise in strategic management, process

analysis, reengineering, change management, and other knowledge development skills will represent the organization's cultural goals. Evangelization allows an organization to focus on employees' abilities to improve performance and mutually benefit the company through knowledge. This shows business units that knowledge is highly valued and creativity is therefore encouraged. Any employee may therefore become a motivational asset for knowledge growth. Another important impact to people culture is Communities of Practice (COP). The 1991 Lave and Wenger research describes COPs as "an activity system that includes individuals who are united in action and in the meaning of action has for them and for a larger collective" (Atherton 2005). This tool provides an avenue for virtual interaction and content management. When organizations identify COP activity as a daily practice, knowledge becomes an integral part of completing work tasks. Employees rely on COP for efficiency. As described in the service representative example of a cooperation dilemma, a reward system may have encouraged a culture of sharing knowledge. Organizations that use reward systems as a part of their culture encourage learning, personal contentment and peer recognition which promotes employee self actualization. To ensure quantity of knowledge culture rewards do not overshadow quality, reward systems may recognize contributions informally depending on manager judgment. However, there is also benefit in creating standard processes that make knowledge culture a part of performance reviews. Time allocation is an important factor for any concept, and knowledge culture is no exception. The amount and quality of time spent to develop culture will impact the longevity of its practice and employee knowledge habits. As mentioned in chapter 2, business processes will also impact knowledge culture. The authors state here that best practices ensure knowledge is captured when it is generated. This creates a standard mode for optimizing time to

provide vital information (COP may be used in this processes). During the hiring process, companies want to ensure potential employees have an understanding of the organizational mission and culture...including knowledge management. When this becomes a part of the recruitment technique, companies look skills that add to a culture of knowledge. An organizations infrastructure impacts knowledge culture to provide portals for common information in the form of intranets, single access gateways, and other technologies. For example, a common sign-on for all knowledge management systems provides easy access to information and employees are therefore more likely to utilize it. Finally, an organization's physical attributes will impact knowledge culture. Structural characteristics such as low dividers, space for social interaction, and commonalities for networking will encourage employees to actually talk to each other face-to-face. (Oliver 2006)

The factors that impact a culture of knowledge should be explored as potential catalysts for organizations. However, creativity is also important. Since very organization is different, employees should be recognized as valuable resources to develop a custom-made culture. Culture is created from the inside out.

### **Mountainside Moonpies American Productivity & Quality Center (APQC) Detailed Questionnaire Results**

In APQC's study, Successfully Implementing Knowledge Management, Mountainside Moonpies study participants identified significant cultural barriers that must be overcome to create a knowledge-sharing organization (APQC 2006). This journey is rarely without roadblocks. Study participants are more likely to have successfully addressed cultural issues as they have moved further through the stages of development. For example, study sponsors at Mountainside Moonpies report functional

silos to be the most significant cultural barrier, while other internal organizations with this experience may not consider it a major barrier. It is not that partner organizations have not experienced silo mentality; rather it is that they have identified means to overcome that obstacle. The following chart identifies several notable cultural barriers and how best practice internal organizations have addressed them.

<b>Cultural Barriers</b>	<b>Success Factors</b>
Functional Silos	Solicit senior leadership vision and active support
Headquarters vs. the field	Involve users during design and implementation
Language and culture differences	Accommodate learning and sharing styles as well as provide translation tools.
“Fuzzy Concept” or “Bells and Whistles” computer systems	Develop operational knowledge management tied to business needs
Perception of knowledge management as a “Bells and Whistles” computer system	Concentrate on knowledge sharing needs and behaviors; IT is an enabler.
Lack of participation	Find and capitalize on passion, provide appropriate training, and use multiple channels for communication and promotion

*Reference: Jim Harlow Interview (APQC 2006)*

### **The Bottom-Line: Measurements, Productivity, and Resources for Success**

The bottom line for organizational success is profit. Therefore, all business practices must positively influence the ability to control costs and increase revenue, including knowledge management and communication. The impact of organizations to successfully create and implement a culture of knowledge is many times difficult to individually itemize, there is surely a difference between companies who maintain this culture and those who do not. As described by Emin Civi in the Marketing Intelligence & Planning article “Knowledge Management as a Competitive asset: A Review”, knowledge is the fundamental basis of competition, and perhaps the most important factor in determining the standard of living (Civi 2000). According to Civi, there are

three fundamental reasons knowledge is critical to a competitive strategy. First, as the world economy continues to become more integrated through globalization, increased knowledge allows for leverage where otherwise there may be none. Additionally, as the share of technology industries continues to grow, organizational awareness of competitive trends provides companies with the necessary tools to respond. Finally, information technology may increase the gap between rich and poor countries, where knowledge can provide a catalyst for growth in developing countries. In these scenarios, knowledge is viewed as the ultimate commonality in a world-wide economy. As the marketplace is increasingly competitive and the rate of innovation is rising, knowledge must also evolve (Civi 2000).

In this Mountainside Moonpies case study, the Network Services cost center budget is directly related to Technician productivity.

The number one resource to develop an organized culture of knowledge management is an employee base with a plan. Developing strategic goals to build a learning organization will provide an avenue for growth in capturing, transferring, and sharing knowledge. Success is measured by an organization's ability to develop, control, and maintain this growth. Michael Marquardt in "Building the Learning Organization" provides this chapter's top ten strategies to accomplishing this goal (Marquardt 1996).

### **Knowledge Assessment and Strategic goals**

- 1) Create expectation that everyone is responsible for collecting and transferring knowledge – By providing a culture that encourages and rewards learning, employees take advantage of formal channels for increasing knowledge

- 2) Systematically capture relevant knowledge external to the organization – By “thinking-outside-the-box”, organizations may benefit from best practices, benchmarking, and innovative ideas for customer satisfaction
- 3) Organize learning events within the organization to capture and share knowledge – Employee socialization is a big part of culture, therefore, include knowledge as a cross-functional exercises
- 4) Develop creative and generative ways of thinking and learning – Leverage employee imagination to determine ways to encourage knowledge management and therefore better utilize invested resources
- 5) Encourage and reward innovations and inventions – As economic globalization rises, no market share is “safe” and organizations that produce better products based on employee input will bubble to the top
- 6) Train staff in storage and retrieval of knowledge – With the power to contain and leverage stored knowledge from all over the world, ensure employees are properly trained to utilize tools to their greatest potential
- 7) Encourage team mixing and job rotation to maximize knowledge transfer across boundaries – People transfer is the most powerful form of knowledge sharing and avenues should be available
- 8) Develop a knowledge base around the values of learning needs of the organization – Provide easily accessible, well organized information categorized by functional boundaries so employees see direct value
- 9) Create mechanisms for collecting and storing learnings – Communities of Practice (COP), blogging (categorize employee information in free-form

communication), and internet cafes (informal virtual rooms for discussing shared topics) provide platforms for continuous learning.

- 10) Transfer classroom learning to the job – Train methods focused on standardization encourage employees to take learning from instructor led courses to practice

### **Mountainside Moonpies Knowledge Management Goals and Strategies:**

Mountainside Moonpies is off to a great start, if nothing else then because the corporation has a corporate strategy organization focused on knowledge management (Harlow 2006). This business unit, led by manager Jim Harlow, strives to develop a knowledge sharing culture. This begins with knowledge goals, assessments and strategies that positively influence the uphill battle. There are three influential factors determined by Mountainside Moonpies to develop goals: people, processes, and technology. The deliverable of these goals is the following assessment offered by the Mountainside Moonpies Knowledge Management Team to determine a strategy for improving business through the use of available knowledge management tools. The following outlines the process as described by Jim Harlow and his team to encourage knowledge management in business units.

<b>Step One: In the initial assessment, business units ask these key questions to identify potential knowledge gaps</b>
Is the knowledge reaching the locations and people it should?
Is the knowledge reaching the intended destination in a timely manner?
Is the right knowledge being captured and distributed?

*Reference: All tables Jim Harlow Interview (Harlow 2006)*

Once these questions are answered, managers are tasked to identify objectives and desired outcomes, ensure business processes are taken into account, and identify desired measures of success.

<b>Step Two: Coordinate business unit knowledge management organization</b>
Identify key stakeholders and decision makers
Engage the Knowledge Management Team
Determine communication content owners and channels
Establish meeting time and location and ensure the venue has appropriate equipment

Successful implementation ensures that business units stay on task and follow-through on knowledge management requirements.

<b>Step Three: Implement Business Unit Organization</b>
Set and conduct Knowledge Assessment meeting
Communicate meeting outcome to all who have a need to know
Implement any changes identified during the meeting

A significant factor of knowledge growth in Mountainside Moonpies's culture is the ability to provide results and represent them for other business units.

<b>Step Four: Monitor and measure business unit implementation and formalize results</b>
Measure success
Conduct a formal After Action Review (AAR)



Once the knowledge management assessment is complete, the business unit is now prepared to implement the information broker group. This is a structured group of decision makers who meet regularly to coordinate outgoing communication for maximum effectiveness.

<b>Step Five: Begin communication plan</b>
Identify objectives
Identify measures of success

The communication plan is designed to hold business units accountable for time invested and next steps. Once impacted workgroups are aware of projects with a knowledge management focus, an avenue for feedback is made available. This allows for a more comprehensive design.

<b>Step Six: Begin design with impacted workgroup input</b>
Engage Knowledge Management Team
Determine communication content owners
Select coordinating facilitator(s) and secretary(s)
Establish meeting time and location
Establish general guidelines for communication

Delivery continues to focus on communication and structured team decisions.

<b>Step Seven: Deliver the design as determined by the team members</b>
Co-facilitate the kick-off meeting

Determine process launch date (business as usual until this date)
Launch (new process begins) and attend meetings regularly until it is established as an integral part of the business process

Again, as a control for all project implementation, the team must identify results and provide documentation.

<b>Step Eight: monitor and measure results</b>
Measure success
Conduct a formal After Action Review (AAR)

Finally, business units at Mountainside Moonpies will codify all knowledge management efforts by utilizing the Virtual Community of Practice (COP). This is a permission based online information repository where employees can collaborate and share knowledge in a virtual environment.

<b>Step Nine: Begin the initial assessment for creating the COP</b>
Attend a COP overview
Identify objectives
Identify measures of success

Once again, design must be determined by team members and impacted workgroups.

<b>Step Ten: Design the COP</b>
Engage the Knowledge Management Team

Outline virtual COP structure (to ensure alignment with business processes)
Identify content
Determine permission structure
Select Community Manager(s), Community Administrator, and Subject Matter Experts (SMEs)
Create a communication strategy

Development begins as a coordinated effort to provide information and fulfill ultimate knowledge requirements.

<b>Step Eleven: Develop the Community of Practice with specific information required to project management</b>
Build a virtual COP and load content
Create group memberships
Assign permission structure

Once the COP is complete and prepared for employee use, delivery ensures employees are well trained on availability, usage, and benefits.

<b>Step Twelve: Deliver with Knowledge</b>
Implement communications plan
Conduct introduction sessions
Launch the COP

Control continues to embrace the significance of this process so other business units may easily recognize benefits.

## Step Thirteen: Monitor and measure final knowledge management process completion

Measure success

Conduct a formal After Action Review (AAR)

Enterprise Workspace: CSO Facility Assignment CoP

Sonia Santos (sms6150) Monday, 12/11/2006

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Personal Enterprise Tools Help

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- Facilities Assignor Discussion Group
- UPDATES AND E&C NEWSLETTERS

Detail View

Type	Name	Size	Modified
Online Dictionary	Online Dictionary		03/10/2006 01:06 PM
FACILITY ASSIGNMENT User Group Issues	FACILITY ASSIGNMENT User Group Issues	57 KB	03/10/2006 01:07 PM
Site Feedback	Site Feedback	11 Items	03/10/2006 01:06 PM
ARC (Auto Routing & Completion)	ARC (Auto Routing & Completion)	6 Items	06/23/2006 09:31 AM
Associate IDS- Company exchanges	Associate IDS- Company exchanges	5 Items	03/10/2006 01:08 PM
CLAS	CLAS	9 Items	03/10/2006 01:06 PM
CLEC FOLDER	CLEC FOLDER	2 Items	03/10/2006 01:07 PM

*Reference: The Facility Assignment Community of Practice – Process Owner Sonia Santos (Harlow 2006)*

## The Future of Knowledge Management

Knowledge Management is critical to organization success because it provides a platform for continuous learning, repeatable processes, and competitive advantage.

Depending on an organization's ability identify knowledge as a value-added necessity, the future of knowledge management may take one of several paths. The less appealing path leads knowledge management down a road similar to the re-engineering movement.

In this case, knowledge management becomes a term for company downsizing and may

have no permanent value. In fact, it may cause increased harm when an organization uses the concept as a misunderstood gateway for cost reduction (Prusak 2001).

Employees will remember that leadership indicated “Knowledge Management” was the basis of layoffs. The better path sends knowledge management down the road of the quality movement. In this case knowledge becomes such an integral part of business, it becomes more or less invisible. Organizations recognize its ultimate value and builds on a culture of knowledge (Prusak 2001).

In this author’s opinion, the perfectly managed world of knowledge includes an office with no cubicles, physical or otherwise. Employees pick up the phone, or better yet, walk to see each other. E-mail is limited to only value-added documented communication. They truly collaborate. They share opportunities and best practices. Employees all over the world have cameras and they remember faces with ideas. Organizations invest in technology and culture that supports knowledge management. In short, not only does this practice become a fundamental basis for continuous improvement and organizational success, but it simply provides for a happier place to work...and according to Maslow’s Hierarchy of Needs, happy employees are productive employees.

### **Chapter 3 – Procedure and Methodology**

Knowledge management is a broad topic with plenty of opportunities for extensive research. This case study focused on the installation and repair technician workgroup within the Mountainside Moonpies Corporation, their supervisors, and increasing productivity by communicating knowledge. By limiting academic research to topics related to the telecom industry and Mountainside Moonpies team and project work, knowledge management, communication, and productivity research procedures and methodologies were more specific. Procedures and methods utilized to gather, reduce and analyze data for this field project are outlined in this chapter by resource, and then category.

The first resource for gathering support material included academic research using the University of Kansas library database. This information was categorized into knowledge management, communication, productivity, and organizational learning behaviors. The first category for gathering research material included knowledge management. Knowledge management material provided insight into definitions, application, and rebuttals for support for counter arguments. For example, one feasible counter argument assumes that knowledge management is only important in certain industries, such as Telecom. By identifying other case studies and referencing material previously cited, this is disproved. Knowledge management is a consideration for any industry. Another feasible counter argument may state that the hiring process, training, and mentoring employees are enough to ensure knowledge management works for your organization. Although these activities significantly impact the ability for employees to learn and retain knowledge, it does not address what happens after the employee leaves the company.

The second category of material gathered during the KU research process included high-level support material related to communication. Books and articles frequently discussed the direct impact communication has on an organization's ability to get the right information to employees. In this category, another reasonable counter argument addressed in the field project assumes that because employees learn differently, there is no guarantee that any one strategy will impact productivity. Communication is the fundamental commonality of any strategy adopted by an organization. Therefore, communication support material outlined in this field project addresses that concern.

The third category of gathering support material focused on productivity. There are many factors that impact an organization's employee productivity, several of which were addressed in the literature review. Throughout this gathering process, the counter argument to address assumes that productivity cannot be effectively and accurately measured in a way that shows direct impact to the bottom-line, especially as it relates to knowledge management. Academic research outlined in the literature review suggests that productivity surely has a direct impact on the bottom-line. The goal of this field project is to directly correlate this fact to communicating knowledge. The results chapter will show examples of this direct correlation.

The final category of gathering research focused on organizational learning behaviors. This is addressed in the people culture section of the literature review. Culture has a considerable impact on how an organization communicates information to employees, how it is received, and most importantly how it is applied. Research suggests that the "human factor" of productivity relies on efficiently and effectively managing knowledge.

The second resource for gathering research material for this field project included American Productivity and Quality Center (APQC) case study, industry benchmarks, and best practice material. This information provided a wealth of information related to how knowledge management is utilized in other industries. It also addresses how consulting firms, such as Accenture which supported Mountainside Moonpies's knowledge management approaches, develop standard roadmaps for applying the theories suggested in the literature review. Several suggested tools, processes, and methodologies support the goal of increasing productivity by focusing on the human factor and effectively managing valuable knowledge in any organization.

The third resource, which provides the direct contribution of gathering support material for this field project, included leading the National operations support staff in applying academic and best practice research suggestions and developing the technician case study. This material is organized in 7 distinct categories for direct contribution to the field project. The results chapter of this field project will focus on this direct contribution. The first is the Network Services communication improvement team. Leading this team consisted of bi-weekly sessions with 38 technician supervisors representing each Regional district, National Staff operations representation, Human Resources, and executive support. This team was utilized to identify issues, propose solutions, and implement a plan for action to improve the way National Staff and Regional District Teams communicate at the Technician level. The focus was mainly on Installation and Repair, with the intention to expand to all workgroups once a repeatable solution was established the project charter stated that "the ideal goal is to execute a repeatable solution for Regional communications across all workgroups".



The second category of direct contribution included leading Network Services in productivity improvement team efforts. The focus on this team was Good Jobs in Eight (GJI8). This is the industry standard measure of productivity for the installation and repair technicians used by Mountainside Moonpies. GJI8 is defined as a reliable, easy to understand barometer of overall technician productivity. It is important because productivity measurement is fundamental to business management and operating improvement as it relates to improved quality and productivity drives customer satisfaction. The productivity improvement team focused on expected drivers to create organizational focus on productivity and all contributing factors, promote quality by rewarding teams for reducing rework, promote teamwork and team based productivity improvements, and de-emphasizes task clearing time as a primary measure of productivity. This is done by using GJI8 as a “scorecard” that tells ‘how much work is getting done’ at all levels in the organization. It is also considered most effective as a measure of group-level performance over time and less effective for measuring individual performance, especially over short time frames, or when job circumstances create obvious exceptions. It is not used to the exclusion of other performance factors when considering individual performance or used to set individual technician objectives. The actual calculation of the measurement includes the following formula: ‘Good Jobs’ for a period divided by ‘productive’ 8 hour days where  $\text{Good Jobs} = \frac{\text{All completed tasks, less re-work tasks}}{\text{Productive 8 Hour Days}}$  where  $\text{Productive 8 Hour Days} = \text{productive installation and repair hours charged converted to equivalent days}$ . This calculation is the measurement impacted by the Network Services communication and productivity improvement teams. The following diagram outlines how these 2 teams worked together to focus on the “human factor” of increasing GJI8 as a measure of productivity:



This team focused on increasing GJI8 to a National average to reduce costs by \$15 million in 2008. All 2007 regional and district targets were based on year-end 2006 GJI8 results. That decision was based on the wide variation of GJI8 results between regions and districts. It recognizes the different mix of technician classes and other local geographical and organizational impacts that contribute to the legitimate differences among the districts. The targets set were generally 9% above the previous year-end results. They also represented results that had already been achieved in 2005. The only global expectation was setting GJI8 minimum target of 3.3. The \$15 million savings was based on achieving these set objectives. The bottom-line is that by completing more

tasks in a day without re-work, this improves productivity, customer services, and reduces the need for contractor and overtime labor.

The third category in the research gathering process was an executive interview. This direct contribution supported the claim that increasing productivity by focusing on communicating knowledge is a legitimate concern to improving the bottom-line. The verbatim interview results of Dana Chase, Vice President of network Services Field Operations are outlined in the results chapter of this field project.

The fourth category of gathering research material included a technician supervisor baseline survey for communications improvement. The survey polled technician supervisors to help identify future opportunities for project focus. This was based on a presentation and feedback forum lead by the Network Services Senior Vice President and support staff. The results of this survey are outlined in the next chapter. The final 3 categories of support material focused on the deliverables of this field project which include operational documentation improvement, the technician supervisor web portal on the new intranet site, and tools and processes developed for the Technician Supervisors Meeting-in-a-Box. In order to reduce the research material gathered, the focus maintained on front-line communication, the telecom industry as a case study, installation and repair technicians, technician supervisor delivery and enablement, and GJI8 as a measure of productivity. Analyzing this data focused on looking for direct correlations of knowledge management, communication and productivity, best practices as outlined by APQC, and GJI8 district team statistic, reports, budget, interview, and survey results.

## **Chapter 4 – Results**

The resulting deliverable of this project is the Technician Supervisor Meeting-in-a-box (MIB). MIB is an online pre-packaged communication tool for Technician Supervisors to deliver monthly to their teams. There are also several support processes and deliverables that enable this tool to be a successful application of communicating knowledge to front-line employees for productivity improvement. The results chapter of this field project will review each one.

The first is level of results that support the field project includes the executive interview. This goal of this interview was to describe first-hand the need of this project (Dana Chase 11/09/07).

#### The Telecom Industry

- 1) What special knowledge management needs does the telecom industry possess?

It requires historical information, including customer data. It is therefore not as transactional. It must be organized by service, and then maintained with every change. I have to maintain a customer base, plus keep up with new technology. It requires a good balance. The systems and processes utilized today were never originally intended to deal with multiple products.

#### Knowledge: The Definition and History of Learning

- 2) How does your team identify the most effective way which people learn?

The training comes in and delivers the material, but we learn more from each other. Job shadowing and job swaps help. It can be very informal. However, the culture of the organization must allow for this.

- 3) Does your team have a specific approach to training?

Ideally it would look a lot different, although both formal and informal training happen today. The culture supports this.

#### Communication: Overcoming Roadblocks

- 4) What are the most common issues your team faces when trying to effectively communicate?

Internal issues...we must do this right first in order to get communication with the customer right. Geography and top-down communication also has challenges. It may get to the executive level, but it does not engage 2-way communication with the front-line employees for questions, concerns, and exceptions. It is not coming back up.

#### The Workforce: Identifying the Need

- 5) Please describe your workforce.

Teams represent about 20 – 30 employees whom all report to one supervisor. They are traditionally organized by customer need to encourage a standardized focus.

#### Productivity: Impacting the Bottom-Line

- 6) How is knowledge a competitive asset in your organization?

Knowledge is definitely a competitive asset, especially in strategic products. We do things quickly, so knowledge reduces repeats and dispatches (rolling a truck to a customer). It also differentiates the customer experience from others. Also, you know the difference

between products in our span of control. Knowledge on core products reduces churn.

7) What measures of productivity do you use?

Quality is the number one measure. The perception however may be a focus on quantity instead of quality. Customer satisfaction, handle time, repeat calls, and dispatches all weigh on quality. The important thing is we must make a decision. This will show how focusing on one metric will impact others, and then appropriate adjustment may be made.

8) Do you have a method for measuring successful communication?

Not formally, it's more adhoc. However, message boards and website counts are used for measuring. Focus groups and field visits are also used.

9) Does your team have the ability to tie monetary benefit (productivity) to successful communication?

It is difficult to pinpoint this impact. We use a total view. We may not be able to focus on one metric without impacting others. We do however utilize business improvement teams, and on-site programs for sharing knowledge. Success is measures in feedback.

The results of this interview show the importance of identifying standard ways to capture knowledge, share it, and measure its direct impact.

The Mountainside Moonpies Network Services Communication and Productivity Improvement Teams provided the next level of supporting results. The goal of this team was to address communication issues that were negatively impacting productivity. Most

of the front-line field communications issues as outlined below stemmed from an overload of information that may or may not be relevant to technician workgroups. The following issues were documented from Technician and Supervisor feedback via focus groups.

Techs	Tech Supervisors
<ul style="list-style-type: none"> <li>➤ There is a perception that techs do not get enough of the information they need.</li> <li>➤ Many important process changes were coming in 2007, which likely increased the load of information.</li> <li>➤ Dependent on supervisors, who may or may not be proficient at communications.</li> <li>➤ May only get information one time, in one way.</li> <li>➤ Minimal current tracking to ensure supervisors communicate with techs, or that they communicate in a quality way.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Supervisors perceived an overload of information / communications – they felt somewhat bombarded with information.               <ul style="list-style-type: none"> <li>- Information may be important, but it was difficult for them to sift out the important from the nonessential</li> <li>- They did not always understand the relevance or impact on their team</li> <li>- They did not always read / use because it was too long and detailed</li> </ul> </li> <li>➤ Many important process changes were coming in 2007, which would likely increase the load of information</li> <li>➤ Communications in general were given a high priority in the regions, but some supervisors were better communicators than others and most are very pressed for time. The core issues were not easy to fix.               <ul style="list-style-type: none"> <li>- Time pressures and competing priorities were a primary driver for many poor communications issues</li> <li>- They were encouraged to limit administrative time and get out of the office</li> </ul> </li> <li>➤ Logistically, it was hard for some/many supervisors to get information to all of their reports, which further complicates communications.               <ul style="list-style-type: none"> <li>- Supervisors often were responsible for more than one type of tech; they also supervised techs in multiple, widely scattered locations.</li> </ul> </li> <li>➤ Clarity was needed to help supervisors know what the top priorities were.               <ul style="list-style-type: none"> <li>- If clarity was addressed, they then considered identifying and tracking metrics to see if they were following through on priorities.</li> </ul> </li> </ul>

Once the key communication issues were identified, the work team identified a number of ways that can help address the field communications issues. Solutions focused more on the supervisors because there appeared to be more opportunity for substantive

improvements by helping supervisors communicate more effectively. Therefore, the top 4 areas to improve communications included a supervisor web portal, operational documentation improvement, executive direct dialogue, and pre-packaged communications.

Communication Initiative	Method of Delivery
<ul style="list-style-type: none"> <li>➤ Operational Documentation               <ul style="list-style-type: none"> <li>– Team to Review all Job Aids and Methods &amp; Procedures</li> <li>– Restructure of staff to have a filter of content</li> <li>– New format to hit high points of process, then details</li> <li>– Agreement of “most important” to make list</li> <li>– Ability to still view other M&amp;P and Job Aids</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>➤ Standardize the writing and distribution process to include all Network Services workgroups</li> <li>➤ Distribution: organized by functional workgroup (special circuits, cable, installation and repair, central office, and business)</li> <li>➤ Update distribution e-mail template to easily recognize changes</li> <li>➤ “Executive Summary” in the distributed e-mail template</li> </ul>
<ul style="list-style-type: none"> <li>➤ The New Supervisor Web Portal               <ul style="list-style-type: none"> <li>– Login Authentication</li> <li>– Filter content based on Login</li> <li>– Allow Customization</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>➤ Installation and repair supervisor web portal via the Mountainside Moonpies intranet</li> </ul>
<ul style="list-style-type: none"> <li>➤ Executive Direct Dialogue               <ul style="list-style-type: none"> <li>– Senior Vice President communication efforts</li> <li>– Open forum for questions</li> <li>– Follow-up surveys</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>➤ Conference call and virtual classroom</li> <li>➤ Presentation material</li> <li>➤ Pre-submitted questions</li> </ul>
<ul style="list-style-type: none"> <li>➤ Develop “Meeting in a Box” (MIB)               <ul style="list-style-type: none"> <li>– Safety and Inspection</li> <li>– Key Service Metrics and Productivity</li> <li>– Techs ROCK! (Sales Program)</li> <li>– Operational Documentation &amp; Training</li> <li>– Products and Services</li> <li>– Supervisor Talking Points</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>➤ National Level Communication</li> <li>➤ Monthly Intervals, with Special Quarterly Packages</li> <li>➤ Downloadable and Track-able</li> <li>➤ Organized by functional workgroup special circuits, cable, installation and repair, central office, and business)</li> </ul>

The first solution focused on operational documentation, which standardized the way National Staff authors sent information to the district teams for job aids, methods and procedures, and system bulletins. It was determined that documentation must be



organized by job type instead of geographic locations. Also, a restructure of staff allowed for a filter of content, which provided a quality check. Finally, a new document format hit high points of processes, and then details based on an agreement of “most important” to “nice to know”.

Secondly, the new supervisor web portal provided a central repository for support resources. It was structured so material had to be downloaded, therefore providing the ability to track the delivery of the content. This enforced accountability. The new portal also allowed for filter content based on login and individual customization for viewing.

Welcome EMBARQ Supervisors		
<b>1 - Technician Productivity</b>	<b>Meeting in a Box Updates!</b>	<b>10 - Work Force Management</b>
GJ18 - Good Jobs in 8 Reports Individual Perf Excellence Plan (IPEP) JPD - Jobs Per Day Reports Leadership Quality Webpage Tech Results Report Log-in	<b>6 - Key Methods &amp; Procedures</b>	End of Day (EOD) (M&P) Labor Codes Load Plus Loading & Access to WFM/LoadPlus (M&P) Pay Codes Proper Use of Referral Codes (M&P) VR1 Request WFM Employee Request WFM Morning Load Summary - MAO WFM Morning Load Summary - NCO WFM Morning Load Summary - SO WFM Morning Load Summary - WO WFM Morning Load Trending Reports
<b>2 - Quality Craftsmanship</b>	Audit Action Plan Meeting Standards Chronic Trouble Reduction Policy (M&P) Chronic Troubles Web Site Completion Testing (M&P) Customer Contact (All Service Types) (M&P) Customer Owned Premise Wiring (M&P) NA & NTF Job Aid National Resource Library (all M&P) No Access Field Visit Repair (M&P) No Access Field Visit Service Order (M&P) Non-Reg Billing (M&P) Non-Regulated Billing Results Level 1 Rehab (M&P) Preventive Maintenance Plan (M&P)	<b>11 - Materials Management</b>
<b>3 - Irregular Plant Conditions</b>	<b>7 - High Speed Internet (HSI)</b>	PeopleSoft TONES
Completion Testing Reports Conducting Q & S Inspections (M&P) MapQuest Multi-Step Route Builder Quality & Safety Inspection Checklist Quality & Safety Inspection Web Site Shield Bond Connector Install (M&P)	ADSL - Supply List D.A.T.A Check Server HSI Tech Tips National Resource Library HSI Documents	<b>12 - Human Resources / Staffing</b>
<b>4 - Key Service Measures</b>		Discipline Templates Exit Interview New Hire & Transfer Checklist OSP Technician Skill Assessment Report
Irregular Plant Condition (M&P) Irregular Plant Condition Web Site Top 10 List Work Center Poster		
Decision Support Operational Results Summary Labor Reports		

Executive direct dialogue provided a review of results specific to technicians and their supervisors. Quarterly conference calls for technicians answered questions, addressed feedback, and provided a consistent message direct from the Senior Vice

President to the field. This communication forum also reiterated the importance providing a platform for the field to hear directly from their leadership.

Finally, the Meeting-in-a-Box (MIB) delivered a pre-packaged communications solution for technician supervisors to consistently provided productivity impacting material to their teams once a month. It was determined by the Network Services Communications Improvement Team that information was not universally passed to all employees by all supervisors. Many times, certain supervisors only informed their respective teams of information they themselves believed was important to them, and thus did not inform technicians of all productivity impacting changes. Additionally, some supervisors may not inform technicians of important information in a timely manner. These types of inadequacies occurred daily. The MIB provided a standard solution to these issues. Each category, designed by the Technician Communications team, addressed the most significant impacts to productivity and the bottom-line.



Material downloading was tracked based on web portal login to ensure supervisor accountability. It was also updated on a monthly basis. New material was approved by

National Staff and the Technician Communications team. Old material was placed in archives.

### Meeting in a Box Archive

Return to MIB Window			
<b>Documentation &amp; Training</b>		<b>Safety &amp; Inspections</b>	
Results Ownership	8-Feb-2008	Safe Operation of Vehicles Part 3	9-Jan-2008
NGD - The Technician Experience	9-Jan-2008	Accident Avoidance Techniques Part 2	26-Dec-2007
Training and Process Updates	9-Jan-2008	Defensive Driving Part 1	26-Sep-2007
Technician Connectivity Options	26-Dec-2007	NS Electrical Safety for OSP	28-Aug-2007
PCOP Strategy for Technicians	26-Dec-2007	Pole Safety	25-Jul-2007
HSI Tech Tips - ADSL Cheat Sheets	26-Dec-2007	Vehicle Inspection Checklist	25-Jun-2007
EMBARQ Portal and E-mail Migration	26-Dec-2007	Vehicle Safety Inspection Overview	18-Jun-2007
Dynamic Dispatch	26-Dec-2007		
HSI Tech Tips	26-Sep-2007	<b>Talking Points</b>	
PTO Scheduler	26-Sep-2007	Dec Supervisor Talking Points	9-Jan-2008
DATA Check HST Poster	25-Jul-2007	Nov Supervisor Talking Points	26-Dec-2007
WFM Process Flow for IPCs	25-Jul-2007	Oct Supervisor Talking Points	26-Sep-2007
The IPC Process	25-Jul-2007	Tech Supervisor Talking Points Sept 07	28-Aug-2007
Mgmt Guide to Customer Contact	18-Jun-2007	Talking Points	25-Jul-2007
Calling All Customers	18-Jun-2007	Tech Supervisor Talking Points July 07	25-Jun-2007
<b>KSM &amp; Productivity</b>		<b>Techs ROCK!</b>	
Good Jobs in Eight 2008 Overview	9-Jan-2008	Technician Newsletter	9-Jan-2008
Supv Talking Points - Follow Safety Procedures	9-Nov-2007	Technician Newsletter	26-Dec-2007
Tech Handout - Follow Safety Procedures	11-Nov-2007	SBHB ROCK Product Offers	26-Sep-2007
Oct Handout Work Together	26-Sep-2007	Technician Newsletter	26-Sep-2007
Oct Supv Talking Points Work Together	26-Sep-2007	Tech Business Cards	29-Aug-2007
Its Just Common Sense	28-Aug-2007	ROCK Newsletter Sept 07	28-Aug-2007
Tech Handout The Code of Conduct	28-Aug-2007	Chairman's Club 2007	25-Jul-2007
Keep Accurate Records-Tech Supv	25-Jul-2007	ROCK Newsletter August 07	25-Jul-2007
Keep Accurate Records-I&R Techs	25-Jul-2007	Roamin' with ROCK!	18-Jun-2007
Working Efficiently & Effectively	18-Jun-2007		

Supervisors were notified via targeted e-mail distribution lists of all MIB updates.

Once all solutions were implemented at the National level, surveys were sent to Technician Supervisors to measure success and opportunities for improvement. The first survey addressed the executive direct dialogue series. The results of the survey showed strong support of the executive direct dialogue communication efforts implemented by the team (see Appendix for survey results).

## **Chapter 5 – Suggestions for Additional Work**

The productivity team identified several alternative solutions for improving productivity by communication knowledge to front-line technicians. They were however outside the scope of this field project and its proposed solutions. In addition to addressing communication issues, it was important for the productivity team to address significant issues in the technician supervisor workgroup. 5 root causes of decreased productivity were identified by the team: lack of accountability, deficiency in performance coaching, behaviors and unwritten rules of the culture, lack of prioritization of expectations, and lack of organizational alignment with metrics and rewards. Each of these subjects should be considered for extensive research of this topic. Other areas of focus for continued research include change management impacts, other measures of productivity, and reporting and tools for sharing knowledge. Additionally, other industry and workgroup impacts could be reviewed. For example, this case study could be applied to another industry, such as retail, to prove it works. Accountability, training and skill development for supervisor communication delivery are also important areas that required additional research for a better of understand of how to ensure successful delivery of the tools reviewed in this field project. Finally, a case study comparison for workgroups using the tools and processes described in this field project and those without could show significant the results of productivity and the bottom-line.

## **Conclusion Summary**

The final deliverable of this field project is a “How-To” guide for addressing pitfalls in communication and knowledge management. This guide is a result of academic research support, Mountainside Moonpies team activities, and personal experience. It encompasses factors such as job type, geography, skill, equipment and time. Its purpose is to enable greater efficiency, better customer service, and an improved bottom-line.

### **The “How-To” Guide for Communicating Knowledge**

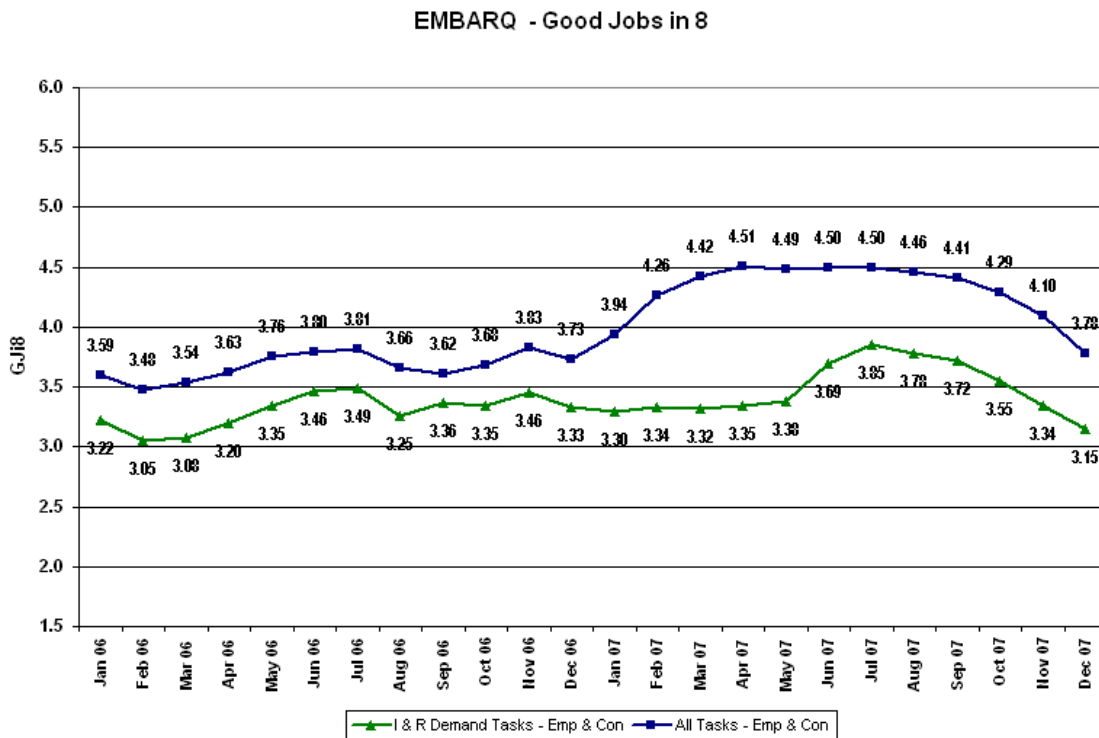
- Timing is everything. If information is communicated too soon, this may cause the “yawn effect.” Employees may be bored because they cannot immediately apply the information provided. If communication is too late, hence all the appropriate decisions are already made without front-line consideration, employees may have already addressed issues in their own non-standard solutions.
- Get the right information to the right place at the right time. Identify what truly impacts the front-line employee. Be considerate of the audience.
- Get buy-in. Allow for, or provide the perception, of customization availability. Be flexible, or employees will push back when they feel they had nothing to do with proposed solutions they must implement.
- Lead the team to enablement. Show that the information provided helps them to help themselves and others.
- Drop the fluff. Shoot straight, be transparent, and authentic.

- Manage internal sensitivity by communicating often in unique ways. Utilize the 7/7 rule: Tell them 7 times in 7 ways.
- Factor in the change. Knowledge changes frequently, so it is important to account for the curve.
- Embrace diversity of thought. Do not assume that everyone learns the same way or understands the same things.
- Tell a story. People do not always remember facts and figures, but they internalize an experience.
- Ask your customer. Do not go off individual experience alone. Utilize subject matter expert input to make decisions about how to communicate.
- Utilize a central repository. Everything should be in one place, but can be sent out (or in) in various conduits in a many ways.
- Communicate the impact of an individual's knowledge. Let employees know that their knowledge helps the organization because of specific reasons. There should be no consequences to sharing knowledge, and if there are, they should be promptly removed. Do not disable the incentive to share. It should instead be rewarded.
- Leave a subject matter expert in every facet of the organization. Do not leave a void. When knowledge is shared, leave a physical local presence.

The benefits of these results are tremendous, including less material organization and communications time for field leads, productivity impacting quality information as delivered faster, better, more consistently, and it encouraged a more engaged field force. Improved process compliance led to less rework and improved use of supervisor time for focusing on quality and technician performance. Consistent communication approach

was applied across the entire staff organization, better utilizing national resources. This also allowed easier identification of gaps in messages/materials, and information only went to those with a need to know or those who were required to take action.

Communication improvement was evident based on workgroup feedback and survey results. However, the productivity measurement of Good Jobs in Eight (GJI8) is the ultimate measure of success. This field project was intended to positively impact GJI8 in 2008. Final metrics were not available for documentation in this field project; however increases were accounted for 2007. Although this increase may have been impacted by a variety of other influences including load and seasonality, communication improvement activities are also considered as an influence.


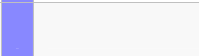





## Appendix

### Survey Results

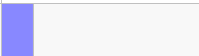

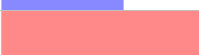
**Valuable info:** The June 26 Supervisor's conference call provided valuable information needed by Network Services Field Supervisors.

(Respondents could only choose a **single** response)


Response	Chart	Frequency	Count
Very Strongly Disagree		0.0%	0
Strongly Disagree		1.5%	1
Somewhat Disagree		4.4%	3
Neutral		4.4%	3
Somewhat Agree		22.1%	15
<b>Strongly Agree</b>		<b>47.1%</b>	<b>32</b>
Very Strongly Agree		20.6%	14
	Mean		5.706
	Standard Deviation		1.080
	Valid Responses		68
	Total Responses		68

**Santos:** The information provided by Sonia Santos was informative and helps me better understand the Meeting in a Box process.

(Respondents could only choose a **single** response)


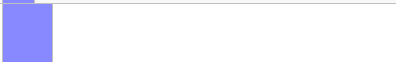


Response	Chart	Frequency	Count
Very Strongly Disagree		0.0%	0
Strongly Disagree		0.0%	0
Somewhat Disagree		2.9%	2
Neutral		5.9%	4
Somewhat Agree		29.4%	20
<b>Strongly Agree</b>		<b>51.5%</b>	<b>35</b>



Very Strongly Agree		10.3%	7
		Mean	5.603
		Standard Deviation	0.866
		Valid Responses	68
		Total Responses	68

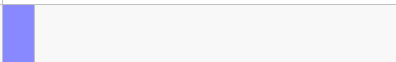

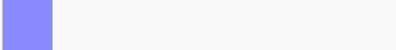
**Jim Hansen:** The discussion led by Jim Hansen helped me better understand the business, our current challenges, and the compelling reasons we need to change.




(Respondents could only choose a **single** response)

Response	Chart	Frequency	Count
Very Strongly Disagree		1.5%	1
Strongly Disagree		0.0%	0
Somewhat Disagree		0.0%	0
Neutral		5.9%	4
Somewhat Agree		10.3%	7
<b>Strongly Agree</b>		<b>55.9%</b>	<b>38</b>
Very Strongly Agree		26.5%	18
		Mean	5.971
		Standard Deviation	0.992
		Valid Responses	68
		Total Responses	68

**Change management:** The change management segment led by Maureen Rank provided practical information and gave me a better idea of what is expected of me as a supervisor.

(Respondents could only choose a **single** response)

Response	Chart	Frequency	Count
Very Strongly Disagree		0.0%	0
Strongly Disagree		4.4%	3
Somewhat Disagree		13.2%	9
Neutral		8.8%	6

Somewhat Agree		27.9%	19
<b>Strongly Agree</b>		<b>33.8%</b>	<b>23</b>
Very Strongly Agree		11.8%	8
		Mean	5.088
		Standard Deviation	1.358
		<b>Valid Responses</b>	<b>68</b>
		<b>Total Responses</b>	<b>68</b>

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- What cost benefits can be realized as a result of successful knowledge management, and how is success determined?
- How is the “human factor” measured as related to adult learning?
- What common tools or templates are used and what is deemed most successful in the industry?
- How does the knowledge management challenge differ in the telecom industry from others?
- How does Mountainside Moonpies define best practices?
- What employee skills are required to develop and deliver knowledge management solutions?
- What is the best / worst case scenario for knowledge management in telecom organizations? Where does Mountainside Moonpies stand?

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(B) “Interstate Rate of Return Summary” *Trends in Telephone Service* (February 2007) [On-line] Wireline Competition Bureau Statistical Reports Internet site at: [www.fcc.gov/wcb/iatd/trends.html](http://www.fcc.gov/wcb/iatd/trends.html) . Industry Analysis and Technology Division Wireline Competition Bureau: Washington, DC. Accessed 12 February 2008.

(C) “Monthly Personal Consumption Expenditures for Telephone Service per Household” *Trends in Telephone Service* (February 2007) [On-line] Wireline Competition Bureau Statistical Reports Internet site at: [www.fcc.gov/wcb/iatd/trends.html](http://www.fcc.gov/wcb/iatd/trends.html) . Industry Analysis and Technology Division Wireline Competition Bureau: Washington, DC. Accessed 12 February 2008.

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(E and F) The Open Standards Benchmarking Collaborative<sup>SM</sup> (OSBC) Database Knowledge Management. APQC 123 Post Oak Lane, Third Floor, Houston, TX 77024 800-776-9676 • +01-713-681-4020 • [www.apqc.org](http://www.apqc.org)