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Guidebook to Creating a Collaborative Environment Between Airport Operations and Maintenance

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ACRP

REPORT 92

AIRPORT COOPERATIVE RESEARCH PROGRAM

Sponsored by the Federal Aviation Administration

Guidebook to Creating a Collaborative Environment Between Airport Operations and Maintenance

TRANSPORTATION RESEARCH BOARD
OF THE NATIONAL ACADEMIES

AIRPORT COOPERATIVE RESEARCH PROGRAM

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AIRPORT COOPERATIVE RESEARCH PROGRAM

Airports are vital national resources. They serve a key role in transportation of people and goods and in regional, national, and international commerce. They are where the nation's aviation system connects with other modes of transportation and where federal responsibility for managing and regulating air traffic operations intersects with the role of state and local governments that own and operate most airports. Research is necessary to solve common operating problems, to adapt appropriate new technologies from other industries, and to introduce innovations into the airport industry. The Airport Cooperative Research Program (ACRP) serves as one of the principal means by which the airport industry can develop innovative near-term solutions to meet demands placed on it.

The need for ACRP was identified in *TRB Special Report 272: Airport Research Needs: Cooperative Solutions* in 2003, based on a study sponsored by the Federal Aviation Administration (FAA). The ACRP carries out applied research on problems that are shared by airport operating agencies and are not being adequately addressed by existing federal research programs. It is modeled after the successful National Cooperative Highway Research Program and Transit Cooperative Research Program. The ACRP undertakes research and other technical activities in a variety of airport subject areas, including design, construction, maintenance, operations, safety, security, policy, planning, human resources, and administration. The ACRP provides a forum where airport operators can cooperatively address common operational problems.

The ACRP was authorized in December 2003 as part of the Vision 100-Century of Aviation Reauthorization Act. The primary participants in the ACRP are (1) an independent governing board, the ACRP Oversight Committee (AOC), appointed by the Secretary of the U.S. Department of Transportation with representation from airport operating agencies, other stakeholders, and relevant industry organizations such as the Airports Council International-North America (ACI-NA), the American Association of Airport Executives (AAAE), the National Association of State Aviation Officials (NASAO), Airlines for America (A4A), and the Airport Consultants Council (ACC) as vital links to the airport community; (2) the TRB as program manager and secretariat for the governing board; and (3) the FAA as program sponsor. In October 2005, the FAA executed a contract with the National Academies formally initiating the program.

The ACRP benefits from the cooperation and participation of airport professionals, air carriers, shippers, state and local government officials, equipment and service suppliers, other airport users, and research organizations. Each of these participants has different interests and responsibilities, and each is an integral part of this cooperative research effort.

Research problem statements for the ACRP are solicited periodically but may be submitted to the TRB by anyone at any time. It is the responsibility of the AOC to formulate the research program by identifying the highest priority projects and defining funding levels and expected products.

Once selected, each ACRP project is assigned to an expert panel, appointed by the TRB. Panels include experienced practitioners and research specialists; heavy emphasis is placed on including airport professionals, the intended users of the research products. The panels prepare project statements (requests for proposals), select contractors, and provide technical guidance and counsel throughout the life of the project. The process for developing research problem statements and selecting research agencies has been used by TRB in managing cooperative research programs since 1962. As in other TRB activities, ACRP project panels serve voluntarily without compensation.

Primary emphasis is placed on disseminating ACRP results to the intended end-users of the research: airport operating agencies, service providers, and suppliers. The ACRP produces a series of research reports for use by airport operators, local agencies, the FAA, and other interested parties, and industry associations may arrange for workshops, training aids, field visits, and other activities to ensure that results are implemented by airport-industry practitioners.

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FOREWORD

By Marci A. Greenberger
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ACRP Report 92: Guidebook to Creating a Collaborative Environment Between Airport Operations and Maintenance provides tools and strategies that can be used to increase and improve collaboration between operations and maintenance staffs at airports. The tools include exercises, case studies, and other resources. The report also provides methods to identify warning signs of collaboration issues between operations and maintenance staffs.

This guidebook will be useful to front-line supervisors, managers, or senior leaders who wish to increase or improve collaboration between operations and maintenance departments. The tools and strategies are applicable to be applied with other departments as well.

The safe operation of an airport relies on the professionalism and coordination of many airport personnel, but none so much so as the individuals in the operations and maintenance departments. They must rely on each other to ensure a safe, secure, and efficient operation, yet they don't always have a good understanding of each other's responsibilities which can lead to strained working relationships.

FAR Part 139 dictates many priorities at an airport, but it doesn't begin to address the many other issues and demands place on both departments nor the priorities of either. There are many factors that can influence these relationships and Amadeus Consulting Group, through ACRP Project 10-11, researched these various factors and identified strategies to address them.

Before any strategy can be implemented, it's important to identify the warning signs and the root causes of the problems observed. *ACRP Report 92* indicates possible root causes for the warning signs and suggests appropriate strategies to be implemented. To help airport personnel identify the root causes, users are guided through a current state assessment to survey employees. It's not necessary to use the assessment to employ the strategies, but it's another tool that's provided.

CONTENTS

Note: Many of the photographs, figures, and tables in this report have been converted from color to grayscale for printing. The electronic version of the report (posted on the Web at www.trb.org) retains the color versions.

PART 1

Collaboration

Introduction to the Guidebook

The issue of collaboration in the workplace is a universal subject whose understanding is essential to the effectiveness of departments within every industry. Because today's airports are operating 24/7, the importance of organizational collaboration is considerably heightened. The operations and maintenance divisions must execute tasks around the clock, and because each task has a direct impact on the processes of the other department, it is imperative that the members of each team are able to effectively work together towards common goals.

This guidebook was created to address the following problem statement: Why does there seem to be less collaboration between operations and maintenance in comparison to other departments and divisions within airport organizations?

Operations and maintenance divisions have many overlapping responsibilities, requiring their team members from varying age groups, cultural backgrounds, and education/experience to work closely together on a daily basis. The world of work is changing, and airports are facing many challenges and opportunities during this change. The command and control hierarchical airport structure is giving way to new innovative and flexible work structures. Airport organizational structures are flatter, challenging traditional people development models that rely primarily on upward progression. The younger airport generation brings different attitudes to work while older workers are staying in the workforce, perhaps later in life than ever before. This array of economic, demographic, and aspirational trends is playing out in unique ways across airports and businesses globally.

Layout and Content of this Guidebook

Part 1 of the guidebook includes an introduction to and summary of the research findings that formed the basis of the collaboration toolbox. These include key factors in establishing and maintaining collaboration as well as impacts and influences on collaboration. Part 2 of the guidebook presents how to use the collaboration toolbox, how to assess the current state of collaboration at your airport, and finally individual chapters that describe the warning signs, possible causes, and strategies to foster collaboration that make up the meat of this guidebook. The toolbox is designed to be a practical resource that supervisors and employees alike can leverage to identify barriers to collaboration, affect the course corrections needed, and then move forward with a more efficient and effective work environment. The final chapter in Part 2 provides insight on the relationship between operations, maintenance, and engineering.

Finally, the appendices at the end of the guidebook contain a range of tools, worksheets, and other exercises that can be leveraged as part of a holistic strategy to improve collaboration between operations and maintenance.

Applicable Context for this Guidebook

In many respects airports are unique unto themselves. Besides the obvious differences of size (large, medium, small, etc.), funding sources and capacity, governance, labor make-up, geography, statutory constraints, etc., the personalities and capabilities of staff at any particular airport makes it extremely difficult to generalize the characteristics that might be applicable to all or most airports.

This is important because problems and solutions associated with interdepartmental conflict may be associated with the size and complexity of an airport. So, for example, at a small hub or general aviation airport, lack of training, inadequate staffing, or personality conflicts may be prime drivers of conflict. At a large hub airport, lack of communications among and between shifts, politics, or misunderstanding of the unit's mission and priorities may be significant causes. While a technological solution such as an automated work order or wireless request system may be a potential solution at Chicago O'Hare International Airport, an entirely different approach may be appropriate at a smaller airport like Gulfport-Biloxi, Colorado Springs, or Blue Grass Airport.

The creation of this guidebook was supported by research from an extensive literature review along with six case studies, five focus groups, and online surveys and individual interviews representing input from over 70 airports of varying sizes, governance structures, geography, weather conditions, and funding constraints. While many warning signs, possible causes, and collaborative techniques can be universally applied, this guidebook and toolbox will also provide demographic-specific considerations when relevant.

Intended Audience for the Guidebook

The guidebook is a dynamic tool for all levels of airport employees, providing a basis on which to identify existing issues in order to initiate and carry out a successful program for fostering collaboration. The intended audience includes airport staff at any level in their organizational hierarchy, both junior and senior. Focus group findings revealed that in some cases executive and senior management were a part of the problem in the organization without realizing it. Those in leadership and management positions likely understand the full landscape of their organization as it pertains to operations and maintenance departments and the factors that promote or hinder collaboration. Therefore, this guidebook and the suggested strategies for improvement may be most impactful to staff at both junior and senior levels.

The guidebook is intended to assist in the process of developing collaborative work environments at large, medium, and small airports and provides facilitation tools and techniques for airport executives, policymakers, aviation professionals, and employees in operations, maintenance, and engineering divisions. Strategies for fostering collaboration are targeted for both personal and organizational improvements. As mentioned, airport size, governance structures and other airport demographic factors have an impact on collaborative issues and techniques. Airport size and type will be addressed, as relevant, throughout this tool.

How to Navigate the Guidebook

The guidebook can be navigated a number of different ways. One method is to use a current state assessment process as described in Part 2, Chapter 1. This involves using the assessment tool to identify areas of needed improvement to promote collaboration. A less formal approach is simply to proceed to the warning signs chapter (Part 2, Chapter 3) and begin identifying warning signs that may be applicable within your area of responsibility. Warning signs provide reference

numbers to potential possible causes (Part 2, Chapter 4), and possible causes refer you to strategies for fostering collaboration (Part 2, Chapter 5) that can be employed to lead improvements to the collaborative environment. Refer to the collaboration toolbox scenario in Part 2, Chapter 2 for additional guidance.

Guidebook Icon Legend

In addition to guiding readers through relevant charts, tools, and other materials, this Guidebook includes elements that supplement the main text such as case studies, airport type considerations, and risks. These elements, as well as references to the appendices, are labeled in the report with icons. The following legend presents each icon and a brief description of the element it represents.

Airport Size points out specific considerations, approaches and strategies specific to small, medium, and large hub airports when applicable. Relevant examples of size-specific strategies are cited to aid readers in identifying those that are most applicable to their airport size.

Case Studies illustrate hands-on experience with operations and maintenance collaboration scenarios and techniques from six different airports across the United States. Relevant excerpts from cases have been cited to aid readers as they seek strategies for fostering collaboration. The case study icons include references to the warning signs, possible causes and strategies for fostering collaboration that pertains to the examples denoted.

Focus Groups provide insight and examples from five different focus groups at airports across the country from the perspective of airport employees in a variety of roles.

Survey and Interviews call out findings, direct quotations and other pertinent information gathered in an online survey and one-on-one interviews with operations and maintenance personnel.

Tools for fostering collaboration are provided in the form of worksheets and activities throughout the final report and should be used based on the recommendations of strategies identified in the collaboration toolbox.

Suggested Reading provides excerpts of appropriate literature that can be referenced outside of this document for further research.

Warnings increase awareness of situations that might arise during the implementation of the collaboration toolbox and could potentially impact involved parties.

CHAPTER 1

Findings

The findings from airport focus groups, survey questions, one-on-one interviews, and case studies indicate that there are three primary elements in contributing to an overall airport collaborative environment:

- **Effective collaboration is attained through broader participation.** Addressing the state of just one division or department in an airport neglects to understand the entirety of the issue. Instead, a practical approach to fostering collaboration must be utilized. Any and all other agencies that affect the decision-making process, such as federal and state agencies, airlines, and other tenants, must also be considered in the effort.
- **Positive work culture,** which empowers employees to feel pride, ownership, and responsibility for the airport, is a driving force for collaborating. This includes respectful relations amongst employees as well as effective communication and many traits that this report will further address.
- **An environment of trust,** in which all employees are dedicated to the ongoing efforts required to promote and maintain trust. This includes policies and procedures that reinforce trust, such as training, personal development, celebrating success, and strategies to instill personal accountability in all employees.

Broader Participation

In the truest sense, collaboration is most effective when it not only crosses the boundaries of operations and maintenance, but is embraced by both internal and external organizational entities. For example, some of the most successful collaborative environments studied include centralized communications centers that leverage a wide set of shared tools. Beyond the operations and maintenance disciplines, a highly collaborative example of shared systems could include internal and external partners such as:

- Airlines
- Air traffic control
- Engineering
- Ground handlers
- TSA

In this example, all entities actively participate in a sharing of data and systems related to:

- Weather forecasts
- Transponder data
- Runway sensor scans

- CCTV
- Airfield lighting status
- Emergency response
- Vehicle tracking

In this type of collaborative environment, there are efficiencies realized in the use of shared resources [for instance, the TSA might be contributing dollars towards closed-circuit television (CCTV) systems] and communication advances in the form of each diverse entity working off the same set of assumptions. Physical proximity and accessibility helps drive timely communication and ease of sharing.

Another area in which collaboration can extend to a broader reach is the interaction between operations, maintenance, and engineering. A consistent theme in feedback sessions was that a significant amount of conflict stemmed from lack of input in the airfield/terminal design process. It appears that at some airports there is as much conflict and lack of collaboration between operations and engineering as there is between operations and maintenance. This is manifested in a feeling expressed by operations and maintenance that their ideas and suggestions are not normally incorporated into airport projects. It is possible that this conflict involving engineering's perceived unwillingness to seek input may indirectly be a cause of conflict between operations and maintenance when a particular design translates into poorly operating or hard to maintain facilities.

For more insight on the relationship between operations, maintenance, and engineering please refer to Part II Chapter 6: Other Considerations.

Work Culture

Individual behavior is often largely determined by one's surrounding influences. An easy conclusion is that a positive work culture helps to encourage better overall performance by employees. According to Collins,

> Making the transition from good to great doesn't require a high-profile CEO, the latest technology, innovative change management, or even a fine-tuned business strategy. At the heart of those rare and truly great companies was a corporate culture that rigorously found and promoted disciplined people to think and act in a disciplined manner (*1*).

Several attributes of culture need to be understood in the context of creating a collaborative environment, such as:

- Culture must be understood and fostered for continued success of an organization
- Culture provides the norms for how people are to behave
- Change will come through the culture or the culture must change to embrace it
- Culture becomes an organization's memory

Equally important for airport managers is identifying and understanding cultural differences within their organization. The existence of as many as five generational groupings (Traditionals, Baby Boomers, Generation Xers, Generation Yers, and Linksters) (*2*) makes age differences a high potential for cultural conflict. Individuals from different backgrounds bring with them a culture that presumably can't be easily changed, only understood and accommodated.

Successful collaboration must begin with a joint vision and failing to do so will result in failed collaboration (*3*). As emphasized in an individual CEO interview, a CEO must lead collaboration by example and regularly meet with employees to articulate culture and vision of the organization.

In this example, the vision is that the entire team must serve the public; cooperate among divisions (facilities and operations in particular), control costs, and support airlines and tenants when not in conflict with service to the community.

Trust

Trust is a consistent, recurring theme within all of the research findings. From focus group respondents to all levels of interviews and online survey responses, trust is a central key to successful collaboration.

"We are both striving to do the same thing, and that is to provide the customer with the safest, quickest and best experience as he passes through our airport. The ONLY thing hindering this is the trust factor, and the feeling of being superior one department [has] over the other."

— Online Survey Respondent

Trust within an organization is not a mere byproduct of a successful work culture, and it is more than just a soft skill. Top leaders and high performing organizations all show a high component of trust evident within their respective work groups. Rebuilding from a situation that involves a lack of trust can be addressed over time with a specific focus.

Impacts of Technology

A common theme is that technology produces both opportunities as well as pitfalls in the collaboration process. For all the benefits of the explosion of networking and communications tools that have become available, there appears to be no real replacement for consistent, ongoing face-to-face communications. If communications technologies are leveraged to the extent that conversations on a personal level are removed, there is an increased risk level for unsuccessful collaboration.

"Automated work order systems enhance productivity but communications between the operations and maintenance groups is most important. I find that maintenance often does not understand the safety issues and compliance ramifications if work is done poorly or untimely. Often operations thinks simply placing a vague work order will cure the problem. Maintenance on the other hand thinks operations pulls work orders out of thin air. Only good communication structure within an organization and the willingness of employees to see the ultimate goals will create a safe and transparent work environment."

— Online Survey Respondent

Weekly or monthly status meetings, daily check-ins, team building exercises and social gatherings, and celebrations of success were all cited as key elements of achieving a collaborative environment between operations and maintenance. With this in mind, technology needs to be viewed as a way to enhance, not replace, interpersonal communications.

As pointed out within the survey examples below, a balanced approach of technology and communication produces the best result:

"Daily verbal assignments by operations directly to maintenance/trades workers ***without*** accompanying work orders generation and ***without*** the knowledge of maintenance managers: while expedient, is ***counterproductive*** in the long run. Daily verbal assignments by operations directly to maintenance/trades workers ***with*** accompanying work order generation and ***with*** the knowledge of maintenance managers: while requiring more focus and effort, is ***more productive*** in the long run, ensuring best allocation of resources, and providing good data for budget and planning."

— Online Survey Respondent

These statements highlight the value of combining a technology solution (electronic work order) with a process of verbal assignment to ensure an optimal result. With all the technology tools available, it is commonplace to evaluate those tools on a basis of cost, convenience, reliability, maintenance, and return on initial investment. It would also be prudent to evaluate those tools on the basis of inherent compatibility with verbal, personal communications programs.

With the caveat of leveraging technology to enhance, not replace, more personal forms of interaction in mind, the research shows a heavy reliance on technology tools such as:

- Email
- Mobile devices in a wide range of styles/types
- Radios
- Voice/web conferencing tools
- Web-driven, shared information systems
- Automated work order systems such as computerized maintenance management systems (CMMS)

An example of the power of an automated work order system is demonstrated by the implementation of a specific CMMS tool at a large hub, international airport. This system provides integration between the airport's work requests, work orders, work planning, preventative maintenance schedules, and standing work order notifications, and also interfaces with supply, asset management, inventory, purchasing, etc. Shared accessibility to this level of information not only contributes to financial efficiencies, but can be a great asset in collaborating work efforts if done properly, and particularly when paired with ongoing face-to-face communications efforts.

By automating (CMMS) and introducing a third party (scheduler/planner), the airport has separated the requestor from the individuals expected to do the work. It is important to remember that this can make collaboration more difficult if regular face-to-face communications are reduced or eliminated. The research indicates that any system implemented still needs to maintain a component of regular face-to-face communications.

Warning: While implementing automated technologies such as a CMMS has proven a positive influence upon collaboration, introducing new technology should be done with proper training and communication on all levels. New technology can cause interpersonal communication issues between employees. See Strategy 20: Technology for more information about fostering collaboration with technology.

Training and Team Building

Additionally, training and team building stood as a critical activity in supporting and building a collaborative environment between operations and maintenance. About 44% of online survey respondents indicated that they strongly disagreed, disagreed, or were neutral with the statement, "I received formal training for my current position." Similarly, about 45% responded in equal disagreement to neutrality to the statement, "I receive recurrent training for my current position."

Training and team building are areas that traditionally can fall by the wayside in times of tightened budgetary conditions. Effective training and team building activities may be considered a resource drain, and can be sacrificed when faced with scarce resources. However, the payback is clear in that these activities are a central building block in achieving and maintaining a collaborative environment.

One-on-one managerial interviews revealed that training in as simple a concept such as how to properly write an email had a significant impact on communications skills, which in turn contributed to improved collaboration. The topic of cross training was a consistent theme, in that organizational leaders who had been cross trained with the other division or department or who had spent significant time managing both operations and maintenance at some point in their careers tended to be more successful in establishing collaborative practices. It is widely suggested from the various forms of data gathering that more understanding of both work centers leads to better decision making and higher trust. It is clear that an investment in training and team building offers a strong return in successful collaboration.

Performance under Pressure

It is important to point out that collaboration seems to occur more easily when all "hands" are under pressure to perform and have something to lose individually if the organization fails. Snow removal is one of the best examples of cooperation between the two divisions. First, if one division or the other doesn't perform to standard, the ramifications are potentially enormous. Generally the broad repercussions of an individual's failure to meet expectations motivate employees to work together and put aside differences to avoid catastrophe. Secondly, snow removal is a type of crisis where personal interests are recognized as secondary to the good of the organization and the public. Finally, snow removal is visible and therefore those involved are front and center. If a problem occurs, accountability follows shortly thereafter. Since the event is recurring, there are opportunities to sit down and talk, refine procedures, and get to know those in each other's division.

Case Study: The Gulfport-Biloxi International Airport (GPT) case study sheds light on the state of collaboration under a different weather circumstance. During and after Hurricane Katrina ravaged Gulfport, Mississippi, GPT employees had no choice but to work together during the crisis. Despite the dire situation, long hours and personal stresses the employees were faced with, morale was actually very high. Both GPT employees and contracted help were dedicated to the singular purpose of restoring the airport to an acceptable operational level.

Warning Sign:	Warning Sign 45 - Operations and maintenance teams work together when in "response mode."
Possible Cause:	Possible Cause 6 - Research suggests that collaboration is more likely under periods of crisis or while in response mode. Conversely without a sense of urgency and purpose often times the work product suffers.
Strategy:	Strategy 13 - Learning from Crisis

Aligned Incentives and Common Goals

Finally, the research created a strong sense that an alignment of goals as well as incentives based on achievement of these goals is a significant contributor to a collaborative environment.

"Two tools that (this large hub airport) uses have been quite useful in aligning incentives. The first is a metric that measures how long maintenance remains on the runway to clear snow. Both divisions use these performance indicators to measure effectiveness and to set future goals. They also measure braking coefficient after each clearing with their Mu meters and continue to work to improve on this measurement. Both divisions are supportive of these performance indicators."

— Operations Manager Interview Participant

According to a *Washington Post* editorial, linking worker compensation to the company's success can turn an adversarial relationship into a cooperative one; economists call this "aligning incentives."

At an international level, many airport organizations compete for talent with other commercial organizations, so compensation, reward schemes, and recognition are essential components in not only attracting the appropriate employees, but also aligning interests and compensating them when targets are met (or letting them go when they are not).

Most of these international airports will routinely benchmark key performance indicators and track their own performance to monitor their improvements and how they compare with their peers. In cases where the owner/manager is a publicly traded company, the financial markets and analysts will do so as part of the normal tracking of the company.

These airports see their clients and customers as a broad-based, important group including not only airlines, passengers, and concessionaires, but extend that thinking to their inspection services, law enforcement, greeters, etc. In fact they approach all their interactions with a "customer first" mentality.

The result is that these privately owned or managed international airports are consistently looking at ways to improve their performance. This generally leads to more communication and collaboration as the organization, people, and incentives are generally aligned to a set of defined objectives and targets.

Commonalities Among Successful Collaborators

Open Communication

More than any other single factor, strong and open communication was cited as the key factor in achieving and, perhaps more importantly, maintaining collaboration. Open communication was demonstrated to be achievable in many different ways. Some operations and maintenance teams collaborated through advanced tools and technology systems, while others relied on regular, perhaps even daily or weekly, face-to-face status meetings. Some teams combined and shared work space or systems, while others maintained a more separate organizational structure and physical workspace, but were dedicated to a process of keeping all in the loop.

Regardless of the size or organizational structure of the airport, the foundation of successful collaboration was in open and frequent communication. Other factors such as having operations and maintenance both report to the same manager might well support ease of communication, but won't necessarily promote a collaborative environment in and of itself. Any tactic used to promote collaboration will prove ineffective at some level without well-used channels of communication to support the two-way flow of information.

"[The airport] has a sophisticated work order system which, in the opinion of the deputy director of this large hub airport, has a tendency to be far too impersonal. Face to face meetings, no longer being done, were better at describing the discrepancy, and prioritizing the work."

— Director of Aviation Interview

Recognition and Team Building Programs

The conducted interviews, focus groups, and surveys have supported findings from the initial literature review: that strong collaboration thrives on positive feedback and recognition. Whether a simple employee barbeque to support team building or a formal awards ceremony and presentation, activities of leadership to promote "esprit de corps" goes a great ways in bridging the natural divides between operations and maintenance.

Airport Size: Recognition and team building is an area where organizational characteristics such as size of airport can increase the challenge for leadership. A quarterly operations and maintenance picnic seems much more manageable when the two teams consist of 20 employees versus 200 or even 2,000. Yet, this report presents proven techniques where larger teams can share in team building and recognition practices. For instance, incentives could be tied to success during an FAA Part 139 inspection, or there could be large social activities and events tied to training and team building.

The underlying message is that developing trust in someone implies that you know them or know of them. Recognition programs that promote team building and reward positive performance ultimately increase individual and organizational trust, and encourage efforts of collaboration.

Shared Vision and Common Goals

A compelling vision of what is important to an airport organization and where that organization is headed is a strong contributor to collaboration. Collaboration requires significant effort. A strong leadership team will understand that the benefits produced by collaboration will be demonstrated in the form of productivity, improved quality, increased job satisfaction, and reduced turnover. They will also understand that, at the team level, individual work center goals and objectives for Operations and Maintenance may come into conflict with one another. By ensuring that the two groups share common goals and objectives towards a single vision, leadership can help reduce some of the inherent barriers to collaboration.

It is a consistent theme within the research findings that organizations that have been successful in collaborating have a strong sense of their airport's vision, and both leaders and employees believe that their efforts contribute to achieving that vision. In these organizations, techniques such as using metrics driven scorecards to link compensation to the organizational vision help support and reinforce a focus on common goals.

Budgetary Support

Supporting collaborative efforts and maintaining a collaborative work environment can be costly initially. There are compelling paybacks, but these are generally realized over time, and the initial investment in technology, systems, and labor costs involved in facilitating collaboration can appear daunting.

Successful airport organizations have shown the willingness to invest in collaboration. The budgetary support can be in the form of improvements such as shared workspace and systems, communications technologies, CMMS, investment in hiring practices, team building events, incentive compensation tied to achievement of goals, and support for weekly or monthly cross functional meetings.

Budgetary support has the dual effect of not only providing the tools necessary for successful collaboration, but also emphasizes leadership's support of collaborative practices. Putting leadership's "money where their mouth is" sends a compelling message to the team that collaboration is both encouraged and expected. The cost of failing to collaborate should be equally compelling.

The Cost of Bad Behavior by Christine Pearson and Christine Porath (2009) provides an easy method to quantifying the effects of incivility in the workplace and is a useful tool in better understanding the financial case to improve collaboration.

Consistent Operating Principles with Team Buy-in

Operations and maintenance teams that demonstrate successful collaboration typically share a characteristic of consistency in operating principles. They generally are stable organizations that have mature policies and procedures that are well thought out and are consistently enforced. They have an experienced and committed workforce that knows what is expected of them and accepts responsibility for their actions.

This can be an environment that is difficult for newer and perhaps younger employees to assimilate into and make an impact, but the stability of the organization can generate a confidence and openness among the team to new ideas. The consistent expectations create a climate where training and mentoring can more easily take place. In other words, a new employee receiving training from three different individuals is much more likely to hear the same messages reinforced over and over, versus a trainee in an organization with more loose standards and procedures.

With buy-in of the team towards organizational success, there follows an openness to mentoring and peer development that is less focused on individual reward and more centered on benefit to the airport organization overall. We see this attitude manifested in expressions that "we take the new guys under our wing."

Bonds Strengthened by Crisis

Research revealed a consistent theme that bonds between operations and maintenance appear stronger when the teams have previously faced or consistently face a crisis together. Logically, teams have more motivation to cooperate and collaborate when more is at stake. When teams are working together to either protect lives or battle the elements (or both), there is a fairly instantaneous removal of the day-to-day barriers between the divisions. A dispute over level of respect demonstrated in a radio communication becomes quite insignificant compared to a runway situation that threatens the safety of an aircraft landing.

Those teams that experience a crisis situation regularly, or, train and practice for crisis management regularly, have a tendency to focus on the bigger picture and embrace collaboration as a necessity. Alternatively, there are also indications that teams bond during crisis and then generally fall back to pre-existing conditions of division and silos. This leads to the conclusion that teams who rise to the moment do not necessarily collaborate successfully day-to-day, and relying on crisis management alone will not build ongoing collaboration between operations and maintenance teams. However, the serious nature of emergency preparedness can provide a common goal on which teams can be recognized and incentivized to collaborate.

Case Study: The operations and maintenance teams of the GPT report better collaboration after dealing with the aftermath of Hurricane Katrina's wrath on their facilities. They do not attribute their positive environment solely to the crisis, however; leadership has continued to invest in training efforts and other programs that continue to foster a collaborative workplace long after the storm.

Warning Sign:	Warning Sign 45 - Operations and Maintenance teams work together when in “response mode.”
Possible Cause:	Possible Cause 6 - Research suggests that collaboration is more likely under periods of crisis or while in response mode. Conversely without a sense of urgency and purpose often times the work product suffers.
Strategy:	Strategy 13 - Learning from Crisis

CHAPTER 2

Impacts and Influences

Airport Structure

Based on the initial findings, there are mixed interpretations of how much airport structure plays in the effectiveness and amount of cross-functional collaboration. There are certainly examples where various structures create inefficiencies, frequent personnel changes, misaligned agendas and priorities, and poorly trained staff in roles critical to operations and maintenance collaboration.

During data collection, one airport remarked upon how non-airport city employees with higher seniority were bumping trained airport staff due to cutbacks in city government. This created frustration within the airport and poor morale among affected units, and resulted in employees with no airport history and no airport training in roles critical to airport operations. While this is not so much a function of the airport governance but more a function of the union or city seniority structure, clearly the same thing could happen within any airport governance structure if the environment existed to support that system.

At a port authority, issues arose from union bumping. Some progress was made at fixing this by negotiating and paying for specialized requirements in each job classification to prevent bumping into a role that they were not trained for. This only works so far since unions typically suggest that it is management's responsibility to provide the appropriate training. They are right if the training is specific enough to the job.

Other potential impacts could result from a maintenance department that had divided loyalties to the airport and some other entity, such as city, seaport, parks department, etc., as well as from having to utilize generic job descriptions and pay scales such as those used by the city for all departments. This makes it hard for the airport to recruit or retain highly specialized personnel.

Airport Size

First, not all small airports collaborate well and not all large airports fail in this regard. But generally speaking, there seems to be evidence that small facilities tend to do a better job at collaboration than their larger counterparts for the following reasons:

- Small airport work teams are on duty from morning to mid-evening, which gives them the opportunity to meet face-to-face with each other and develop relationships and trust (small hub airport interview comment).
- Small airports generally utilize more simplistic systems that support face-to-face communication between operations and maintenance. A work order request may be as simple as a phone call from one individual to another or a short, in-person conversation.

- Smaller airports are not always able to financially justify a full time operations division. Instead they may assign operations duties to other airport employees such as fire or maintenance. When maintenance performs both functions, there is typically an improved level of understanding regarding operational issues.
- Employees and managers at smaller airports often consider themselves to be a "family" with interpersonal relationships that do not end at the workplace. Larger airports, because of their size, shift requirements, and complexity, feel as though they fit a more classic 24/7 business model that may not lend itself to close personal relationships.
- At small airports, staff responsible for operations duties tends to be more tied to their airport community.
- Smaller airports generally operate in less populated regions of the country, therefore culture is likely reflective of the community from which they serve. It has been noted that cities with populations less than 300,000 are often less politically volatile and more stable in the makeup of the staff (small hub airport interview comment).
- Airlines and tenants at larger airports (particularly airline hubs) are more competitive and less inclined to collaborate between and among the different groups. This is noted in the tone and participation of the station manager meetings which can be at times less cordial and more combative. It is not unusual for the station manager of the largest hub airlines to not attend airport meetings but rather send a surrogate in his/her place. This competitive and hectic environment can permeate down to the lowest levels of the airport organization.
- At smaller airports, communications are generally better in part because management is able to identify problems earlier in their development and intercede when necessary.

Organizational Structure

One of the organizational models noted as having positively affected departmental collaboration at a specific large hub airport was combining the operations and a portion of maintenance departments under one manager. All operations and maintenance personnel eventually report up to one person, but that individual is usually farther up the chain of command and lacks day-to-day involvement in departmental issues. Often at that level, the reporting director communicates that the managers of these departments should work things out when problems arise, but lacking first-hand departmental knowledge, these admonitions can tend to be a bit soft. Both department leaders know that if they bring conflict to the forefront too often, they may be seen as lacking effective management skills and thus thorny problems can tend to get buried only to surface in resulting performance issues.

To be most effective, this one leader needs to live and breathe in both the operations and maintenance worlds. They should attend and conduct all staff meetings, oversee all performance reviews, be the key departmental decision maker and, most importantly, have competence in both areas. In the example cited earlier, a long serving airside ops manager was put in charge of maintenance for several years where he gained a working understanding of the department, the workers, the culture, and fleet issues and was seen as an effective leader who understood both sides. When through attrition the operations chief position came open it was a natural outcome to place both departments under this individual.

As always, leadership has critical need for collaboration and to try this approach with an individual who lacks cross-competence and effective work experience could prove quite challenging. Thus, a good argument exists for first setting the stage for cross-training and cross-work experience between these departments.

For example, regarding the concept of a combined reporting structure to a single individual, it could serve to emphasize that when one division reports to a manager that has more than

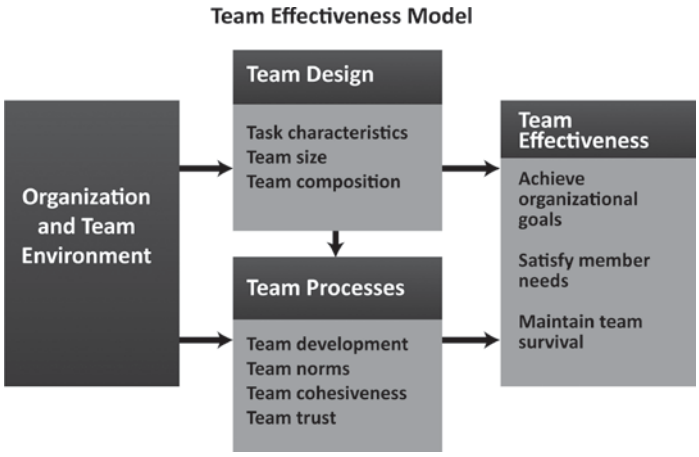

Figure 1. Team effectiveness model.

one responsibility, e.g., engineering and maintenance, while another division reports directly to the CEO, that manager has split allegiances to his different activities. In this example, engineering, design, and construction normally takes precedent in the mind of the manager over maintenance. Maintenance, under this organizational scenario, could be "short-changed" when a conflict between operations and maintenance occurs.

Team Composition

One of the components of a team's design is its composition. Elements such as age, gender, educational background, training, and skills become important for collaboration (Figure 1).

Figure 1 from "Essentials of Organizational Behavior" shows that in order to be effective, teams must pay attention to both processes and team design (*4*). Team effectiveness is also influenced by the team's environment and by the type of organization the team exists in. For example, Operations and Maintenance departments exist in a very frantic, fast-paced environment. In order to be effective, teams in this type of environment must be able to make quick, informed decisions. Team design would be small and cross-functional. Team processes would include high levels of trust and high levels of cohesiveness.

Age Discussion

The survey results revealed older participants "considered their group successful in meeting their goals" more than younger participants. The participants between the ages of 26-35, more than any other age group, indicated that working with people that were the same gender encouraged collaboration. Additionally, younger participants used text messages to collaborate with their team members more than older individuals. Still further, younger employees rely on friends outside their department for additional collaboration more than the older respondents surveyed.

There are presently five generations at work (2):

- Traditional (born up to 1946)
- Baby Boomers (born 1946–1964)
- Generation Xers (born 1965–1980)
- Generation Yers (born 1981–1995)
- Linksters (born after 1995)

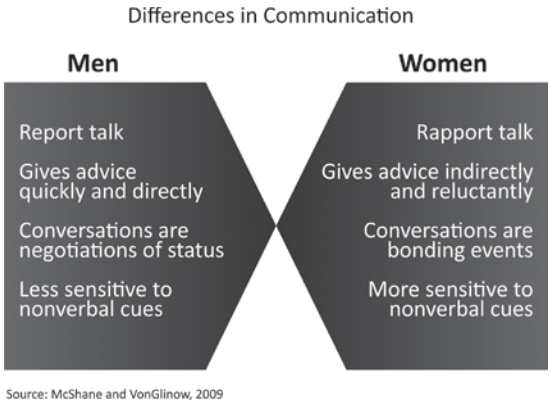

Figure 2. Perceived differences in communication.

Each generation has different expectations of the working environment, work behaviors, and management.

It is very important to realize and to respect the generational differences and make an effort to provide for them when striving to foster collaboration. Acknowledging the differences will help to build better relationships between generations at work.

Gender Discussion

When considering gender and teams, it is important to understand the differences in the way men and women communicate with one another. Figure 2 shows some of the major differences in the way that men and women communicate (*8*):

In our survey, the only notable differences in responses came in response to the item: "The culture of my department enables collaboration" where females indicated a greater agreement with this statement than males. In addition, males stated that they relied on friends outside of their department for collaboration more often than females.

Education Discussion

In our sample, there were 17 people who indicated that high school was their highest level of education completed. Forty-one indicated that they had some college, 19 indicated that they had an associate's degree. Eighty participants indicated that they had a bachelor's degree and 51 indicated that they had a graduate degree.

Some interesting differences in responses by education level were that those who were more educated (bachelor's degree or graduate degree) indicated that operations and maintenance only collaborate when there is an emergency. In addition, more educated participants indicated that, "Operations sets work priorities" whereas participants with an associate's degree or less disagreed with that statement.

All of these factors (as well as many others) must be considered when striving to promote a collaborative team and/or organization.

PART 2

The Collaboration Toolbox

CHAPTER 1

Collaboration Assessment Tools

Introduction

An effort to improve collaboration between operations and maintenance teams should begin with an assessment of the "current state" of collaboration across the two functional areas. This allows airport leadership to identify and further understand areas where improvement is needed. The evaluation can be performed through administration of a survey, through hosting of one or more focus groups, or through conducting cross-functional meetings.

Survey Administration

A survey provides the most comprehensive and measurable approach to assessing the current state of collaboration. Administration of a survey, either online or through paper distribution, offers the ability to involve large groups of team members at all levels of an organization in a relatively time-efficient manner. Of course, using an online third-party survey tool, of which many are available, provides additional benefit in filtering and analyzing survey results.

The survey questions provided are meant to gain insights into many factors that can help identify root causes of barriers to collaboration. Following the sample survey questions, you will find details on how to interpret the data you generate. Perhaps equally important to the raw survey scores will be the open-ended responses that are provided by the participants.

Sample Survey Communications and Questions

Dear Team Member:

As part of an effort to evaluate and positively impact collaboration between Operations and Maintenance within our organization, we are conducting an assessment of our current state of collaboration. We request that you be as accurate and detailed as possible when answering these questions. Your participation is highly encouraged (or, alternatively, required). The more who participate, the more meaningful the results will be. The information you provide us will remain CONFIDENTIAL and will only be shared in general terms as we move forward with our effort to assess and improve collaboration. The value of the assessment depends upon your being as candid as you can in answering the questionnaire.

A summary of our findings will be provided to the team in order to help set the stage for collaboration-building strategies and activities.

We appreciate your participation!

General Questions

NOTE: All statements should be coded as follows:

Strongly Disagree
Disagree
Neither Agree or Disagree
Agree
Strongly Agree

Please base your responses on your current work situation. There are no "right" answers, only your perceptions and opinions. Please indicate the response that best describes how you feel about each of the following statements:

1. It is important for operations and maintenance to coordinate their work.
2. Our operations and maintenance departments work well together.
3. Operations and maintenance departments have no conflict.
4. Operations and maintenance departments only collaborate when there is an emergency.
5. There is good communication (both clear and concise) between operations and maintenance.
6. Work order request categories have been defined and prioritized and are understood and accepted by both operations and maintenance departments.
7. Operations and maintenance department heads should both report to the same person.
8. Email, cell phones, text messaging, etc. have a positive impact on collaboration between Operations and maintenance.
9. I am given the latitude to prioritize my work efforts.
10. Others set my work assignments.
11. When there is a backlog of work, the operations department sets priorities.
12. Work priorities are established jointly by operations and maintenance.
13. Our automated work order/request system helps operations and maintenance work together. (Offer an N/A choice for this question)
14. I consider my group successful in meeting our goals.
15. Please describe your experience (if any) with ineffective strategies that you have attempted to implement to improve collaboration. _____
16. Please indicate the degree to which you feel each of the following factors encourages collaboration between maintenance and operations in your organization (all statements should be coded as follows):
    a. None of the time
    b. Some of the time
    c. I'm not certain
    d. Most of the time
    e. All of the time

    Leadership
    Communication
    Similar work priorities
    Shared values
    Similar work styles
    Similar backgrounds
    Celebrations
    Periodic meetings
    Cross training
    Shared work experiences

Similar personalities
Similar pay structures
Adequate resources
Similar ages
Same gender
Training in team building
Exercises (e.g., snow removal, aircraft emergencies, etc.)
Other (please list)

Work-Specific Questions

NOTE: The following statements should be coded as follows:

Strongly Disagree
Disagree
Neither Agree or Disagree
Agree
Strongly Agree

1. I understand the process for a work order system, from entering the first request through repair/replacement and close-out.
2. I use checklists for routine work such as inspections, terminal tours, etc.
3. I consider the physical work environment efficient for completing my work and collaborating with others.
4. I clearly understand the "Vision" of my organization.
5. This "Vision" helps my organization work together.
6. The culture of my department enables collaboration.
7. My organization is more reactive than proactive.
8. We use planners to schedule our daily work.
9. I am allowed a certain amount of flexibility in the way I complete my work.
10. My department is "customer" focused (note: customer can indicate either internal customers or external customers).
11. My department follows strict rules and regulations.
12. My department has a mentoring program.
13. I received formal training for my current position.
14. This training is paid for by my organization.
15. I receive recurrent training for my current position.
16. This training is paid for by my organization.
17. Budgetary constraints affect my ability to collaborate with my fellow employees to achieve common goals.
18. My operating budget is sufficient to enable me to do my job.

Work-Specific Tools/Systems

Please indicate to what extent you use the following in your daily work:

NOTE: All statements should be coded as follows:

Not at all
Some of the time
About half the time

Most of the time
All of the time

1. Email
2. Cell phone
3. Text messages
4. Pager
5. Radios
6. Automated work order system (CMMS) (please describe: _____)
7. Information System (such as SharePoint, Backpack, etc.)
8. Social media (such as Facebook, LinkedIn, etc.)
9. Friends in my department
10. Friends outside of my department

Demographics Questions

1. What department best classifies your work? Operations, maintenance, other (please specify)
2. Which best describes your position: senior management, manager, supervisor, and employee
3. Gender: Female Male
4. Age Range: 18–25, 26–35, 36–45, 46–55, 56–65, 65+
5. Ethnicity: White, Hispanic, African American, Native American, Other
6. Education: high school, some college, associate's degree, bachelor's degree, graduate degree
7. Number of years at current job: less than 1, 1–3, 4–5, 5–10, 10+

Please provide any additional comments you might have that could aid us in developing strategies and tactics to improve collaboration between operations and maintenance at our airport.

Thank you for your participation!

Interpreting Survey Results

Figure 3 shows the mean scores of survey results from over 225 participants representing approximately 70 unique airports. Administration of an online survey or other survey instrument with the questions identified in Figure 3 will allow an airport team to analyze results in a number of different ways.

- An airport can compare their mean survey scores with those of the broader airport population, looking for areas of significant variance. For example, although a score of 3.50 on General Question 1 (It is important for operations and maintenance to coordinate their work) would seem to be a positive score (midway between neutral and agree), it is well below the mean score of 4.86 for the total survey population. This might indicate an area of concern about a shared sense of importance for coordination of work between operations and maintenance. Alternatively, a score of 4.25 on General Question 10 (Others set my work assignments) may be a telltale sign that an insufficient amount of delegation of responsibility is taking place.
- An airport can look for potential disconnects between organizational levels. If senior management scores a question or grouping of questions significantly higher than the general employee population, management may identify a need to be more connected to employee viewpoints. Analysis can also take place across each of the demographics areas represented, such as a determination of how age impacts views on the value of technology.
- A review of the open ended responses can add great value to understanding perceptions of the team as well as compiling suggestions for improvement.

Survey Question	
General Questions	**Mean Score**
1. It is important for Operations and Maintenance to coordinate their work.	4.86
2. Our Operations and Maintenance departments work well together.	3.97
3. Operations and Maintenance departments have no conflict.	2.45
4. Operations and Maintenance only collaborate when there is an emergency.	2.06
5. There is good communication (both clear and concise) between Operations and Maintenance.	3.47
6. Work order request categories have been defined and prioritized and are understood and accepted by both Operations and Maintenance departments.	3.53
7. Operations and Maintenance department heads should both report to the same person	3.78
8. Email, cell phones, text messaging, etc. have a positive impact on collaboration between Operations and Maintenance.	3.98
9. I am given the latitude to prioritize my work efforts.	4.10
10. Others set my work assignments.	2.82
11. When there is a backlog of work, the Operations department sets priorities.	3.06
12. Work priorities are established jointly by Operations and Maintenance.	3.32
13. Our automated work order/request system helps Operations and Maintenance work together. (Offer an N/A choice for this question)	3.73
14. I consider my group successful in meeting our goals.	4.07
Work Specific Questions	
1. I understand the process for a work order system, from entering the first request through repair/replacement and close-out.	4.32
2. I use checklists for routine work such as inspections, terminal tours, etc.	4.07
3. I consider the physical work environment efficient for completing my work and collaborating with others.	4.00
4. I clearly understand the "Vision" of my organization.	3.97
5. This "Vision" helps my organization work together.	3.67
6. The culture of my department enables collaboration.	3.64
7. My organization is more reactive than proactive.	3.29
8. We use planners to schedule our daily work.	3.13
9. I am allowed a certain amount of flexibility in the way I complete my work.	4.21
10. My department is "customer" focused (note: customer can indicate either internal customers or external customers).	4.20
11. My department follows strict rules and regulations.	3.92
12. My department has a mentoring program.	2.92
13. I received formal training for my current position.	3.41
14. This training is paid for by my organization.	3.93
15. I receive recurrent training for my current position.	3.48
16. This training is paid for by my organization.	4.04
17. Budgetary constraints affect my ability to collaborate with my fellow employees to achieve common goals.	2.97
18. My operating budget is sufficient to enable me to do my job.	3.52
1 = Strongly Disagree, 2 = Disagree, 3 = Neither Agree nor Disagree, 4 = Agree, 5 = Strongly Agree	

Figure 3. Survey response mean scores.

Conducting a Focus Group

If administration of an online or paper survey is impractical, an alternative approach to assessing the current state of collaboration is to conduct a focus group. Focus groups can be an effective way to vocalize opinions on the work environment if properly conducted. The example below provides some tips in hosting a focus group:

Tool: Focus Group Agenda

In order to teach groups to work collaboratively for problem solving, establish a focus group or groups with operations and maintenance staff. Define an agenda with a collaboration problem area or areas (it is better to have several sessions and preferably only one major topic at a time). Use a neutral facilitator to ensure the process is not biased or perceived to be biased. Follow-up to the focus group results must be part of the agenda and assignment.

Setting the Stage: Improving collaboration between operations and maintenance

Check-In: Housekeeping and rules of engagement

Current Conditions: Problem/issue for discussion

- What are the perceived issues? (rounder-around table)
- Identify enablers, obstacles, and risks?

Brainstorming: Tools and Ideas for Improving Situation

- What can make it better? (rounder-around table)
- What is in our control? What is out of our control?
- How can we make it happen?
- Areas of responsibilities defined and agreed too

Reflect: Next steps/action items

Check-Out: Any necessary follow-up

Because a focus group lacks much of the data capture that takes place through use of a survey, it is important to identify measurements of the current state that can be quantified. Establishing goals that are achievable and measurable is an important part of the assessment process. Once a team has worked through the collaboration toolbox process, it is beneficial to conduct a new focus group to determine how much progress was made. Identifying and tracking quantifiable goals will assist in this evaluation.

Cross Functional Meetings

Another approach is to conduct cross functional meetings involving operations and maintenance team members. Once again, having as diverse a base of participants as possible (in terms of roles, experience, organizational level, etc.) is beneficial.

Cross functional meetings can be hosted much like a focus group, but are typically shorter in duration and are therefore less impactful from a resource availability standpoint. A review of the chapters on warning signs, possible causes, and strategies to foster collaboration should be completed prior to scheduling cross functional meetings. The review of this content will help shape and direct the meetings. Questions from the survey can be used to guide discussion, or alternatively, warning signs within the functional areas that are readily identifiable can be explored more deeply.

CHAPTER 2

Using the Collaboration Toolbox

Introduction

Regardless of the method used for current state assessment, the goal is to gain accurate information about how collaboration is perceived at various levels in the organization, what warning signs are evident that indicate barriers to collaboration, and, finally, determination of metrics that can be applied to measure improvements. By diagnosing points of conflict and inefficiency, the departments can work to understand possible root causes of barriers to collaboration. Based on the identified warning signs and possible causes, the collaboration toolbox provides viable strategies to inspire and instill collaborative practices organizationally through a variety of methods and tactics, including assessment tools and activities for collaboration and team building.

The following process is recommended for optimal utilization of the collaboration toolbox:

1. Complete a current state assessment survey to assist in identifying warning signs as defined by the surveyed operations and maintenance personnel. This survey will provide insight into the overall state of collaboration from the viewpoint of all levels of the team, from frontline employees through senior leadership. Instructions for creating a survey, recommended questions, and interpreting survey results are addressed in Appendix D. See example in Figure 4.
2. Read Chapter 3 of the collaboration toolbox and identify warning signs that based on your assessment results are apparent in your organization.
3. Refer to the mapping of warning signs in Chapter 3 to specific possible causes in Chapter 4. Chapter 4 contains descriptions of common barriers to collaboration in and between operations and maintenance. Identify which of these possible causes are consistent with issues you or others have witnessed within your organization.
4. Following analysis of warning signs and possible causes, along with the findings from the current state assessment, use the collaboration toolbox to identify pertinent strategies for fostering collaboration. Each possible cause is mapped to one or more strategies identified in Chapter 5.
5. Read the recommended strategies and implement where possible. Keep in mind that each situation is different, and it may be appropriate to leverage only certain parts of one strategy or parts of multiple strategies to successfully reduce or eliminate barriers to collaboration.
6. Complete a follow-on assessment to gain insight to the impacts of the strategies selected and improvements that have been realized in interdepartmental collaboration. Identify the next level of priorities to address, or, if the initial effort was ineffective, determine additional possible causes and appropriate strategies to implement.

Alternatively, focus groups or cross-functional meetings can be held to identify the current state of collaboration and areas of improvement needed. If this approach is taken in lieu of

Identified Warning Signs	Possible Causes	Strategies for Fostering Collaboration
#11 : Not comfortable delegating tasks	17, 18, 19, 20, 22, 26, 34, 35, 36, 38, 39	6 and 17 – Building Trust and Building Respect

Figure 4. Sample entry for toolbox mapping worksheet.

administering a survey, the steps outlined above are otherwise the same. Ensure that the follow-on assessment is completed in a consistent manner with the first assessment process such that the results can be accurately measured.

Collaboration Toolbox Scenario

The following scenario has been created to demonstrate an example of the collaboration toolbox in use. For the sake of this demonstration, assume that Airport ABC administered an online survey and in the post-survey analysis identified delegation of tasks as a potential area of focus. The maintenance supervisor has noticed that some of the maintenance group are exhibiting "if you want it done right, do it yourself" attitudes, which has resulted in animosity between certain team members, process slowdowns, and excessive workloads for certain members.

Referring to the collaboration toolbox, the maintenance supervisor narrows this issue down to "Employees not comfortable delegating tasks" and finds the following entry:

> **Employees are not comfortable delegating tasks. Certain employees exhibit a "if you want it done right do it yourself" attitude.** This unwillingness to delegate tasks results in process slowdowns and uncompleted tasks, and contributes to silos of skills and knowledge in the organization. *Possible Cause Numbers: 17, 18, 19, 20, 22, 26, 34, 35, 36, 38, and 39.*

The supervisor uses the toolbox mapping worksheet in Appendix E to keep track of the warning signs, possible causes, and strategies as he or she helps narrow down which to focus on (Figure 4).

The supervisor then reads each of the possible causes that are referenced and makes a determination as to the most applicable examples. In this example, the supervisor selects Possible Cause Numbers 19, 34, and 36. Each of the three possible causes directs the supervisor to specific strategies for fostering collaboration. In this case, the supervisor chooses to focus on Possible Cause 19:

> **Lack of trust among employees can destroy an organization.** This can occur when management maintains too tight a reign on the activities of employees, fails to respect the capabilities of the individual, or has not provided adequate training or selection criteria to assemble a staff that can be trusted to complete tasks properly. *Strategy Number(s) 6, 17, 10, and 19.*

The maintenance supervisor then reviews Strategy Number 6, Building Trust and Strategy Number 17, Building Respect, and chooses to do a survey of employees using the Propensity to Trust tool included in the Building Trust Strategy. This tool helps gauge the current status of trust in the Maintenance department. The results of this short survey reveal that team building activities would be beneficial for the Maintenance employees. The supervisor

chooses to leverage the Lunar Survival Teambuilding Exercise found in Strategy Number 17, Building Respect:

Tool: Survival Exercise: Lunar Survival Teambuilding Exercise

A teambuilding exercise from the Harvard Kennedy School Saguaro Seminar on Civic Engagement in America (5).

The team completes the exercise and then pursues additional follow-on efforts to build teamwork and cross-functional trust. Finally, after a pre-determined period of time, the team re-administers a survey to determine progress and adjusts priorities accordingly to implement new improvement strategies.

CHAPTER 3

Warning Signs

A good way to think about warning signs is to consider your actions during the onset of a cold. The first major indicator that something is wrong motivates you to take a closer assessment of the symptoms you are experiencing. A running nose and headache help you deduce that you might have a sinus infection, and thus lead you to particular strategies for healing such as a sinus medication or nasal decongestant. The presence of different symptoms leads to other treatment plans. For airport operations and maintenance divisions, there are a number of typical warning signs, or symptoms, that indicate the need for special efforts or adjustments to process. The following list of warning signs can be used in a similar fashion to help diagnose issues and discover treatment plans for organizational wellbeing. Each warning sign is accompanied by a short description to help clarify how these warning signs may be manifested or identified.

A current state assessment survey, focus group, or cross-functional meeting can aid in the identification of present warning signs. Completing such an assessment before choosing an action plan for improvement has two major benefits. The first is creating a baseline for later comparison. Results from the assessment survey can be compared to results of a post-assessment survey, which is completed after the implementation of strategies to foster collaboration, to gain a better understanding of the impacts of the selected strategies. The same survey can be utilized year after year to track the dynamic nature of the workplace environment as the organization, economy and personnel grow and change. The second benefit of an assessment survey is the opportunity to gather anonymous input from other employees in the organization. The anonymity of the survey ensures that participants are more pointed in their responses and therefore provides a more accurate representation of the state of the division.

Identified warning signs include:

1. **Abnormally high levels of disciplinary action in one or both divisions.** In many cases there may be an underlying problem that is prompting the employee's behavior, such as conflicts with other employees or struggles with workload. *Possible Cause Numbers: 3, 17, 18, 19, 29, and 37.*
2. **At multi-airport facilities, one airport seems to work in harmony while another fails to collaborate routinely.** For example, the smaller airport seems to exhibit more cooperation and collaboration. Tenants are complimentary of management and appreciate the informal nature of relationships between airport management and the conduct of business with the airport. Unequal distribution of resources, differences in organizational structure and chain of command, variances in training and hiring procedures, and team morale can all contribute to collaboration inconsistencies between airports. *Possible Cause Numbers: 2, 3, 9, 12, 13, 17, 18, 22, and 29.*
3. **Bickering within employee ranks.** Blatant and frequent animosity between employees has become a recurring barrier to productivity. Employees may be unwilling or unable to collaborate with others. This affects decision-making processes and the effectiveness of the

entire team. Conflict may even be apparent to other divisions in organization, diminishing confidence in affected team's ability to be successful. *Possible Cause Numbers: 1, 2, 3, 9, 12, 14, 17, 18, 19, 20, 22, 26, 29, 30, and 34.*

4. **Confusion as to who is responsible for what activity.** Little to no role clarity resulting in process slowdowns, inefficiencies, and failure to complete tasks. *Possible Cause Numbers: 4, 5, 9, 11, 12, 15, 24, 26, 28, and 35.*
5. **Decisions made without input from stakeholders.** The first time employees learn about a new policy or procedure is when they read about it through internal channels, or are informed by an immediate supervisor. Employees lose confidence in management's sincerity and trust is lost. *Possible Cause Numbers: 9, 12, 14, 18, 19, 20, 22, 23, and 34.*
6. **Discomfort with the use of technological tools.** Employees are resistant to new and different processes and exhibit frustration with the implementation of new technology. *Possible Cause Numbers: 26, 27, and 35.*
7. **Divisions either have different understandings of the meaning of the airport's goals and vision, or have no understanding at all.** For example, this might be manifested by one division cutting costs at the expense of timely completion of work orders, while the other division increases requests for work to be accomplished in preparation of a FAA 139 inspection. *Possible Cause Numbers: 9, 10, 12, 13, 18, 22, and 38.*
8. **Divisions appear to be working at cross purposes.** One division sets about completing a task without coordinating with the other and in doing so creates conflict with tenants, contractors, etc. For example, maintenance or engineering might begin work on a taxiway lighting system which unwittingly necessitates closing an adjoining runway. *Possible Cause Numbers: 4, 5, 9, 12, 17, 18, 22, 24, and 28.*
9. **Employee frustration directed at non-airport agencies such as: civil service, public works, purchasing, etc.** Material needed to complete work orders not available in a timely manner, staffing inadequate to accomplish goals set forth by senior management, and technology systems supported by outside agencies regularly malfunction. *Possible Cause Numbers: 1, 2, 22, 29, and 30.*
10. **Employees and supervisors do not have a good understanding of the problems and/or technical issues facing others in the airport organization.** The compartmentalized nature of certain airport organizations can create a culture of misunderstanding. Because employees are focused on their own roles, they may fail to understand the importance of other individuals, teams, processes or tasks. *Possible Cause Numbers: 5, 15, 20, 22, 24, 29, and 34.*
11. **Employees are not comfortable delegating tasks. Certain employees exhibit a "if you want it done right do it yourself" attitude.** This unwillingness to delegate tasks results in process slowdowns and uncompleted tasks, and contributes to silos of skills and knowledge in the organization. *Possible Cause Numbers: 17, 18, 19, 20, 22, 26, 34, 35, 36, 38, and 39.*
12. **Employees are unwilling to accept constructive criticism or give suggestions for improvement.** Some individuals may feel personally attacked when confronted with suggestions for improvement or performance reviews by their peers or supervisor/management. *Possible Cause Numbers: 17, 18, 19, 20, 28, 29, 34, and 37.*
13. **Employees do not understand new systems and express frustration and anger over their introduction.** New systems and processes can be very disruptive for some employees who are resistant to change or are attached to their old methods of operation. *Possible Cause Numbers: 10, 11, 27, 35, 36, 38, and 39.*
14. **Employees fail to follow direction given by supervisors.** Junior employees have little respect for supervisors' direction and fail to complete tasks as assigned or in the expected manner resulting in growing animosity between employees and management. *Possible Cause Numbers: 10, 17, 18, 19, 22, 27, 35, and 37.*
15. **Employees in the Operations or Maintenance divisions do not understand implications of their actions on employees of the other division.** Maintenance employees may not understand

how slowdowns in task completion negatively affect operations decision making or engineering processes. Similarly, operations employees may not understand how changing direction or priorities impacts maintenance tasks. These misunderstandings can create animosity, disrespect and failure to collaborate. *Possible Cause Numbers: 20, 22, 28, 31, 34, 35, and 36.*

16. **Employees routinely fail to follow chain of command or established processes.** Employees are either uncomfortable with or unfamiliar with established processes and protocol. They may fail to consult a key decision maker for input, skip over required compliance procedures, neglect paperwork, etc. The result includes process slowdowns, miscommunication, and failure to complete tasks. *Possible Cause Numbers: 11, 17, 18, 19, 20, 26, 34, 35, and 39.*
17. **Failure to respond to a crisis in a timely manner.** Organizations are either not aware of a pending crisis, are aware but take incorrect action, or assume they have no responsibility to take action. *Possible Cause Numbers: 1, 2, 4, 5, 7, 8, 9, and 10.*
18. **Feeling of unimportance; employees believe that their organization is not supported to the necessary degree.** Low morale may be exhibited. Anger and resentment may be directed at other divisions who appear to have more resources and respect. Celebration and reward for work well done is not standard. *Possible Cause Numbers: 9, 12, 16, 20, 30, 31, 34, and 37.*
19. **Heads of departments dislike one another.** Senior staff animosity can be manifested in several ways, including refusal to work together, poor or infrequent communication, disagreement on task priorities, hesitation to allocate resources, etc. *Possible Cause Numbers: 1, 9, 17, 18, 19, 20, 22, 23, 28, 29, and 34.*
20. **High absenteeism.** Every employee is different, and all will have their own reasons for acting in this manner. It is up to management and human resources to determine the cause before enacting a plan to help motivate a person. In many cases, there may be an underlying problem that is prompting the employee's behavior. *Possible Cause Numbers: 3, 16, 17, 18, 19, 21, 25, 29, 30, 31, 32, 34, 35, and 37.*
21. **High EEO filings.** A formal EEO complaint is a complaint of discrimination due to race, color, sex, religion, national origin, age, disability or genetic information. *Possible Cause Numbers: 3, 17, 18, 19, 34, and 35.*
22. **High turnover in supervisory personnel.** Hiring new supervisory personnel or promoting supervisors from within is not working for management or junior level employees. Constant change is disruptive to progress, team morale, and effectiveness. *Possible Cause Numbers: 1, 2, 9, 10, 22, 30, 31, 33, and 37.*
23. **Hoarding of information/resources.** Information sharing between divisions which otherwise would simplify and accelerate the completion of tasks is withheld. Resources such as manpower and material are not volunteered even though both parties are aware of their need. *Possible Cause Numbers: 1, 2, 9, 16, 20, 22, 27, 28, and 38.*
24. **Improper use of technology tools results in animosity.** In some organizations, new technology replaces many of the face-to-face interactions between employees, which can lead to miscommunication and hostility. Employees who are uncomfortable with how to use new technology can create issues and frustrations for other employees. *Possible Cause Numbers: 19, 23, 24, 26, 27, 33, and 35.*
25. **Inadequate resources, personnel, and or material related to governance.** Purchasing, human resources, finance, legal, and/or information technology services, when provided by outside agencies, may in fact not be giving the necessary support to enable the airport to complete its work. Evidence of this could include malfunctioning IT equipment, long delays in completing work orders, long lead times for legal contract preparation, and miss-directed anger aimed within rather than outside the organization. *Possible Cause Numbers: 1, 2, 3, 15, 16, and 28.*
26. **Lack of confidence in others to complete tasks.** Possibly due to personal aversions, past disappointments, or lack of confidence in others' skills, employees exhibit distrust in other's abilities to perform as expected. *Possible Cause Numbers: 8, 11, 16, 19, 21, 22, 33, and 34.*

27. **Lack of confidence in the skill sets that employees possess in each division.** This warning can manifest in several ways, including hesitation to delegate tasks, animosity between employees, disregarding the chain of command, etc. *Possible Cause Numbers: 8, 11, 16, 19, 21, 22, 33, and 34.*
28. **Lack of proper training/job knowledge.** This is often times manifested in poor work products, errors in judgment, and employee frustration in their own inability to accomplish required tasks. *Possible Cause Numbers: 1, 2, 16, 24, 35, 37, and 39.*
29. **Lack of role redundancy or cross-training.** When an employee is not available for work for whatever reason, his or her responsibilities that are critical to the organization and the airport go unfulfilled. *Possible Cause Numbers: 2, 5, 9, 11, 12, 13, 15, 35, 36, and 39.*
30. **Lack of senior staff and/or management support.** Employees in management and leadership roles feel as though executive-level employees or governing authorities are not providing adequate senior-level training, resources, and mentoring programs. *Possible Cause Numbers: 1, 3, 5, 9, 10, 15, 16, 22, 35, and 37.*
31. **Little if any collaboration between divisions.** Employees of one division may resent those of another, personality conflicts are the norm, employees and or supervisors do not understand why it is useful and necessary to seek out ideas and input from other groups, or no clear understanding exists as to the vision and goals of the airport. *Possible Cause Numbers: 1, 2, 4, 5, 8, 9, 10, 16, 17, 18, 19, 22, 28, 29, 31, 33, 34, and 35.*
32. **Little if any face-to-face communication; employees depend on technology and systems to convey information.** Unfamiliarity and lack of interpersonal communication between employees resulting in lack of trust, animosity, and frustration. *Possible Cause Numbers: 9, 13, 15, 23, 24, 25, and 26.*
33. **Little informal communication between the two divisions that would normally foster sense of common purpose and team spirit.** Employees communicate only in regards to the progression and completion of work tasks. Few team members communicate in friendly or social ways during work hours or during free time. *Possible Cause Numbers: 22, 26, 29, 31, and 37.*
34. **Long or excessive meetings for decision making results in wasted time and resources.** Certain teams or divisions frequently schedule long, ineffective meetings in order to reach consensus and solve problems. There is no streamlined process for reaching or implementing decisions. *Possible Cause Numbers: 4, 7, 15, 16, 22, 25, and 37.*
35. **New hires and/or existing employees lack the "soft skills" necessary to facilitate collaboration.** Soft skills include work ethic, positive attitude, communication skills, and time management abilities, problem-solving skills, acting as a team player, self-confidence, ability to accept and learn from criticism, flexibility, and working well under pressure. *Possible Cause Numbers: 1, 2, 16, 24, 29, 31, 32, 35, and 37.*
36. **New hires that come from outside the organization may not mesh well with their peers.** This may manifest itself in existing employees being resistant to new ideas suggested by arriving employees, cultural differences between organizations, disparities in skill levels, or cliques that resent the presence of outsiders entering the organization. *Possible Cause Numbers: 3, 19, 20, 22, and 31.*
37. **No process for continuous improvement.** Employees are not empowered or supported to make process changes based on past failures or successes. *Possible Cause Numbers: 5, 8, and 16.*
38. **Nonperforming employees working against collaboration.** One or several unmotivated employees become major bottlenecks to productivity and efficiency, delaying task completion while also demoralizing and frustrating coworkers. *Possible Cause Numbers: 24, 28, 32, and 35.*
39. **Operations and maintenance staff do not understand how their responsibilities fit in with airport mission/vision.** The nature of operations and maintenance divisions can be very task-oriented, so employees may become overly focused on day-to-day tasks and minutia

rather than seeing the bigger picture, causing them to place more importance on their own role rather the company mission. *Possible Cause Numbers: 4, 5, 8, 12, 14, 15, 16, 22, 24, 28, and 37.*

40. **Passive resistance: employees have little initiative, they do only what is explicitly directed.** Employees do not feel empowered or have little pride in their work; this defeatist attitude often results in employees who contribute the minimum amount of effort to accomplish tasks and have no motivation to take on new initiatives or solve problems. *Possible Cause Numbers: 3, 9, 12, 15, 17, 18, 19, 21, 24, 28, and 31.*
41. **Personality clashes and employees holding grudges over past work.** Certain individuals consistently exhibit hostility towards others on their team or in other divisions, effectively diminishing any possibility for collaboration for them or their fellow team members. *Possible Cause Numbers: 17, 18, 19, 20, 21, 28, 29, 33, 34, and 36.*
42. **Senior management appears to favor outsourcing over having work done within the organization.** Many organizations resort to outsourcing which can result in employees within the organization feeling threatened; in extreme cases employees may sabotage equipment that has become the responsibility of the contractor or offer little if any assistance in making task transfers to the contractor. *Possible Cause Numbers: 1, 2, and 3.*
43. **Supervisor promoted from within not performing well.** May be manifested in several ways, including unrest and frustration exhibited by supervisor's direct reports and supervisors of other divisions, slowdowns in work completion, etc. *Possible Cause Numbers: 16 and 37.*
44. **Supervisor's management skills have developed based on generational, cultural, racial, or gender orientation.** Certain individuals may be favored or mistreated due to certain demographics, effecting team cohesiveness, and upward mobility for some employees. *Possible Cause Numbers: 17, 18, 29, 33, 35, and 37.*
45. **The two divisions seem to work together while in "response mode."** Many organizations report that their teams collaborate best when they are in "response mode" due to aligned incentives and high pressure scenarios. *Possible Cause Number: 6.*
46. **Work order status is not reported in a timely manner or not at all.** A work order system, whether automated or manual, must provide feedback to the requesting agency as to the status and prioritization of work to be done. When this fails to happen, employees become distrustful of the maintenance organization, frustrated due to lack of information regarding work they believe to be necessary, and resentful due to the impact on their own responsibilities. Under these circumstances, collaboration is unlikely. *Possible Cause Numbers: 26, 27, 35, and 39.*
47. **Work orders are not completed in a timely manner or it seems some work gets done while other requests are ignored.** Issues with communication and work order processes lead to slowdowns in work order completion or incomplete work orders. Differences in prioritization lead to inconsistencies in completion. *Possible Cause Numbers: 1, 4, 5, 8, 16, 26, 27, 35, and 39.*
48. **Work practices established either by tradition or through the collective bargaining process makes completion of tasks difficult.** Excess overtime, poor utilization of resources, illogical allocation of work assignments, union-filed grievances due to failure to adhere to contractual provision, and high costs are symptomatic of this warning sign. *Possible Cause Numbers: 4, 5, 8, 11, 12, 14, 15, and 16.*

CHAPTER 4

Possible Causes

Each unique warning sign can be tied to one or more possible causes. Think of the possible causes as underlying organizational and individual traits, characteristics and practices that can manifest themselves as barriers to successful collaboration efforts. In the warning sign example of cold symptoms, the running nose and headache could be the result of a common cold, the flu, hay fever, sinusitis, or a variety of other diseases or conditions. Without further analysis, treating the symptoms may be ineffective or in the worst case cause even more harm than the symptom itself. With this in mind, look for interrelationships between warning signs that shed more light on possible causes, and thoroughly review the causes and suggested strategies available before embarking on an improvement effort.

Once the applicable warning sign has been identified and reviewed, reference the strategies for fostering collaboration in Chapter 5. There are often multiple strategies referenced, so use your judgment as to which strategies to pursue first based on the unique characteristics of your airport and team. If you employ a strategy without apparent success, try another approach from one of the other recommendations.

Identified possible causes include:

1. **Maintenance may not have adequate material resources to compete all requested work requests.** This could be the result of budgetary constraints, poor purchasing practices, or external constraints such as the centralized governmental body responsible for entity-wide purchasing entering into non-airport purchasing agreements, etc. *Strategy Numbers: 3, 7, 16, and 26.*
2. **Budgetary restraints prevent the hiring of skilled technicians to accomplish necessary tasks.** This might manifest itself in hiring freezes or reductions in work hours with the result being work not getting accomplished. *Strategy Numbers 15 and 22.*
3. **Privatization or the contracting out of work traditionally done by in-house forces may occur due to economic considerations and other work-related factors.** Nevertheless this can cause great animosity among the employee groups who may feel threatened by this trend. This in turn may lower the overall morale of the organization and lesson opportunities of collaboration, particularly between the private company doing the work and airport staff. *Strategy Numbers 7, 9, and 26.*
4. **Management has failed to establish work prioritization** or triage prioritizing those tasks that are most important (safety-related) and then, in descending order, other work needed to be accomplished. *Strategy Numbers 2, 10, and 12.*
5. **Management has failed to provide written direction regarding information flow,** required processes, reasons why such processes are necessary, or has not properly trained all those expected to utilize these procedures. *Strategy Numbers 12, 11, and 2.*

6. **Research suggests that collaboration is more likely under periods of crisis or while in response mode.** Conversely without a sense of urgency and purpose often times the work product suffers. *Strategy Number 13.*
7. **Organization attempts to use collaboration when another form of problem resolution is more appropriate,** e.g., accommodation, avoidance, or compromise. *Strategy Number 4.*
8. **Work environment is reactive versus proactive.** Many airports tend to spend too much time in responding to maintenance failures rather than implementing a well thought out preventative maintenance program. *Strategy Numbers 16 and 10.*
9. **Lines of reporting or organizational alignment can contribute to conflict and poor collaboration between divisions.** Generally speaking, operations and maintenance should be at the same level organizationally. If one or the other is not at the same level, that group will sometimes not receive the attention and/or respect due it. *Strategy Numbers 15 and 7.*
10. **High turnover of senior management,** while sometimes unavoidable, can be damaging to an organization. When the priorities and emphasis of one set of senior managers are replaced by a new list, employees can become disenchanted with their leadership and performance suffers. *Strategy Numbers 9 and 2.*
11. **When a new operations group is introduced there is difficulty in understanding why it is tasked with conducting inspections** rather than maintenance. Even at airports that have had an operations division in place for a long time, there is a legitimate feeling that Maintenance has more experience in not only correcting deficiencies, but also accurately identifying and categorizing their importance. This problem can be attributed to a failure of senior management to explain reasons for the change. Note Possible Cause 14, which should become part of senior management's basis for the division of labor. *Strategy Numbers 22, 9, and 6*.
12. **Traditional organizational charts depict groups of individuals who have the same classes of skills,** e.g., operations, maintenance and engineering. While this is often necessary, the type of arrangement tends to formalize silos with walls or barriers developing over time. Some airports have used a "matrix" concept wherein some skill sets are assigned to a project manager for the duration of the project. In this way silos are reduced in importance. *Strategy Numbers 15, 2, and 12.*
13. **Large airports that have staff numbering in the hundreds and operating 24/7** tend to have greater difficulty in achieving collaboration when compared to smaller facilities. This is natural given the size and complexity of larger facilities. *Strategy Numbers 15 and 12.*
14. **On occasion, employees of an organization fail to understand or appreciate the "law of comparative advantage."** This law suggests that even if one entity can do two different tasks in absolute terms better than another group, it is still best to have the first organization do that which it is best at, for example: maintaining, while letting the other group conduct inspections. It has been proven that this separation and specialization of duties is the most efficient for an organization in the long run. *Strategy Numbers 15, 2, and 24.*
15. **Overly structured chain-of-command,** not enough input from lower level employees. *Strategy Numbers 12, 15, 10, and 26,*
16. **Lack of empowerment at all levels.** Leadership/management fails to use participative practices. Example: management makes budget decisions without staff input. *Strategy Numbers 10, 14, and 6.*
17. **Conflicts between supervisors that tend to cascade down within both organizations.** These can relate to personality conflicts, gender differences, generational approaches to managing employees, or cultural differences between the two individuals. *Strategy Numbers 7, 6, 8, 19, and 25.*
18. **Animosity exists between maintenance and operations employees.** There are a number of reasons that might cause this to happen. The problem may be societal; research suggests that harmony in many workplaces today is more difficult due to pressures brought about by fiscal

constraints. It may be that employees are following the lead of their own managers who are not working together. It may be that the cultures of the employees of the two organizations are so different that collaboration is difficult or impossible. It is possible that resentment of one group of employees against another has some basis. For example, if pay is predicated on only formal educational without respect given years of experience or prevailing salaries paid in the private sector, conflict is likely. Personnel policies or collective bargaining agreements might be in effect that unfairly reward one group over another, or hiring emphasis fails to recognize that soft skills are essential if an employee group is expected to work successfully together. *Strategy Numbers 7, 6, 8, 19, and 25.*

19. **Lack of trust among employees can destroy an organization.** This can occur when management maintains too tight a reign on the activities of employees, fails to respect the capabilities of the individual, or has not provided adequate training or selection criteria to assemble a staff that can be trusted to complete tasks properly. *Strategy Numbers 6, 17, 10, and 19.*
20. **Lack of mutual respect.** *Strategy Numbers 17, 7, and 21.*
21. **Unwillingness between Operations and Maintenance to resolve conflicts.** *Strategy Numbers 8, 7, and 19.*
22. **Conflict is caused by management's failure to provide clear vision.** If, for example, management sends a conflicting message that rewards those who cut costs to the bone, but also considers successful FAA Part 139 inspections without discrepancy criterion for recognition. The problem may stem from senior management's failure to communicate, or it may be a failure of supervisors to comprehend and implement. *Strategy Number 24.*
23. **The two divisions are geographically separated which makes face-to-face communications more difficult.** *Strategy Numbers 5 and 12.*
24. **Lack of formal communication processes.** *Strategy Number 12.*
25. **Supervisor lacks good listening skills.** *Strategy Numbers 18, 14, and 23.*
26. **Sophisticated work order systems have a tendency to remove control from maintenance supervisors and employees** and in doing so lessen direct communication with the requesting agency. It is not unusual to witness "passive resistance" by some maintenance personnel who believe they no longer have control over elements necessary to do their job. Under these circumstances, collaboration suffers. *Strategy Numbers 20, 12, and 19.*
27. **New systems that are introduced either through a capital improvement project or at the request of a division have not been properly vetted by all impacted parties.** The result can be anger, misuse, or election not to use the system due to lack of initial collaboration. *Strategy Numbers 9 and 22.*
28. **Failure to align incentives** between the two divisions can generate inefficiencies in both divisions. For example, if the maintenance division is rewarded for reducing full time positions (FTEs) while the operations division is expected to deliver a successful FAA Part 139 inspection with zero discrepancies, the outcome may be something other than what senior management expects and wants. Additionally, management must ensure that when collective bargaining agreements are negotiated, that work practice provisions do not prohibit the two divisions working in concert. *Strategy Number 2.*
29. **The human resources division along with senior leadership fails to understand the importance of incorporating "soft skill" criteria** into the job descriptions of the airport. It is understood that in some agencies such inclusion is precluded by law, collective bargaining agreements, or policy. Nevertheless these skills are essential if an organization expects to achieve collaboration amongst its employees. *Strategy Numbers 23 and 18.*
30. **In today's work place employees are asked to work longer hours,** expected to accept job descriptions that are more fluid, have less role clarity, etc. It follows that employees find themselves stressed out, sometimes angry, often frustrated, and therefore not in a humor to participate in a collaborative process. *Strategy Numbers 21, 19, 3, and 1.*
31. **Lack of recognition programs/team building focus.** *Strategy Number 19 and 14.*

32. **General lack of pride that employees take in their in work.** Such lack of pride may stem from a recognition that their skills are not up to the expectations of their supervisors, the organization does not recognize employees for work well done, or that supervisors have failed to provide clear direction which results in poor execution of work tasks and hence employee recognition of inferior work product. *Strategy Numbers 10, 19, 14, and 2.*
33. **Employee work style differences.** In today's workplace there can be up to five different generations working together and each have different ideas of how to complete the work and what collaboration actually means. *Strategy Numbers 1, 21, and 20.*
34. **Lack of respect occurs when employees from each division fail to understand the unique skills held by the other group.** While an operations employee often times has a formal education coupled with aviation experience, maintenance has derived much of their capabilities from technical training and on-the-job experience. Both sets of skills are worthy of respect. Furthermore, self-esteem is essential if one expects an employee to work to his/her fullest capacity. *Strategy Numbers 17, 19, and 23.*
35. **Inadequate training of employees and supervisors in all areas of activity can prove to be detrimental to an organization.** Improper use of radios that generate hard feelings between two employees, poorly worded emails that confuse or anger the recipient, misunderstanding in what the vision and goals of the airport are as promulgated by senior leadership all contribute to poor collaboration. Additionally, without proper training, technology tools that might benefit the organization may go unused. *Strategy Numbers 22, 20, and 14.*
36. **Operations and maintenance make differing assumptions without the benefit of cross training.** *Strategy Numbers 22, 2, and 11.*
37. **Lack of mentorship programs.** Mentoring is a technique that, if done well, instills not only new skills, but also fosters a feeling of recognition and appreciation. From this comes a new level of trust within an organization, an essential prerequisite for collaboration. *Strategy Number 14.*
38. **Lack of operational knowledge by top managers** who make decisions without staff input. *Strategy Numbers 22, 10, and 15.*
39. **Employees have not been properly trained in reading plans.** The ability to read and understand a set of plans and specifications is a complex undertaking and one that requires both training and experience. When employees are asked to review documents provided by Engineering without this necessary background, misunderstandings and omissions are likely. Future conflict between operations and maintenance can then occur in large part because the project was constructed improperly resulting in repeated write-ups expected to be corrected by Maintenance. *Strategy Number 22.*

CHAPTER 5

Strategies for Fostering Collaboration

Strategies represent both tactical as well as more strategic approaches to addressing specific barriers to collaboration in an organization. The 26 unique strategies are presented in-depth in the following sections. It is important to note that most possible causes of barriers to collaboration can be addressed through multiple strategies. There is necessarily some trial and error in every approach to implementing the individual strategies for fostering collaboration.

Strategy 1: Addressing Generational Differences

Generational differences can be an underlying cause of dysfunction and lack of collaboration between employees. The best way to address generational differences is through training and open communication from leadership. By understanding the unique qualities and work styles typical to employees of different age groups, leadership has the opportunity to better leverage individual skills and implement new processes and communication styles to mitigate issues resulting from generational differences.

- HR-provided training sessions (mandatory and discretionary, joint training) to address differences, or leverage an outside consultant or ombudsman if necessary.
- Implement a supervisory exchange program between operations and maintenance.
- Conduct team building activities designed specifically to be cross-generational.
- Find common ground between the individuals involved in order to build trust.
- Become familiar with the tips provided for the five generations currently in the workplace.

There are presently five generations at work (*2*):

- Traditional (born up to 1946)
- Baby Boomers (born 1946–1964)
- Generation Xers (born 1965–1980)
- Generation Yers (born 1981–1995)
- Linksters (born after 1995)

Each generation has different expectations of the working environment, work behaviors, and management.

It is very important to realize and to respect the generational differences in the effort to foster collaboration. Acknowledging the differences will help to build better relationships between generations at work. The following sections provide tips (*2*).

Tips for managing/working with Traditional Generations

Traditionals are reliable and hard working. Workplaces will be enriched by their contributions.

- Recruit Traditionals.
- Make them mentors.
- Teach them new technology.
- Recognize their contributions.

- Give them individual support.
- Let them volunteer.
- Give them titles.
- Express appreciation.

Tips for managing/working with Baby Boomers

Baby Boomers are loyal, have the experience, and will provide you with historical knowledge and perspective.

- Do not ignore them.
- Make them mentors.
- Keep asking for continuous contributions.
- Do not give up on them.
- Learn how to deal with occasional resistance.
- Confront negative behavior.
- Offer opportunities to volunteer.
- Respect their experience.
- Capture their wisdom.
- Give them credit.

Tips for managing/working with Generation X

Generation X will be loyal to the company if the company can meet their needs. They will add values to the company such as challenge, variety, and independence.

- Give them individual recognition.
- Create teams.
- Establish systems to allow talent to move ahead (meritocracy).
- Support their lifestyle.
- Provide flexible schedule.
- Offer sabbaticals.
- Help them prepare for their next job or promotion.
- Provide a variety of experiences.
- Get rid of unnecessary rules.
- Coach them in office politics.
- Challenge them.
- Keep things moving.
- Reward winners and actions.
- Provide feedback and let them have fun.

Tips for managing/working with Generation Y

Managers and other employees will benefit from this generation bringing new approaches and fun to work.

- Create opportunities to bond with each other.
- Avoid promoting the "good old days."
- Create new friendly rules.
- Be open to "virtual" work environments.
- Offer flex time.
- Provide continuous interaction.
- Explain reasoning for decisions.
- Offer coaching and guidance.
- Provide feedback.
- Be specific about the job and expectations and praise them.

Tips for managing/working with Linksters

They are currently teenagers and pre-teenagers and in the work force part time after school and summers. They want to contribute to creating a better world and to be socially responsible.

- Provide thorough job descriptions.
- Treat them as valued coworkers.
- Lead by example.
- Create micro-career path.
- Keep things flexible.
- Thank their parents.

Suggested Reading: *Hey . . . What's the Matter with Kids Today? Or Managing Today's Cross Generational Workforce* (*2*)
by Vince DiCecco

Today's workforce is comprised of a widely spaced age difference between employees – from young upstarts to those who are postponing retirement into their 70s. To manage these employees' varied cultures, values, beliefs, and ages means understanding what makes each different generation tick. Three generations are explored in the article: those born before 1944 (called the Veteran Generation), those born between 1944 and 1965 (called Baby Boomers), and those born after 1965 (called Generation X, Post Boomers, or the 13th Generation). The article is primarily focused on assisting those from the earlier two generations understand not only their own values and how they affect their management style, but also how to understand Generation X employees. This is done through a description of Gen-X's general workplace characteristics and through questions for older generations to ask in order to evaluate how well they can address Gen-X employee issues and retain these employees.

Strategy 2: Aligning Priorities

Differences in priorities between employees can cause major inefficiencies, duplication of work, and frustration. The main focus of this strategy is upon instilling effective modes of communication through repeatable processes, technology systems, and employee training.

Major facets of strategies for aligning priorities include a focus on planning, training, and communication:

- Create feedback loops to requestors so that they can know where their work order sits in queue.
- Good communication at this level (often through an automated function of a CMMS) can act as an incentive to use established work order request guidelines as compared to circumventing the process with direct verbal requests to individual trades people.
- An overall understanding of the FAA Part 139 requirements will help employees better understand how their job responsibilities relate.

In a small airport, work might be planned by the individual that will do the work. In a large airport with a powerful CMMS, a professional planner and scheduler may have responsibility for this task. In medium sized airports, foremen or supervisors typically take on this role.

In all cases, an overall understanding of the FAA Part 139 requirements will significantly help the person who develops work priorities. This understanding can be gained in a few different ways:

- Establish a formal priority setting meeting between the operations and maintenance departments on a regular basis (weekly to start). Make sure communication channels are clear and convey support from a leadership perspective for those involved. Over time, it becomes second nature to the individual planning work tasks to get the jobs done with the proper priority

assignments. The regularity of meetings and the need for detailed discussions on all tasks becomes less important over time, but formal structures that bridge operations and maintenance departments are to be encouraged whenever possible.

- Cross train departments. This has been seen as an effective tool not only for the maintenance organization to get a better understanding of FAA Part 139 so that they can "properly respond" to the requests that may be forwarded by the operations department, but also to give operations managers more sensitivity to the complexity of getting certain jobs done. Common understanding across departments will lead to a more professional approach to these issues.
- Preempt certain requests by providing maintenance schedules to the operations department. At one airport we learned of a maintenance supervisor who quickly tired of redundant operations manager's requests for grass-cutting in different areas of the airfield (lawn maintenance can be critical to an airports wildlife management plans). Instead of living with this annoyance, the manager developed a monthly plan for mowing that separated the airfield into grids and assigned mowing to certain days and times. This plan was then reviewed by operations, approved, and served as a collaborative example of how departments can set priorities respecting each other's needs and responsibilities.

Leadership must understand the importance of aligned incentives and create a group of goals that are compatible with both divisions of the airport. When both divisions understand and buy into these goals, collaborative efforts to achieve them are made easier. An example of these goals might be:

- Achieving a safe airfield.
- Ensuring that the approaches to the terminal building are clean at all times.
- Emphasizing that restroom cleanliness is of the highest priority other than issues of safety, etc.

Suggested Reading: *How the Watertown Regional Airport Designed and Built a Computer-Based System to Meet 14 CFR, Part 139, Airport Safety Self-Inspection Requirement: A Case Study* (*6*) by Eric Dahl, A.A.E.

This paper discusses the Display Life Cycle (DLS) and the way it effects an airport's operation. The DLS has six phases: discovery, notification, verification, response, resolution, and restoration. Each of the six phases is classified into five sub-categories: operations, maintenance, collaboration, active participation, and passive participation.

The Discrepancy Life Cycle (DLC) is a concept the Watertown Regional Airport uses in training personnel to meet 14 CFR Part 139.303 requirements. The DLC allows the airport to demonstrate how each action taken by the airport's safety self-inspectors (airport operations) relates to other airport departments and other agencies.

This computer-based concept demonstrates a method that can help defuse tension between Operations and Maintenance by making more decisions on priority.

Strategy 3: Managing Resources

Availability and appropriate distribution of time, materials, budget, and other resources are imperative to nearly every aspect of Operations and Maintenance tasks. The following strategy provides useful methods for managing resources through the use of technology tools, communication techniques, planning, and purchasing process changes.

The following are some recommended strategies for allocating appropriate resources:

- Look to a CMMS to identify areas of challenge.
- Build strategies to manage processes in accordance with organizational guidelines. For example, in an organization that has elaborate and time-consuming purchasing rules, a focus on warehouse functions of critical equipment may be needed. For those airports with more flexibility, less of a warehousing focus and more of a cost accounting approach may suffice. If you are unable to control purchasing with "just in time" techniques, then build inventory in your warehouse such that longer lead times do not impact maintenance's ability to do its job.
- A proper understanding of the guidelines and requirements of one's airport governance is needed so that an effective strategy can be developed to provide workers with the tools and resources needed to complete assigned tasks. Educate the employee work force on not only the strengths but also the weaknesses of the organization (e.g., purchasing, human resources, etc.) so that new strategies may be developed to compensate for the these deficiencies.
- In the case of some airports, trades foremen are assigned credit cards and can open purchase orders (with limits, wise guidelines, and accountability) for those off-shelf purchases that can delay a work order. Provide designated employees with credit cards so that acquisition of certain parts and services may be completed quickly.
- Pursue an inventory system that insures there are adequate spare parts of critical items when these are needed by a division of the airport.
- Involve workers in restructuring efforts along the lines of maintenance planning. This is integral to final outcomes and attaining a successful availability of material resources. Management should involve both operations and maintenance employees in developing lists of priorities for work to be accomplished.
- Leverage capital projects in an airport to address this issue through adequate provision of "attic stock" or renewable or replacement supplies. When preparing bid specifications for capital and maintenance projects, insure you include essential additional materials which can be added to the warehouse for future use by maintenance.

Capital projects in an airport should address stock issues through adequate provision of "attic stock" or renewable or replacement supplies. For example, an additional 3% of installed ceramic tile should be part of the contractor's deliverable. Look to make sure maintenance needs are addressed in the scoping of major capital projects.

Look for collaborative models to address resourcing problems that involve your purchasing departments, maintenance department managers, and the employees. All will contribute as they have a unique piece of the puzzle. Look also to professional guidance, perhaps by taking a project approach to a myriad of maintenance issues including tracking and increasing preventative and predictive maintenance by the introduction or upgrade of an airport's CMMS program.

If resource non-availability is due to a lack of delegation of authority, leadership may want to consider delegating emergency or urgent procurement to a lower level. For example, provide P-Cards to maintenance supervisors so they can procure deicing fluid, auto/equipment parts, etc. at all times and not need to rely on bid and other slower procurement processes that are normally used.

Warning: While implementing automated technologies such as a CMMS has proven a positive influence upon collaboration, introducing new technology should be done with proper training and communication on all levels. New technology can cause interpersonal communication issues between employees. See Strategy 20: Technology for more information about fostering collaboration with technology.

Further, operations should be engaged in the maintenance priority system not only so that they are aligned on priorities, but also to ensure that operations is aware of any needed resources. It is then up to leadership, both in operations and maintenance, to manage expectations based upon priorities. Priorities are based on information and may be changed based on evolving information. With this new system in place, operations should be careful with escalating an issue if it doesn't need to be escalated so that requests for additional resources are taken seriously when high priority issues arise. Finally, to be proactive and procure resources before they are in short supply or desperately needed, the organization must move away from day-to-day planning. Recommendations for strategic resource planning include:

- Develop a 5–10 year maintenance plan.
- Create work plans for maintenance staff to ensure efficiency and time management.
- Implement a CMMS and thoroughly train all necessary staff.
- Engineering should involve operations and maintenance during planning, decision making, and problem-solving activities.

Depending on the way in which the airport is organized, procurement may not be responsive to the needs of the line departments, resulting in poor service and subsequent delays in maintenance repairs. Senior management must be made aware of this problem and encouraged to take corrective measures. Employees may mistakenly think the problem resides with the maintenance group when in fact the problem is organizational. Operations and maintenance can and should work together to lobby for an improved purchasing system.

When an airport is part of a larger organization such as a city, county, port authority, or state agency, the needs of the airport may be sacrificed for the good of the larger entity. While it is unlikely that an airport division can modify this structure, it is appropriate that these divisions have a clear understanding as to why such an arrangement exists. The employees can be reminded that the reason the airport is successful is due in large part to the overall population within the governing boundaries and without this population the airport would be much smaller. The strategy will not solve the problems associated with this governance issue since a change is most unlikely; rather it will discuss the rational of such organizations and why the divisions within the airport must understand and adjust to this arrangement.

Strategy 4: Alternatives to Collaboration

Collaboration can be an arduous process that is not always conducive to productivity, particularly during time-critical situations. The following strategy addresses circumstances that are not conducive to collaboration and limitations of the collaborative process.

Below are several considerations of limitations of the collaborative process:

- Collaboration is a time-consuming process and can result in organizational resistance if it is forced onto unwilling participants.
- Techniques such as compromise, accommodation, avoidance and dictated direction can be appropriate alternatives to collaboration when time is of the essence.
- Collaboration requires that those involved have the necessary skills and traits to be successful.
- Escalation of events can be avoided, if possible, by dealing directly with a counterpart. Informal communication is a great means of bypassing more formalized collaborative processes when necessary.
- Secure data and information may limit the ability to collaborate or place overly complex challenges in the way of collaboration. Decision making in a vacuum may be a reality of certain circumstances beyond the control of the team. If this is the case, share as much of the reasoning beyond the necessity of protected data with the team that is being excluded from the decision-making process.

Case Study: The Denver International Airport case study shows a unique scenario in which collaboration during the original design and construction of the airport was considered impractical and even detrimental to the project due to inherent financial, political and time constraints.

Though engineering, operations and maintenance initially attempted to collaborate on all aspects of the project, it soon became apparent that "too many cooks in the kitchen" was leading to increased cost from time delays and design changes. Conflict between operations, maintenance, and the engineering planning group was creating indecision on a near daily basis. External sources of problems, including the deteriorating economy, potential loss of governmental support and financial constraints further exacerbated delays and concerns about project completion.

Management was forced to make a series of difficult decisions to secure the future of the project, one of them being the temporary exclusion of operations and maintenance decision makers from participation in the plans review process.

Warning Sign: Warning Sign 3 – Bickering within employee ranks

Warning Sign 31 – Little if any collaboration between divisions

Warning Sign 34 – Long or excessive meetings for decision making result in wasted time and resources

Possible Cause: Possible Causes 17, 24, 5 (See Toolbox for full list)

Strategy: Strategy 4: Alternatives to Collaboration

Strategy 5: Bridging the Geographical Distance

It is important for employees to know each other to feel comfortable communicating and collaborating with one another. With the current advanced communication tools, along with some training and organizational changes, the geographical separation should not be a big obstacle.

Operations and maintenance are often not co-located for a variety of legitimate reasons. However if the two groups or selected members of the two groups can be accommodated in the same facility, better communications and collaboration will result. One approach that has proven successful is the creation of a multi-functional communications center with both operations and maintenance representatives. Airports have gone so far as to have the maintenance group (generator of work orders) embedded with the communication center. If such a facility is created, it is imperative that it be used for all day-to-day operations and not just for emergencies.

The operations and maintenance divisions are obviously interdependent. At some airports one might find the operations group in an airport operations center or uniquely placed in a terminal or office area with air operations area (AOA) access. Maintenance personnel might be housed by their equipment which results in physical separation of the work groups. Leadership needs to be strategic in dealing with these issues. A few concepts that can help address the distance issue include:

- Cross-training assignments to build better understanding of the work requirements and challenges inherent in another work area not only increase professional understanding and empathy but also build personal relationships. In every large airport focus group conducted during the research portion of this project airport, staff suggested that any amount of cross training they had done was valuable and should be encouraged for both professional and work culture reasons.
- Assignments that bring these groups together dealing with common challenges are to be encouraged. During snow events at one large hub airport, it is expected that a chair in the operations room is opened up for a senior field maintenance manager who can get a minute-by-minute feel for the cadence of the storm and the needs and priorities that are coming into the operations department. That manager can better assign assets and personnel, factor in rest/meal periods, and have an easier time programming in "extra mile" requests when the FAA or airline asks for a few more minutes until a runway is closed to land a crucial flight.
- Encourage common celebrations and times to get together to recognize successes such as a positive FAA certification inspection, completion of a challenging construction project, etc. Staff at a smaller airport look for these opportunities and schedule regular barbeques that recognize the performance and accomplishments of these work groups by inviting all airport staff and even board members to take part. When the larger airport community recognizes positive accomplishments of the operations and maintenance departments, it acts as an incentive and a morale builder for collaborative activities.
- Common staff meetings or task-oriented subjects that bring both groups together are to be encouraged. One airport that manages a specific CMMS program has a standing meeting invite for the operations group to join in the weekly work order and priority setting review. There should be no complaint or problem if a corresponding work group is invited to the table and can add input in endeavors like this.

Strategy 6: Building Trust

The development of trust within an organization must begin at the top. First, leaders should strive to select employees that have capabilities commensurate with the tasks to be completed. However, while nice in a perfect world, most of the time it falls to leadership to train employees

to a level that ensures quality performance. Once the employees have these necessary skills, leadership then must respect these competencies and support the employee whenever possible. This is the beginning of trust that is an essential prerequisite for collaboration. Management must recognize that it is their responsibility to develop employee competency and therefore, either through training, selective hiring, or in extreme cases termination of employees, this goal must be reached.

Below are the eight pillars of trust from David Horsager's *The Trust* Edge (*7*):

- **Consistency:** The little things done consistently make for leaders being followed, increased sales and retention, and a higher level of trust. Consistency is the way brands are built and character is revealed.
- **Clarity:** People trust the clear and mistrust or distrust the ambiguous. Be clear about your mission, purpose, expectations, and daily activities. When people are clear about the mission they do the little things differently. A clear mission unifies and inspires. When we are clear about priorities on a daily basis we become productive and effective.
- **Compassion:** Think beyond yourself. Never underestimate the power of sincerely caring. It is the reason we trust our mothers over some salespeople. We are skeptical if the salesperson really has our best interest in mind. "Do unto others as you would have them do unto you" is not just an old saying; it is a bottom-line truth. If followed, it builds trust.
- **Character:** Do what is right over what is easy. Character is a mix of two things. One is integrity, which means being the same from beliefs to words to actions. The other is moral character. Take the high road in every interaction.
- **Contribution:** Few things build trust quicker than actual results. Be a contributor who delivers real results.
- **Competency:** Staying fresh, relevant, and capable builds trust. The humble teachable person keeps learning new and better ways of doing things. They stay current on ideas and trends. There is always more to learn so make a habit of reading, learning, and listening to fresh information.
- **Connection:** People want to follow, buy from, and be around friends. People become friends when they build connections. Ask questions. Listen. Life, work, and trust are about relationships. All relationships are best built by establishing genuine connection.
- **Commitment:** Stick with it through adversity. Followers trusted General Patton, Martin Luther King, Jr., Gandhi, Jesus, and George Washington because they saw commitment. They saw sacrifice for the greater good. Commitment reveals and builds trust.

Tool: The Propensity to Trust Scale

Have employees assess their propensity to trust others using McShane and Von Glinow's propensity to trust scale (*8*). Managers can discuss the results with employees and offer answers to any questions that might arise surrounding trust issues within the groups.

Propensity to Trust Scale (*8*)

Purpose

This self-assessment is designed to estimate your propensity to trust. As the propensity to trust scale shows, organizational benefits such as morale, retention, productivity and innovation are

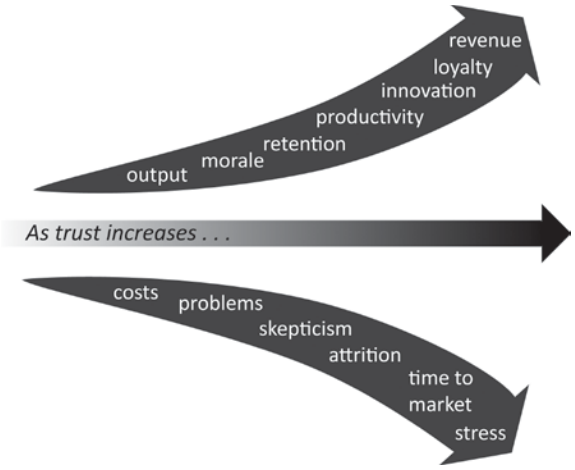

Figure 5. Propensity to trust scale.

products of high trust, and organizational challenges such as stress and attrition are associated with low trust organizational environments (Figure 5).

Overview

Trust is a psychological state comprising the intention to accept vulnerability based on positive expectations of the intent or behavior of another person. While trust varies from one situation to the next, some people have a higher or lower propensity to trust. In other words, some people are highly trusting of others, even when first meeting them, whereas others have difficulty trusting anyone, even over a long time.

Instructions

Participants are asked to read each statement in this self-assessment and indicate the extent to which they agree or disagree with that statement. This instrument has eight statements. Participants then add up their total score and follow the score interpretation below.

Survey

Please read each statement and indicate the extent to which you agree or disagree with each statement.

1 = Strongly Disagree
2 = Moderately Disagree
3 = Slightly Disagree
4 = Slightly Agree
5 = Moderately Agree
6 = Strongly Agree

Most people can be counted on to do what they say they are going to do.	1 2 3 4 5 6
I tend to trust people, even those whom I have just met for the first time.	1 2 3 4 5 6
Unless you remain alert, someone will soon take advantage of you.	1 2 3 4 5 6
Most people would tell a lie if they could gain by it.	1 2 3 4 5 6
My typical approach is to be cautious with people until they have demonstrated their trustworthiness.	1 2 3 4 5 6
I usually give acquaintances the benefit of the doubt if they do something that seems selfish.	1 2 3 4 5 6
Most people pretend to be more honest than they really are.	1 2 3 4 5 6
I believe that most people are generally trustworthy.	1 2 3 4 5 6

Feedback for the Propensity to Trust Scale

Some people are inherently more willing than others to trust others, even if they are meeting them for the first time. This propensity to trust is due to each individual's personality, values, and socialization experiences. This propensity to trust scale estimates your general willingness to trust other people. Your actual propensity to trust will vary to some extent with the situation, whereas this scale provides a broad indication of your initial level of trust as well as willingness to maintain trust when violations occur.

Scores range from 8 to 48 with higher scores indicating a high propensity to trust. The following graph allows you to compare your propensity to trust score to the general population. These norms are estimates based on results of several studies using similar instruments.

Score Interpretation

36 to 48: High trust

24 to 35: Moderate trust

8 to 23: Low trust

Team building sessions among the groups can do wonders in an organization. There are a number of exercises that can be done in a short period of time.

Strategy 7: Conflict Resolution

Conflict resolution seems like a straightforward strategy for fostering collaboration, but often it can be one of the most difficult to navigate. There is a long list of literature on this topic, particularly in the aviation industry. Below are some of the tested methods of conflict resolution that are targeted for operations and maintenance divisions.

- Address conflicts immediately.
- Set mutual goals and hold supervisors accountable for meeting these goals in content and in spirit.
- Provide workplace training or intervention if needed.
- Develop mutually acceptable goals and establish as working standard operating procedures (SOP).

Focus Group: Because their previous work environment was not collaborative, a consultant was retained 15 years ago to provide insight and tactics for fostering collaboration at one surveyed airport. The consultant developed a 15-step process that fit on one sheet of 8.5 x 11" paper. The process defined the roles and responsibilities of operations and maintenance. This process is still used today.

It helps to take a historical view of how operations departments were formed in most airports. When FAA Part 139 requirements were rolled out many years ago, it became clear that new functions had to be fulfilled in certificated airports, often by a new group of employees professionally educated in aviation management. These groups came into airports on top of longstanding

maintenance employees who felt that they had done a good job for many years and that these new upstarts had no role in telling them how to maintain and manage their airfield. In many cases differences, in part due to educational requirements, compensation studies, and so on, intensified tensions. Today's world of shrinking budgets and increasing workloads can affect all of us in a negative manner, but in areas where tensions already exist, recognize that they often get worse during lean times. Although oddly enough, not usually during a short-time "crisis" event. There is no quick fix for resolving conflicts, but there are strategies to consider and implement to address this problem.

- One solution could be to retain an industrial counselor to assess the situation and develop mutual agreements and understandings, such as in the case of the large hub focus group approach, which utilized a consultant to create a list of guidelines and responsibilities that were developed all on one page. These guidelines became the "bible" of how the job would now be done. In the short term, this approach worked. Long term, the selective hiring of new managers and department heads included a strong requirement for a more collaborative working style.
- Look to put both departments under one department manager. It is important that this leader be skilled and cross-trained in both operations and maintenance in order to gain the respect of the workers and to make proper decisions. This leader should oversee both departmental staff meetings, conduct performance reviews of all supervisory staff and be involved in the day-to-day activities of both departments. In the case of one airport, an operations manager was assigned to direct the maintenance department upon the departure of a long-term director. After four years, the operations director retired and it was decided to try and see if both departments could be effectively managed by this one individual. This has been the case and today this airport is recognized as having a uniquely collaborative model with just one department leader. The airlines are also pleased with this model.
- Hire for attitude, especially at the highest levels in the departments. Sometimes old attitudes from history are so entrenched that replacement becomes the best long-term solution. Develop new job descriptions and in some cases bring new directors in as old ones are leaving to start a new momentum. Workers often follow their leaders in actions and it is very difficult to get workers to reach across the table when their leaders are in conflict relationships. To get ready for this time of transition, work with the next level of leaders coming up. Institute cross-training, leverage mentoring programs, encourage professional accreditation for all, and work to set an example of collaboration at the highest levels of the airport organization.
- Cross training may be difficult to schedule and implement, but there is a certain cadence to the seasonal work activities of both groups. Snow and ice control, before FAA Part 139 inspections, heavy grass cutting needs, etc., need to be taken into account, but the more understanding each work group has of the others tasks and responsibilities, the better the chances are for increasing collaboration. Get folks working together as often as possible in a ride-along fashion.
- Address compensation issues from a perspective of fairness. While operations staff may have more education and be responsible for the regulatory relationships with the FAA, the supervision and oversight of those that do the work, often in a contentious environment, comes with its own unique challenges. At the end of the day, each work group should live within a compensation package that offers differing, but overall balanced, approaches to compensation and benefits.
- Look for airport-wide or department-wide chances to interact informally. This increases morale and tends to promote better personal understanding and relationships between employees. Examples include regular barbeques, and semi-annual airport-wide dinners with board members "rubbing elbows" at all levels of the work group. Opportunities like this send the message that the tasks that all do are important.

One of the main causes of conflict between operations and maintenance has to do with the inherent cultural differences between employees of the two divisions. Operations employees tend to have a formal education, which includes a type of vocabulary and goals that differ from those of maintenance and so on. For example, the ambitions of an operations manager may

cause them to leave one airport to gain further advancement. On the other hand, maintenance employees, while often having advanced degrees, pride themselves in their skill levels obtained through technical training and on the job experiences. Generally speaking, they see advancement within the airport and are not as interested in moving to achieve their goals. Managers probably should not attempt to change these cultural differences, but rather understand them and seek out common incentives that both groups of employees can willingly accept.

Each of these warrants a separate discussion outlining strategies that one might use to correct. Approaches could include obtaining a contract ombudsman for issues of this sort. There are men and women who can provide training for employees who might be troubled by the presences of women in leadership positions. If this is a personality conflict, some authors argue that attempting to change these traits is difficult if not impossible. Collaboration is more difficult when leadership is at each other's throat. Senior management must recognize these conflicts and take whatever measures necessary to correct the problem. This ultimately may require the replacement of one or both of the conflicting parties although counseling should be first attempted. This probably represents one of the most common causes of failure to collaborate in an organization. It is also the most difficult to address. What leadership must do is find common goals of mutual importance to both divisions and concentrate on achieving these. For example, if the airport is installing a common use passenger processing system (CUPPS) or other hi-tech operational system, bringing employees of the two groups together for planning is an excellent exercise in collaboration. Having a disaster no-notice drill that only informs the divisions of a general timeframe and nature will force the two groups to sit down together and review and refine disaster plans. In such a scenario, have employees within maintenance monitor operations performance and vice-versa during the actual exercise. To score one another these two groups must study and understand the role of the other.

If frustration exists among operations and maintenance divisions and the cause is longer work hours, blurred job descriptions, pay reductions, etc., greater cooperation will result by addressing these causes. However it is likely there were good reasons why such cutbacks and expanded responsibilities were implemented. If employees understand the reasons for their implementation, the problems can be somewhat mitigated. Consider having an employee, who is respected by his or her peers, sit in budget meetings with the airlines or the board to better understand why reductions have been introduced. Since everyone knows the pay scale in public agencies, leadership must be sensitive to ensuring parity between employees with critical skills. If the airport has the ability to define job descriptions and set pay, it should work with representatives of both groups to reach a fair level of compensation. It can be argued that a skilled technician is worth as much as a new operations manager since the maintenance employee's technical training and on-the-job experience can be vital to the success of the airport. Make no mistake; some people in maintenance divisions take objection to pay levels of operations officers.

If pay differences between the divisions are the result of collective bargaining agreements which do not necessarily try to equate pay with responsibility, management is remiss in letting this condition occur. Conflict and poor collaboration can revert back to the human resources department's failure to place emphasis on the soft skills that are so important in employee and organizational relationships. Job descriptions should be modified to ensure that these important characteristics are included. There should also be available a testing system that has the ability of identifying these abilities in candidates.

In cases of airport privatization or outsourcing of work, collaboration between contractors and airport employees can be very difficult. Senior managers choose to outsource work that has traditionally been accomplished by airport employees for a variety of reasons, ranging from economic conditions, avoidance of inefficient work rules, overly technical work, etc. To mitigate these effects, early meetings with employees should be held to explain the reasoning behind

the decision. Meetings should also include reminders that if extreme cost reductions must be implemented in the future, it will be the policy of the airport that, when practical, private contractors will be the first to go before existing airport employees are released. This helps comfort employees who feel threatened by contractors and express animosity as a result. While this approach cannot always be taken, the upfront communication can serve to allay some concern and associated performance issues.

Tool: Conflict Management Styles Quiz

We each have our own way of dealing with conflict. The techniques we use are based on many variables, such as our basic underlying temperament, our personality, our environment, and where we are in our professional career. However, by and large there are five major styles of conflict management techniques in the toolbox. In order to address conflict we draw from a collaborating, competing, avoiding, harmonizing or compromising style of management. None of these strategies is superior in and of itself. How effective they are depends on the context in which they are used.

One of the best ways to deal with conflict is to understand one's preferred conflict-handling style. Here is a short survey that supervisors and employees can complete to determine how they handle conflict. Each statement below provides a strategy for dealing with a conflict (*9*). Rate each statement on a scale of 1 to 4 indicating how likely you are to use this strategy.

1 = Rarely 2 = Sometimes 3 = Often 4 = Always

Be sure to answer the questions indicating how you would behave rather than how you think you should behave.

1. I explore issues with others so as to find solutions that meet everyone's needs. _____
2. I try to negotiate and adopt a give-and-take approach to problem situations. _____
3. I try to meet the expectations of others. _____
4. I would argue my case and insist on the merits of my point of view. _____
5. When there is a disagreement, I gather as much information as I can and keep the lines of communication open. _____
6. When I find myself in an argument, I usually say very little and try to leave as soon as possible. _____
7. I try to see conflicts from both sides. What do I need? What does the other person need? What are the issues involved? _____
8. I prefer to compromise when solving problems and just move on. _____
9. I find conflicts challenging and exhilarating; I enjoy the battle of wits that usually follows. _____
10. Being at odds with other people makes me feel uncomfortable and anxious. _____
11. I try to accommodate the wishes of my friends and family. _____
12. I can figure out what needs to be done and I am usually right. _____
13. To break deadlocks, I would meet people halfway. _____
14. I may not get what I want but it's a small price to pay for keeping the peace. _____
15. I avoid hard feelings by keeping my disagreements with others to myself. _____

How to Score the Conflict Management Quiz

As stated, the 15 statements correspond to the five conflict resolution styles. To find your most preferred style, total the points in the respective categories. The one with the highest score indicates your most commonly used strategy. The one with the lowest score indicates your least preferred strategy. However, if you are a leader who must deal with conflict on a regular basis, you may find your style to be a blend of styles.

Style Corresponding Statements: Total:
Collaborating: 1, 5, 7 _____
Competing: 4, 9, 12 _____
Avoiding: 6, 10, 15 _____
Harmonizing: 3, 11, 14 _____
Compromising: 2, 8, 13 _____

Brief Descriptions of the Five Conflict Management Styles

Collaborating Style: Problems are solved in ways in which an optimum result is provided for all involved. Both sides get what they want and negative feelings are minimized.

- Pros: Creates mutual trust; maintains positive relationships; builds commitments.
- Cons: Time consuming; energy consuming.

Competing Style: Authoritarian approach.

- Pros: Goal oriented; quick.
- Cons: May breed hostility.

Avoiding Style: The non-confrontational approach.

- Pros: Does not escalate conflict; postpones difficulty.
- Cons: Unaddressed problems; unresolved problems.

Harmonizing Style: Giving in to maintain relationships.

- Pros: Minimizes injury when outmatched; relationships are maintained.
- Cons: Breeds resentment; exploits the weak.

Compromising Style: The middle ground approach.

- Pros: Useful in complex issues without simple solutions; all parties are equal in power.
- Cons: No one is ever really satisfied; less than optimal solutions get implemented.

Tool: Triangle, Circle, Squares: An Experiential Activity Illustrating Diversity Issues

The following exercise was created by Carmen R. Wilson VanVoorhis, Ph.D. from the Department of Psychology at the University of Wisconsin–La Crosse (*29*). This exercise can be used to illustrate diversity among Operations and Maintenance personnel. This is a great exercise to point out cultural differences, generational differences, and gender difference. It will work best if facilitated by someone outside the organization with a group of diverse employees and supervisors. Choose each person's role carefully to further illustrate work role differences.

Group and Supply Needs:

Ages: Late adolescent through adulthood
Size: 15 to 40 participants
Supplies: paper squares, triangles, and circles (one per person) and straight pins

Time required:

30–45 minutes for the activity
15–30 minutes processing

Directions:

Prior to activity, cut paper squares, triangles, and circles in the following proportions:

60% of the group = squares

Remaining 40%:

60% of group = circles
40% of group = triangles

Example of 24 participants:

14 squares
6 circles
4 triangles

The critical components are that:

- There are more squares than circle and triangles combined.
- There are more circles than triangles.
- Distribute shapes and pins to group and have them pin their shape on their clothing.
- Have group members gather by shape.

Hint: Have the squares gather at the front of the room and the circles and triangles gather at either side of the back of the room.

It is helpful for the groups to be as far apart as possible to assure the "other" groups do not hear the instructions given to each group.

This also places the squares in a location of "power."

Give each group their instructions. Preface each group's "rule/goal" with, "I am going to tell you your *secret* rule/goal – it is critical that you follow this *secret* rule/goal."

Group rules/goals (remember, only tell each group their rule – do not, for example, tell the squares the circle's rule).

Square rule: "You have it, and you do not want anybody else to have it" (see footnote)

Circle rule: "You want to be a square."

Triangle rule: "You want what the squares have. You do not want to be a square, but you want what they have."

Tell groups to "Go to it!"

They usually ask questions about what they should do. The best answer for this question is: "Accomplish your goal."

If they ask questions about what they can or should do, the best answer is: "It is up to you (obviously within safety bounds)."

Typical Pattern of Results:

For about five minutes, the circles and triangles will chase the squares and try to thieve things from them.

The squares respond by running away from the circles and triangles and/or form some physically cohesive group (e.g., lock arms) such that the triangles and circles cannot penetrate the boundaries.

The triangles and circles give up and go back to their original grouping place to confer about a plan of action.

During this time, the squares are usually in fairly good spirits and chat about nothing in particular.

The triangles and circles usually join together and begin discussing their respective goals. They may even ask the squares their goal, but the squares do not usually reveal it.

Often a few individuals within the triangles and circles suggest that they all remove their shapes. Others in the group usually respond that they do not want to because being a triangle/circle is important to them.

As the circles and triangles discuss their positions, the squares usually become quite attentive to the fact that the circles and triangles no longer seem to be as interested in the squares.

At this point, the squares frequently become "worried" and try to re-engage the circles and the triangles.

From this point forward, groups usually discuss the logistics of the rules/goals. The triangles and circles try to convince the squares that everyone can get along, while the squares stubbornly disagree. Many times, some individual squares will break from the group and join the circles and triangles.

Processing Ideas/Questions:

Begin with the triangles, then circles, then squares and ask them what it was like to be a triangle/circle/square.

The triangles and circles basically say it was frustrating.

The squares usually have the most negative response. Many individuals are very uncomfortable playing that role.

Ask why they followed through with the rule. They might respond that they did it because they were told to do it. Compare societal undercurrents/rules to the rule/goal they were given, and how both are difficult to fight.

Some Theory:

It helps to frame this activity in terms of working with individuals from different cultures and review the following. Historically, two approaches to examining multicultural issues.

Emic—emphasizes cultural, racial, and ethnic differences among people. Assumption: need to master all characteristics of the variety of culture, racial, ethnic groups. Multicultural cookbook—recipes include check-list of group's characteristics and instructions regarding how to interact.

Etic—emphasizes the commonalities between people. By focusing on the cultural, may lose sight of the personal. Tends to ignore specific cultural influences

More recent approach: **Optimal Theory**—all relationships are multicultural in that all people are the same and different (*10*).

Three-part model (Figure 6):

- *Human universality*—those things that everyone has in common (e.g., smile = happiness)
- *Cultural specificity*—specific beliefs, behaviors, norms, customs of a particular culture (e.g., disrespectful to look authority figures in the eye)
- *Individual uniqueness*—characteristics specific to the individual based on experiences, abilities, family, etc. (e.g., outgoing vs. shy; good at math vs. athletics)

Neglecting any one of the three results in an incomplete picture.

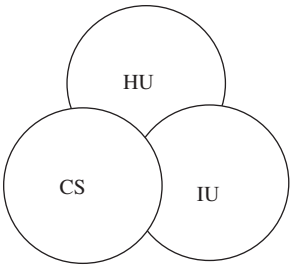

Figure 6. Three-part model.

Implications

- Self-knowledge allows one to appreciate others views, also to explore perceptions and interpretations of others.
- Unexamined, ones' own sense of reality/worldview is frequently perceived as universal and just.

Tool: Writing/Thought exercises to accompany the Triangles, Circles, Squares activity

Included are two "levels" of this assignment developed by Carmen R. Wilson, Department of Psychology, University of Wisconsin–La Crosse (*29*). Level 1 is somewhat more concrete and, therefore, "easier". Level 2 is more abstract, and therefore more appropriate for individuals who have more experience with thinking about worldviews as a whole as well as their own worldview.

Level 1

Optimal Theory suggests that self-knowledge is an important tool in the ability to appreciate others' views. Unexamined, one's own sense of reality/worldview is frequently perceived as universal and just. The purpose of this assignment is to encourage you to explore your own worldview.

The task is to identify and discuss five of your central values—things, concepts, ideas, etc.—which are very important to you. In your discussion, include how you developed that value and what about that value is important to you. Some things you might want to consider in determining how you developed your particular values are:

1. Social political climate (as you were growing up, current climate)
2. Family influenced (past and present, possibly extended)
3. Personal characteristics (abilities, experiences)
4. Gender
5. Cultural/ethnic background

Level 2

As we discussed, identifying our own worldview and values is critical to avoid the assumption that what we believe is universal and just. Before you can keep from imposing your values on others, you must know what it is that you do value. Therefore the purpose of this assignment is for you to begin/continue to explore you own worldview.

Your task is to think about/write a paper that

1. Describes your personal worldview. Use the six dimensions listed here to structure your discussion.
   a. *Social, economic, and political climate* - Where were you raised? What is the climate you are currently experiencing (e.g., recession, unemployment, family income, discrimination, prosperity, liberalism, conservatism, educational opportunity, etc.)?
   b. *Family influences* - What were/are your family experiences, both as a child and at the present time (e.g., nuclear or extended family, roles of members, values transmitted, socialization, childrearing practices)?
   c. *Personal characteristics and experiences* - What are your abilities, experiences, personality characteristics, capabilities, education, talents, and physical abilities?
   d. *Spirituality* - What are your religious beliefs or philosophy of life? What is the meaning you ascribe to the human condition? What are your personal ethics? How do you transmit these into behavior?
   e. *Gender* - How has your gender and the socialization of males and females influenced your experiences and expectations of yourself and others?
   f. *Cultural background* - What are the norms, values, beliefs, traditions, attitudes, and languages of your ethnic and racial heritage? How have these influenced you?
2. Identifies the types of individuals with whom you could work more easily, as well as those with whom you would have more difficulty.

Strategy 8: Dissolving Grudges

Animosity between employees or divisions due to past transgression can be difficult to overcome. In addition to the strategies listed for conflict resolution, the following tasks should be considered:

- Train employees on the importance of their job and why they do what they do.
- Train employees in the "big" picture and how their duties or job fit in the big picture.
- Create or improve the existing work order feedback loop to better promote collaboration.
- Begin a supervisory exchange program between operations and maintenance.
- Involve operations in the maintenance priority system.
- Find common ground to build trust.
- Hold weekly staff meetings with all departments.
- Understand that privately offered safety and operations training is good for all staff so everyone has the bigger picture, even purchasing and accounting.
- Assist the different departments in understanding the "web of interdependence" and how each department is critical. Joint collaboration is needed during emergencies and irregular operations in addition to daily operations.
- Build awareness and examples of the silo mentality and what contributes to the collaboration break-down.
- Share the importance of rallying around a common goal and how to embrace functional diversity to purse and achieve said goal.

Suggested Reading: *Organizational Conflict: What You Need to Know* (*9*) by Greg Giesen

Giesen suggests individual conflict may be more than just an issue between two employees; rather it may well be an "organizational system malfunction." In order to ascertain whether there are organizational factors contributing to conflict, consider four checkpoints. In summary, these are adequate leadership, fostering a supportive environment, accountability for teamwork, and soft-skills training.

Strategy 9: Embracing Change

Long-term employees in airports and other units of government often experience more rapid turnover at the top of an organization. While disruptive, it is not an abnormal occurrence. Senior managers in the Operations and Maintenance work groups need to collaborate at their level to bring stability to their collective work groups in order to improve performance. Rapid turnover at the top is sometimes indicative of problems in an organization, and if the problems are seen to exist in other work groups, disruptive change efforts often spare areas where competence is recognized in an organization. Collaboration is an outcome that must be sought at the staff levels, not only to improve the work culture, but as a protective measure as well. Team building, job sharing, creating greater efficiencies . . . all of these are tools that wise mid-level managers will use to impact their work areas. An unspoken understanding can develop that states, "we live here; those at the top just come and go, if we do a good job odds are they will leave us alone." The following tools should be considered in this type of situation:

- Often mid-level managers and employees are the long-term employees of an organization as compared to senior leadership. Managers should focus on what is in their control (cross-training, building teamwork, rewarding collaborative behavior, etc.) and accept that leadership instability is a factor outside of their control. Employees usually the follow the example

Suggested Reading: *Using Technology to Improve Workforce* Collaboration (*11*) by James Manyika, Kara Sprague and Lareina Lee

This article is intriguing in that it categorizes workers and expectations. The research suggests that improvements depend upon getting a better fix on who actually is doing the collaborating within companies, as well as understanding the details of how that interactive work is done. Just as important is deciding how to support interactions with technology—in particular, Web 2.0 tools such as social networks, wikis, and video. There is potential for sizeable gains from even modest improvements. The survey research shows that at least 20% and as much as 50% of collaborative activity results in wasted effort. And the sources of this waste—including poorly planned meetings, unproductive travel time, and the rising tide of redundant e-mail communications, just to name a few—are many and growing in knowledge-intense industries.

of their own managers and can show stability and high morale even in the light of uncertainty in organization leadership and direction.
- Schedule and participate in team building activities.
- Use job sharing to create empathy and understanding of other roles.
- In extreme circumstances, leverage a "change agent" or similar type of consultative role to facilitate organizational change.

Whenever practical, employees should be brought into the decision process when the airport is considering purchase or implementation of systems that have a direct impact on those employees. This is an example of an opportunity to fine-tune collaborative skills that can then be carried over into day-to-day operations. For example, if a new CUPPS system is being contemplated, project teams comprised of impacted parties along with engineering should be established to ensure proper acquisition and implementation.

Strategy 10: Empowering Employees

Empowering employees comes back to trusting people to do their jobs and also hiring the right people for the right jobs in both operations and maintenance. One variable involves better supervisory training. Often, people performing the jobs get promoted to a supervisory position because they are good at what they do. What they fail to understand is that they have to stop doing what they are best at and delegate those duties to someone else. It's difficult for some people to let go of their original jobs because they are comfortable with those tasks.

Managerial leadership is essential in developing an individual's self-esteem and pride in work product. First, leadership must articulate what is expected of the employee and this set of goals has to be challenging and achievable. There must also be a set of rewards or celebrations for those who achieve or excel in reaching these goals. The sign of a good manager is one who explains clearly what he or she expects, measures the subsequent work product, acknowledges employee success when warranted, and then moves the bar even higher so that not only the employee improves, but the airport benefits. In this way, employees who understand what is expected of them and are recognized for their work will develop pride in the work they accomplish.

Empowerment has a number of prerequisites before management can safely adopt any strategy. This includes ensuring competency of employees, establishment of borders within which employees may move, and a mutual understanding that the decisions reached will be supported by management. Along the way, trust must be gained by both employee and supervisor; otherwise empowerment will not occur.

Additional strategies for employee empowerment:

- Articulate what is expected of employees and include goals that are both challenging and achievable.
- Establish rewards or celebrations for those who achieve or excel in reaching these goals.
- Clearly explain what is expected, measure the subsequent work product, acknowledge the employees success when warranted, and then move the bar even higher.
- Train employees of the importance of their job and why they do what they do.
- Train employees in the big picture and how their duties or job fit in the big picture.
- Measure success as a whole airport team rather than by department.
- Have weekly staff meetings with all departments.
- Use employee recognition programs to give instant recognition to anyone in the organization and distribute achievement awards such as employee of quarter or employee of the year.

- Encourage managers to reward staff from other departments.
- Provide 20 hours of formal training every year in Airport 101.
- Rate managers on the success of this training effort so that training efforts become competitive among departments for best training program.

Suggested Reading: *NUTS! Southwest Airlines' Crazy Recipe for Business and Personal* Success (*12*) by Kevin Freiberg and Jackie Freiberg

The authors document the genesis of a small intrastate airline which over time grew to become one of the largest airlines in the world. Key themes throughout this publication are the need to find and instill in each employee a common vision, the selection of the right type of employee who already has the personality traits necessary to share in the company vision, and to continually celebrate the successes of the individual and the department.

Tool: Path Goal Leadership Strategies (*4*)

Effective leadership can build trust and empowerment in an organization. Often, supervisors are promoted because they are very good at their jobs and it seems like a logical reward for a high-performing employee. However, without the right management skills, many good employees fail at their supervisory tasks. Taking some time and discussing what good leadership means can be an effective strategy to create better leaders, thereby more trust within the group.

Management Development Exercise

Purpose

This exercise is designed to help employees learn about the different path-goal leadership styles and when to apply each style.

Instructions

The exercise begins with employees individually writing down two incidents in which someone had been an effective manager or leader over them. The leader and situation might be from work, a sports team, a student work group, or any other setting where leadership might emerge.

Each incident should state the actual behaviors that the leader used, not just general statements. An example of a good statement is, "My boss sat down with me and we agreed on specific targets and deadlines, then said several times over the next few weeks that I was capable of reaching those goals." Each incident only requires two or three sentences.

After everyone has written their two incidents, the facilitator will form small groups (typically between four or five employees). Each team will answer the following questions for each

incident presented in that team using the path-goal leadership model (outline at the end of this exercise):

1. Which path-goal theory leadership style(s)—directive, supportive, participative, or achievement-oriented—did the leader apply in this incident?
2. Ask the person who wrote the incident about the conditions that made this leadership style (or these styles, if more than one was used) appropriate in this situation. The team should list these contingency factors clearly and, where possible, connect them to the contingencies described in path-goal theory. (Note: the team might identify path-goal leadership contingencies that are not described in the model. These, too, should be noted and discussed.)

After the teams have diagnosed the incidents, each team will describe to the entire group its most interesting incident as well as its diagnosis of that incident. Other teams will critique the diagnosis. Any leadership contingencies not mentioned in the textbook should also be presented and discussed.

Comments for Facilitators

This experiential exercise may sound rather mundane, but some teams can develop interesting examples regarding the value of different leadership styles. The exercise is an excellent diagnostic tool, because employees must fit their reality based examples with the path-goal leadership module (Figure 7).

There is also a possibility that an incident identifies a contingency for a leadership style that has not yet been discussed in the path-goal literature. Moreover, some teams may have difficulty fitting a particular leadership behavior into one of the four path-goal leadership styles. This is because the four styles are not exhaustive. The facilitator can make the exercise more competitive by having other teams listen to an incident and then attempt to evaluate it. After some discussion, the team from which the example originated can present its analysis of the incident.

Path-Goal Theory summarized: Effective leaders ensure that good performers receive more valued rewards than poor performers. Effective leaders also provide the information, support, and other resources needed to help employees complete their tasks.

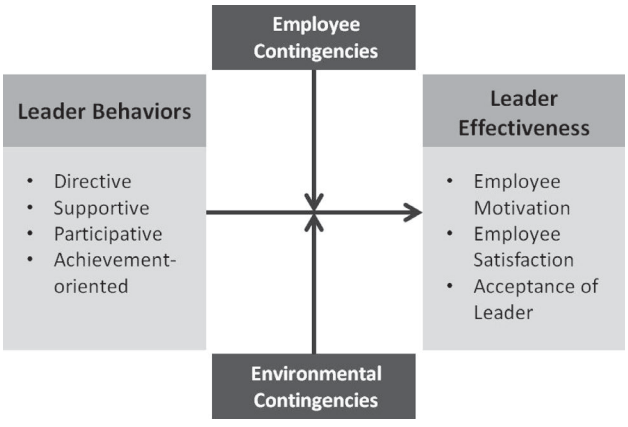

Figure 7. Path-goal leadership model (4).

Leadership Styles

Directive: Clarifies behaviors and goals and provides standards against which performance will be judged. It is sometimes called task-oriented leadership. Works well when employees are unskilled or lack experience.

Supportive: This type of leadership style provides psychological support for subordinates. The leader is friendly and approachable and treats employees with equal respect.

Participative: This type of leader encourages and facilitates subordinate involvement in decisions beyond their normal work activity. The leader consults with employees and seriously considers their ideas before making a decision.

Achievement-oriented: This type of leader encourages employees to reach their peak performance. They set challenging goals for employees and expects them to perform at their highest level.

Contingencies of Path-Goal Theory

This theory states that each of the four leadership styles will be effective in some situations but not in others. There are two key sets of situational variables that moderate the relationship between the leader's style and effectiveness. Understanding **employee characteristics** such as *skills and experience* and *locus of control* will help the leader determine the best style to use with employees.

Additionally, the **work environment** will moderate the leader's style and effectiveness as well. In particular, the *structure of the task* as well as the *team dynamics* will help leaders decide how best to be effective.

Choosing the Best Leadership Style for the Situation (*4*):

- Employee lacks skill or experience: Use directive and supportive styles.
- Employee is highly skilled and has plenty of experience: Use participative and achievement-oriented styles.
- Employee has an internal locus of control (focuses on what he/she can do better; doesn't blame others for problems): use participative and achievement-oriented styles.
- Employee has an external locus of control (usually blames others for their problems): use directive and supportive styles.
- Employee performs highly routine (repetitive) tasks: use supportive style.
- Employee performs non-routine tasks: use directive style if employee also lacks experience; otherwise use participative style.
- Employee works in a low cohesion team: use supportive style.
- Employee works in a team with counterproductive work norms: use directive style.

Strategy 11: Establishing Role Clarity

It is common for maintenance employees to have a misconception of the purpose of operations related to identifying problems associated with maintenance and repair. They argue or quietly believe that they are as or more capable of identifying maintenance issues than those within operations and therefore should be the ones to fulfill the inspection role**.** Training in the concept of division of labor, specialization, the law of comparative advantage, and the logic of operations being the eyes and ears of the airport can go a long way in eliminating confusion about roles and responsibilities.

Tool: Focus Group Agenda

In order to teach groups to work collaboratively for problem solving, establish a focus group or groups with operations and maintenance staff. Define an agenda with a collaboration problem area or areas (it is better to have several sessions and preferably only one major topic at a time). Use a neutral facilitator to ensure the process is not biased or perceived to be biased. Follow-up to the focus group results must be part of the agenda and assignment.

Setting the Stage: Problem or concern.

Check-In: Housekeeping and rules of engagement.

Current Conditions: Problem/issue for discussion

What are the perceived issues? (Rounder-around table).

Identify enablers, obstacles and risks?

Brainstorming: Tools and Ideas for Improving Situation

What can make it better? (Rounder-around table)

What is in our control? What is out of our control?

How can we make it happen?

Areas of responsibilities defined and agreed to.

Reflect: Next steps/action items

Check-Out: Any necessary follow-up.

Cross-training

Developing a cross-training program can help employees learn about the responsibilities of other divisions. The intent of the program is to insert staff from the maintenance division into the operations division and vice versa. For the most effective and far reaching change, the cross-training should be done at the supervisor level or above. If the cross-training is successful, the supervisor or manager will take the new knowledge back to their respective division and teach others in the division what they learned, ultimately helping to build more collaborative relationships and understanding the necessary division of labor between the divisions. Be sure to capture lessons learned from cross-training sessions to be utilized in future trainings and discussions.

Ride-alongs

Develop a ride-along program between the operations and maintenance division line staff to help employees improve personal relationships and communication while gathering knowledge about each other's roles. For example an operations/airfield manager may ride along with an electrician or snowplow operator or vice versa. The ride-along program should be structured with a checklist or some tool that ensures a consistent experience between individual ride-alongs and provides the same opportunity each time. Additionally, a debriefing of some sort should occur. It can be as simple as an email that provides a couple of lessons learned or a web survey tool.

Suggested Reading: *Organizational* Theory (*13*)
by Kathryn Barzilai

This article discusses various organizational theory concepts. Helps the reader understand individual processes-motivational theory, role theory and personality theory. Group processes—working in groups/communication, leadership and power and influence. Organizational processes—organizational structure and organizational culture.

Strategy 12: Improving Communication

To achieve information flow, management needs to be involved and develop directions to provide the base. The direction needs to be written for basic everyday situations and for emergency situations and to be supplemented with oral guidance by supervisors when needed. In a case of large airports the use of the overall airport organizational charts (departmental and sectional organizational charts) is a valuable communication tool so that employees may be able to delegate information to the appropriate people within the organization.

Sun Tzu, author of *The Art of War,* suggests that it is the responsibility of the generals to communicate properly that which is expected. If a failure or misunderstanding results, those leaders should again articulate their intentions and desires. If once again there is misunderstanding, it must be assumed the responsibility rests in the hands of the field commanders. Though the war theme in this example is a bit heavy, the concept rings true for any workplace. Senior management must ensure their instructions, vision, and goals are properly articulated. Once they have done so, if no improvement is noted, changes must be made within the ranks of the first line supervisors.

First establish a formal communications plan that encompasses all levels of communication both internal and external. Include how, when, written format templates, etc.

Tool: Communications Management Plan Template
(See Appendix B)

A second approach is a focus on broad leadership development to equip leaders with a broader understanding of the airport's entire operation and empower them to lead their teams. Examples of topics from the Emerging Leaders Syllabus-Port Columbus International Airport:

- Succession planning in each department
- Supervisor academy training
- Learning about other business units and departments
- Leadership styles: understanding differences and how to work with different styles
- Collaboration project assignments to work through existing problems
- Emerging leader program
- Not technical, CEO/director or deputy level (cross training in other departments)

Documenting major activity process flows help improve collaboration by creating responsibility clarity. This should be a collaborative process so that both division/department managers and supervisors agree on the responsibilities within the process. The diagramed processes should be shared with all staff within both divisions.

Suggested Reading: *The Checklist Manifesto, How to Get Things* Right (*14*) by Atul Gawande

Unavoidable failures continue to plague health care, government, the law, and financial industry in almost every realm of organized activity. And the reason is simple: the volume and complexity of knowledge today has exceeded our ability as individuals to properly deliver it to people—consistently, correctly and safely. We train longer, specialize more, use ever-advancing technologies, and still we fail. Gawande makes a compelling argument that we can do better, using the simplest methods: the checklist. Good examples of problem and resolution are provided throughout the book. Pilot checklists and work with the Boeing Company are part of the references as well.

Strategy 13: Learning from Crisis

Research suggests that the best opportunities for collaboration occur under conditions of stress or crisis at an airport. This could be during snow removal, non-snow related inclement weather conditions, aircraft emergencies, visitation of high profile passengers, etc. Obviously it is neither desirable nor practical to wait for emergency situations or generate them to instill collaboration, however management can introduce exercises both pre-planned and no notice that require the two divisions to come together. Exercises wherein a general description of the exercise is provided, but the date of occurrence is withheld from all but a few of the airport's employees, can work well to foster collaboration.

Introduce the concept of organizational learning that says that an emphasis should be placed on acquiring, sharing, using, and storing valuable knowledge for companies to be successful. After each crisis, the parties involved should process the event by doing some kind of feedback session where they can talk about what to stop, what to start and what to continue based on the past crisis. This promotes learning between the two departments and also opens up a discussion for collaboration in times of non-crisis.

Using Dialogue to Promote Learning Between and Among Operations and Maintenance

Our study found that operations and maintenance departments collaborate best in times of crisis. The question then becomes, how do you capture that collaborative effort in times of non-crisis? We suggest that dialogue sessions can help the two departments understand each other's work better, therefore creating a more collaborative environment. The principles are outlined below. More resources are offered at the end of this section.

Case Study: The Gulfport-Biloxi International Airport (GPT) case study focuses on the aftermath of Hurricane Katrina, during which GPT suffered grievous damage. The airport was in the process of a major terminal expansion when the storm hit, and general aviation, cargo and car rental buildings were completely destroyed while the main terminal suffered immense damage as well. As a member of the Southeast Airports Disaster Operations Group, or SEADOG, GPT received help in the form of both personnel and equipment from nine other SEADOG airports. The intervention from SEADOG allowed GPT employees to take the necessary time off to attend to their own family's recovery needs.

Morale was very high during the disaster relief and emergency coordination in the weeks after the storm. The case study notes a "leveling" of all workers regardless of their position or title in the organizational hierarchy. The usual territorial and uncommunicative tendencies of Operations and Maintenance employees were set aside due to the shared goal of restoring airport operations during the wake of a crisis. Years later, the personnel agree that Hurricane Katrina strengthened collaboration in their organization, but not without the help of ongoing, intentional focus on training and team building.

Warning Sign:	Warning Sign 45 - Operations and Maintenance teams work together when in "response mode."
Possible Cause:	Possible Cause 6 - Research suggests that collaboration is more likely under periods of crisis or while in response mode. Conversely without a sense of urgency and purpose often times the work product suffers.
Strategy:	Strategy 13 - Learning from Crisis

Principles of Dialogue

Bohm Dialogue has been widely used in the field of organizational development and has evolved beyond what David Bohm intended: rarely is the minimum group size as large as what Bohm originally recommended, and there are often other numerous subtle differences. Specifically, any method of conversation that claims to be based on the "principles of dialogue as established by David Bohm" can be considered to be a form of Bohm Dialogue. Those principles of Bohm Dialogue are (*15*):

- The group agrees that no group-level decisions will be made in the conversation. " . . . In the dialogue group we are not going to decide what to do about anything. This is crucial. Otherwise we are not free. We must have an empty space where we are not obliged to anything, nor to come to any conclusions, nor to say anything or not say anything. It's open and free."
- Each individual agrees to suspend judgment in the conversation. (Specifically, if the individual hears an idea he doesn't like, he does not attack that idea.) " . . . people in any group will bring to it assumptions, and, as the group continues meeting, those assumptions will come up. What

is called for is to suspend those assumptions, so that you neither carry them out nor suppress them. You don't believe them, nor do you disbelieve them; you don't judge them as good or bad."
- As these individuals "suspend judgment" they also simultaneously are as honest and transparent as possible. (Specifically, if the individual has a good idea that he might otherwise hold back from the group because it is too controversial, he will share that idea in this conversation.)
- Individuals in the conversation try to build on other individuals' ideas in the conversation. (The group often comes up with ideas that are far beyond what any of the individuals thought possible before the conversation began.)

Usually, the goal of the various incarnations of Bohm Dialogue is to get the whole group to have a better understanding of it. In other words, Bohm Dialogue is used to inform all participants about the current state of the group they are in.

The discouragement of open lines of communication both horizontally and vertically result in low morale and poor collaboration. Senior managers who have confidence in their own capabilities should not discourage open communication regardless as to whether the news being communicated is good or bad. Open door policies that exist up and down the chain on balance are healthy for an organization so long as it's understood that: first, the immediate supervisor is notified of any proposed meeting and second, that it is understood such meetings are encouraged with no adverse repercussion ever to occur because the meeting was requested.

To create clarity in communications develop a communications plan to ensure that information is communicated in multiple directions. Open communications will result in increased trust and therefore more effective collaboration.

Tool: Communications Management Plan Template
(See Appendix B)

Involve employees to the lowest level possible in planning and budget matters. For example if a maintenance manager is responsible for the storage and application of deicing chemicals then consideration should be given to empowering and authorizing the same individual to procure chemicals when they are needed and not be constrained with a system that can leave the manager short of materials unnecessarily.

Management/leadership should spend time in both work areas. If the managers are spending time with staff there will be improved communications and increased trust. This may be in the form of a ride-along, walk-around, etc. These activities should be logged or documented to ensure that as many areas are covered as possible and each area is visited on a pre-determined basis.

Measure success as a whole airport team rather than by division; this will discourage silo type activities. Employees who feel they are part of a team will be more likely to use collaborative behaviors.

Stop, Start, Continue Feedback after a Crisis Is Successfully Managed

Purpose: The purpose of the "Stop, Start, Continue" technique is to foster direct and respectful communication between teams or individuals. Teams can use this model to develop a balanced

perspective of areas for improvement, areas of strength, and areas of opportunity as they relate to objectives, behaviors, and performance.

The Stop, Start, Continue model is also very effective in interpersonal conflict situations. Based on the identification of specific behaviors, individuals can use the method to help identify and isolate their concerns and perceived supporting behaviors.

The Stop, Start Continue Model

What are we doing that isn't working? (Something we should STOP).
What should we put in place to improve? (Something we should START).
What is working well? (Something we should CONTINUE).

How It Works

In our context, after a successful crisis is managed, those involved (from operations and maintenance) should complete the questions ahead of time prior to a meeting where the crisis will be debriefed. When the time comes to review the inputs, small groups should be formed to compare and collate responses to each question. Each group then can report their results to the larger group. This process compels participants to identify their concerns, their expectation of change, and the solutions that can support it. This takes participants beyond the here and now, bringing objectivity to the process.

Strategy 14: Mentoring Programs

Trust is a prerequisite for collaboration. Establishing a mentor program with career path opportunities defined for employees to see and work towards aids in developing trust between management and employee. When employees understand that airport leadership is interested in their welfare and advancement, trust should follow and collaborative behavior will be nurtured.

Establish a mentor program. Many times operations internal candidates sometimes compete with external candidates who have experience at other airports or internal candidates with more experience. As shown by an excerpt from the Denver International Airport Mentoring Program, mentorship training is a way to gain exposure and experience in the areas of potential promotion. The mentorship experience is not only valuable in performing current job responsibilities, but can provide the basis for growth of leadership skills that can contribute to their promotion."

A mentorship program can also be used for maintenance employees who wish to move into operations positions. Mentoring employees will empower employees and foster a collaborative work environment.

Employee trust level will increase and cause an employee to be interested in a long-term career, which can result in increased collaborative behaviors. Mentoring employees will empower employees and give one-on-one attention and guidance based on that employee's struggles or needs. This kind of attention develops well-rounded employees with the result of strengthening the organization and creating a collaborative work environment.

Establish a leadership mentor program that will allow employees to prepare for advancement and be ready for growth opportunities. When advancement opportunities occur, skills from this program will equip the individual with the skills to be successful and promote collaboration.

Suggested Reading: *Silos, Politics and Turf* Wars (*16*)
by Patrick Lencioni

New York Times best-selling author and acclaimed management expert Patrick Lencioni addresses the costly and maddening issue of silos, the barriers that create organizational politics. Silos devastate organizations, kill productivity, push good people out the door, and jeopardize the achievement of corporate goals.

As with his other books, Lencioni writes *Silos, Politics and Turf Wars* as a fictional—but eerily realistic—story. The story is about Jude Cousins, an eager young management consultant struggling to launch his practice by solving one of the more universal and frustrating problems faced by his clients. Through trial and error, he develops a simple yet ground-breaking approach for helping them transform confusion and infighting into clarity and alignment.

Suggested Reading: *Mentoring: A Leader's Tool for Employee* Development (*17*) by Marci A. Greenberger, A.A.E.

This paper discusses mentoring at work. As a mentor one does not need to be older than one's protégé by any defined number of years. Peer mentoring can be just as effective as hierarchal mentoring; however matching is important and not all employees have the skills and qualities that would provide for a good mentoring relationship.

Suggested Reading: *A Corporate University Concept for Airports: Strategic Tool for Organizational* Development (*18*)
by Randy Newton, A.A.E.

The author proposes that organizations, especially those with a corporate university (CU), consider use of the balanced scorecard (BSC) to measure organizational performance as a whole, opposed to relying solely on the models that tend to be used to evaluate training and educational programs as individual events. The BSC is centered on organizational vision and strategy, which should be the same goal as the CU. Critical metrics could be designed to measure the following four key focus areas to evaluate organizational performance and provide direction for developing CU programs. The following perspectives are a slight variation of those described by Kaplan and Norton and are presented by the author to account for the differences between private and public entities:

- Serve the customer and community.
- Manage resources and invest in the future.
- Excel at innovative, responsive, and consistent services.
- Recruit, develop, and retain a skilled and diverse workforce.

Strategy 15: Organizational Structure

Lines of reporting or organizational alignment can contribute to conflict and poor collaboration between divisions. Generally speaking both operations and maintenance should be at the same level organizationally. If one group is on a lower level, that group will sometimes not receive the attention and/or respect due it.

While there are dangers in "rearranging the deck chairs on the Titanic," sometimes it is necessary to change an organization with an improved reporting structure. Generally speaking, it is wise that both the heads of operations and the maintenance report to the same person, e.g., the deputy director for operations and maintenance or to the director of aviation. This ensures that the two essential divisions are properly and equally represented in issues of policy and resource allocation. Admittedly other structures have been successful at certain airports, but research suggests that as a general rule operations and maintenance should be on an equal footing.

Traditional organizational charts depict groups of individuals who have the same classes of skills. While this is often necessary, the type of arrangement tends to formalize silos with barriers to communication developing over time. Functional organizations (organizations that are grouped by discipline) are the norm for most airports and normally work reasonably well, but by the same token it tends to encourage silos, poor communication between divisions, and lack of collaboration. Airports may consider using a variation of the matrix organization wherein projects or tasks are defined: a team is assembled drawing from both operations and maintenance with the defined goal of accomplishing the task in a finite period of time. By creating such teams, collaboration becomes much more practical and even after the team is dissolved, those developed relationships can be the catalyst for future collaborative efforts.

Other suggestions for organizational changes include:

- Supplement full time employees (FTEs) with temporary or contracted personnel.
- Analyze work expectations and decide priorities and what work may be able to be eliminated or modified. For example, if quarterly PM inspections are adequate, there is no need for monthly inspections.
- Recognize inequities where education is favored over work experience and strive to bring a more equalized approach to compensation, benefits and work assignments.
- Align organizational structure by developing comparable job titles (manager, assistant manager, director, etc.) at comparable levels of responsibility in each work group.

Often comparable worth studies or other tools used by organizations to set value on certain jobs favor education over technical skills and often minimize the challenges of leading large work groups. Wise leaders can recognize inequities like this and strive to bring a more equalized approach to compensation, benefits and work assignments. Every airport or other governmental unit has their unique challenges in this arena, and solutions offered will be unique to that organization. Frank discussions with affected work groups can help to develop arguments to support this cause and to bring the knowledge that upper leadership cares and wants to develop a more equitable approach.

- Cross-training and ride-alongs can be a good way to build understanding and trust throughout the ranks,
- Management should set the example by spending time in both work areas as well.
- Look to celebrate organizational successes together.
- Provide FAA Part 139 training to all maintenance employees so that they can better understand the expectations of the FAA and the operations group.

Proximity of work groups, historical differences between the departments, and other airport problems has been noted. As in any change process, recognition of the problem is always a first step, followed by analysis and implementation of various change strategies. Success has been seen by consolidation of departments in the case of one large hub airport. Teamwork, cross-training, and other opportunities to bring the work groups together professionally and personally all seem to help. It is necessary to evaluate the performance of the leaders in the operations and maintenance work groups. If conflict exists at that level, it will be very hard to get the staff to cooperate and collaborate.

- In a worst case situation, bring in an industrial counselor to assess the situation and develop mutual agreements and understandings.
- Look to put both departments under one department head. It is important that this leader be skilled and cross-trained in both operations and maintenance in order to gain the respect of the workers and to make proper decisions. This leader should oversee both departmental staff meetings, conduct performance reviews of all supervisory staff and be involved in the day-to-day activities of both departments. In the case of one airport, an operations manager was assigned to direct the maintenance department upon the departure of a long term director. After 4 years the operations director then retired and it was decided to see if both departments could be effectively managed by this one individual. This has been the case and today this airport is recognized as having a uniquely collaborative model with just one department head. The airlines are also pleased with this model. Excellence in performance married with the lowest cost per enplaned passenger of any large snowbelt airport.
- Recognize that with attrition comes opportunity. Hire for attitude, especially at the highest levels in the departments. Sometimes old attitudes from history are so entrenched that replacement becomes the best long term solution. Develop new job descriptions and in some cases bring new directors in as old ones are leaving to start a new momentum. Workers often follow their leaders in actions and it is very difficult to get workers to reach across the table when their leaders are in conflict relationships. To get ready for this time of transition, work with the next level of leaders coming up. Institute cross-training, encourage professional accreditation for all, and work to set an example of collaboration at the highest levels of the airport organization.
- Cross-training may be difficult to schedule and implement, but there is a certain cadence to the seasonal work activities of both groups. Snow and ice control, before FAA Part 139 inspections, and heavy grass cutting need to be taken into account, but the more understanding each work group has of the others tasks and responsibilities the better ones chances are for increasing collaboration.
- Address compensation issues from a perspective of fairness. While operations staff may have more education and be responsible for the regulatory relationships with the FAA, the supervision and oversight of those that do the work, often in a contentious union environment, comes with its own unique challenges. At the end of the day, each work group should live within a compensation package that offers an overall balanced approach to compensation and benefits.
- Look for airport-wide or department-wide chances to interact informally. This increases morale and tends to promote better personal understanding and relationships between employees. The staff at GPT has regular barbeques, and semi-annual airport-wide dinners with board members rubbing elbows at all levels of the work group. Opportunities like this send the message that the tasks that all do is important.

Operations and maintenance personnel have little, if any, control over who is selected in senior leadership positions, but they can play a role in communicating issues important to them and possible solutions regarding these issues. If these groups sit back and express frustration without being proactive in helping senior management, they are then equally to blame for the ultimate failure of the organization. There are risks in offering advice to certain senior managers, so employees must use tact, selectivity, and timing when advancing their agenda.

Strategy 16: Proactivity and Planning

Organizations that plan for emergencies, lay out preventive maintenance programs, and train their employees to follow these plans are normally more successful than those that "fly by the seat of their pants." Success breeds confidence in management and the employee, which ultimately facilitates collaboration.

The following are suggested strategies for proactivity and planning to foster collaboration:

- Lay out preventive maintenance programs and train employees to follow them.
- Manage expectations on priorities.
- Organization is key: planning requires an organized staff to function correctly.
- Privately offered safety and operations training is good for all staff so everyone has the bigger picture, even purchasing and accounting.
- Contingency planning provides a proactive methodology to have shared situational awareness during irregular operations and/or emergencies
- Successful airports that have in place contingency planning and a proactive culture have the following set of activities:
  - Coordination—Well established structural mechanisms and processes that allow employees to focus on the end result/problem and the passenger/customer by harmonizing information and activities across the different functions.
  - Cooperation—They proactively encourage people in all parts of the organization, through the embedded culture, to work together in the interest of passenger needs.
  - Capability development—Airports ensure that enough people in operations and Maintenance have the skills to deliver passenger-facing solutions.
  - Connection—Proactive contingency planning is also about developing relationships with external partners so when an emergency or an irregular operational events occur, the communications paths are in place.

Suggested Reading: *The Management and Organization of the Duties and Responsibilities of a Department of Planning and Engineering* (*19*) by Thomas L. Mertens, PE

The author notes that "successful airport management requires a closely coordinated effort among various departments of a management team." The paper focuses on the roles that a planning and engineering department must hold. The paper describes the duties and responsibilities of a planning and engineering department, well defined policies and procedures, reliance and interface with consultants and contractors. the author also describes key personnel within this department and the responsibilities within each role.

Strategy 17: Respect

There is no question that the skill sets of the two divisions, while often vastly different, are to be respected. It is interesting that within Southwest Airlines, aircraft maintenance employees and pilots work quite well together. The company has done a good job in selecting people with good soft and technical skills, but more importantly they have aligned incentives so that both groups

understand and support common goals. Airports, in addition to providing cross training and encouraging visitations to each of the divisions, should also establish common goals which both organizations can buy into. For example, during snow removal both divisions should understand the importance of clearing runways safely and quickly and with (for example) high Mu meter readings. Once these goals have been accepted, then a set of airport performance indicators and measuring techniques can be introduced. Working together to reach these common goals will lead to mutual respect and trust in each organization's unique set of skills.

Team building sessions among the groups can wonders in an organization. There are a number of exercises that can be done in a short period of time.

Tool: Survival Exercise: Lunar Survival Teambuilding Exercise

A Teambuilding Exercise from the Harvard Kennedy School Saguaro Seminar on Civic Engagement in America (*5*).

Instructions

1. Give individuals the instructions for participants, Lunar Survival Score Sheet, and the detailed description of items.
2. Have individuals read the survival exercise and have each individual prioritize the items for survival in rank order. (Step 1) (10-15 minutes)
3. Once all individuals have done this and recorded their individual votes on their score sheets, tell the group that they can discuss their answers together to learn from the collective wisdom in the room. Begin talking as a group to figure out how to reach a group decision about the ranking. (25-30 minutes)
4. Group can decide whether to resolve differences through a collective vote or by further discussion.
5. On an overhead, record the group decisions and have each of the individuals fill this in on their score sheet. (Step 2)
6. Supply the expert rankings from Slide 5 and have the group fill these in. (Step 3)
7. Have each participant compute the individual and group scores on the score sheet. (Steps 4 and 5)
8. Record all the gains and losses and see how the collective wisdom of the group improved the scores.
9. Reinforce the idea that the group score should be better than the best individual score. If this is not the case, ask for the reason why. This might mean that there is a lack of trust within their team or that the consensus decision making process is not working. Have the groups come up with their own ideas about why their group score is not optimal.

Instructions for Participants: In the following situation, your "life" and "death" depends upon how well you can prioritize items for survival in a relatively unfamiliar environment. This problem is fictional, although the ranking to which you will compare your results was done by a number of space experts.

The Situation

You are a member of a lunar exploration crew originally scheduled to rendezvous with a mother ship on the lighted surface of the moon. Due to mechanical difficulties however, your

ship was forced to land at a spot some 320 kilometers (200 miles) from the rendezvous point. During the re-entry and landing, much of the equipment aboard was damaged, and, since survival depends on reaching the mother ship, the most critical items available must be chosen for the 320 km trip.

Your Task

Figure 8 lists the 15 items left intact and undamaged after landing. Your task is to rank these items according to their importance in aiding you to reach the mother ship, starting with "1" the

Items	Step 1 Individual Ranking	Step 2 Team Ranking	Step 3 Expert Ranking	Step 4 Difference Ranking [1-3]	Step 5 Difference Ranking [2-3]
Compass					
First Aid					
Flares					
FM receiver					
Food concentrate					
Heat					
Map					
Matches					
Milk					
Oxygen					
Parachute					
Pistols					
Raft					
Rope					
Water					
Total the absolute differences of Steps 4 and 5 ---------- → (the lower the score the better)				Your Score	Team Score

Figure 8. Lunar survival score sheet.

most important, to "15" the least important. You should assume that your crew is your class, you have agreed to stick together, and all 15 items are in good condition.

Lunar Survival Items

- Detailed description of items
- Compass, magnetic
- First aid kit w/ hypodermic needles
- Flares, signal
- FM receiver/transmitter (solar-powered)
- Food concentrate
- Heating unit, portable
- Map (stellar map, moon's constellations)
- Matches (1 box)
- Milk (1 case dehydrated milk)
- Oxygen (2 50 kg tanks)
- Parachute silk
- Pistols (2 .45 caliber)
- Raft, life (automatic inflating)
- Rope, nylon (20 meters)
- Water (25 liters)

Answers: Expert ranking (read to participants after they have worked in their groups)

Oxygen	1	Fills respiration requirements
Water	2	Replenishes loss by sweating, etc.
Map	3	One of principal means of finding directions
Food	4	Supply daily food required
FM receiver	5	Distress signal transmitter, possible comm. w/ another ship
Rope	6	Useful in tying inured together, help in climbing
First aid kit	7	Oral pills or injection medicine available
Parachute	8	Shelter against sun's rays
Raft	9	CO bottles for self-propulsion across chasms, etc.
Flares	10	Distress call when line of sight possible
Pistols	11	Self-propulsion devices could be made from them
Milk	12	Food mixed with water for drinking
Heating unit	13	Useful only if party landed on dark side
Compass	14	Probably no magnetized poles, therefore useless
Matches	15	Little or no use on moon

The concept of positive organization behavior (POB) theory can be used to reinvigorate both trust and respect within dysfunctional organizations. There certainly needs to be a "paradigm shift" in the way the relationships between and among employees in both departments develop. POB is defined as "the study and application of positively oriented human resource strengths and psychological capacities that can be measured, developed, and effectively managed for performance improvement in today's workplace" (*4*). Luthans and colleagues have been attempting to find ways of designing work settings that emphasize people's strengths, where they can be both their best selves and at their best with each other.

Facets of POB

Below is a summary of the five facets of POB (*4*). Leadership should consider these attributes when selecting and developing employees for both operations and maintenance.

Confidence/self-efficacy: one's belief (confidence) in being able to successfully execute a specific task in a given context.

- Specific not general.
- Performance process: involvement, effort, perseverance.
- Sources: mastery experiences, vicarious learning/modeling, social persuasion, physiological/psychological arousal.

Hope: one who sets goals, figures out how to achieve them (identifies pathways), and is self-motivated to accomplish them, i.e., has willpower and way power.

- Beyond feelings of things will work out for the best.
- Brand new concept for organizational behavior with considerable performance potential.
- Valid measures show positive link with goal expectancies, perceived control, self-esteem, positive emotions, coping, and achievement.

Optimism: positive outcome expectancy and/or a positive causal attribution but is still emotional and linked with happiness, perseverance, and success.

- Beyond power of positive thinking.
- Both motivated and motivating.
- Seligman's optimistic explanatory style of bad event: external, unstable, specific.

Subjective wellbeing (SWB): beyond happiness emotion, how people cognitively process and evaluate their lives, the satisfaction with their lives.

- Beyond demographics to when and why people are happy.
- Components of SWB: life satisfaction, satisfaction with important domains such as the workplace, and positive affect.
- SWB leads to job satisfaction but reverse not necessarily true.

Tool: Leadership Development: 360 Degree Feedback (*20*)

This tool is used to examine individual versus group perceptions of developmental factors that directly impact leadership effectiveness. The instrument contained as a part of this activity utilizes the group learning activities as a substitute for the workplace. These factors do not rely on innate traits, but rather factors that can be learned from experience. These skills and perspectives really matter in a career. The power of this activity will largely become a factor of the willingness of the student to become an adventurer in the quest for knowledge and personal growth. Each of the factors considered have been shown to contribute to the success or failure of executives in major public and private organizations. If they are understood, they could contribute to the extent each adventurer realizes his or her potential as a future leader.

Emotional Intelligence: capacity for recognizing and managing one's own and others' emotions, self-awareness, self-motivation, being empathetic, and having social skills.

- Currently very popular.
- One of the multiple intelligences.
- "IQ gets you the job, EQ gets you promoted."

Task 1: Distribute a copy of the form titled 360 Degree Leadership Feedback to each member of your group with your name on it. Ask them to rate you from 1 to 5 on each continuum and anonymously return the form to you. Fill out one form indicating on each of the 18 continuums how you believe your group will rate you.

Task 2: Using the scoring sheet, record your scores for Round 1 by placing the letter "S" and then record the corresponding average of the group scores by placing the letter "G." Utilizing a highlighter, highlight the three most dissimilar responses (where there is a gap between your score and the group average). Record those three developmental continuums in the space provided for Round 1.

Task 3: Develop a written strategy for bringing the scores more in line with what you would like the perception of you to be. You may seek more feedback from your group, you may want to read more about the underlying concepts, you may wish to seek advice from your instructor, or you may pick someone to utilize as a role model and spend some time with him/her.

Task 4: Repeat Tasks 1–3 at mid quarter/semester and at the end of the quarter/semester to determine if you have enhanced your leadership skills and the accuracy of your self perception. The group has potential for becoming a "Greenhouse" for individual growth and development, but only in proportion to the individual and the group's commitment to this process. Just as we cannot see the daily growth of a plant, we often fail to see our own growth or allow for it in others. By taking multiple measurements we can correct, redirect our energies, and grow. Without purposeful continuous feedback, we are like a person fumbling in the dark unaware of the obstacles in our path and the resources we have to overcome them.

Note: In responding to each of your peers' requests for feedback, take time to weigh changes you have observed, allow for the possibility of improvement, and maintain the confidentiality that this exercise requires. Remember that real growth is possible when the giver of feedback is allowed to remain anonymous and the purpose of the feedback is not a grade or monetary gain, but rather personal growth. You will be playing two roles in this activity, enhancing your own growth and contributing to the growth of another.

360 Degree Leadership Feedback form: Figure 9 contains a continuum; you are to select the point on this continuum that you believe will be most consistent with the perception of you by your peers in this group. You will solicit feedback from each member of your group as to their perception of your leadership abilities and they will do so anonymously. You will then have an opportunity to compare the results of this feedback with your own assessment.

In Figure 10, record your score for each continuum by placing "S" (Self); record the average score for each continuum by placing the letter "G" (Group). With your highlighter, highlight any score that is substantially different from your own rating.

		5	4	3	2	1	
1.	Strategic Thinker	___	___	___	___	___	Reactor
2.	Perseverance	___	___	___	___	___	Gives-up Easily
3.	Quick Study	___	___	___	___	___	Slow to Learn
4.	Quick to Act	___	___	___	___	___	Very Cautious
5.	Delegates	___	___	___	___	___	Makes all Decisions
6.	Supports Growth	___	___	___	___	___	Prefers Status Quo
7.	Handles Problems	___	___	___	___	___	Avoids Problems
8.	Works Through Team Members	___	___	___	___	___	Does Not Utilize Group Process
9.	Seeks Challenges from Others	___	___	___	___	___	Avoids Challenges from Others
10.	Resolves Conflict	___	___	___	___	___	Avoids Conflict
11.	Sensitive to Others	___	___	___	___	___	Insensitive to Others
12.	Forthright	___	___	___	___	___	Hedges
13.	Balances Work Life	___	___	___	___	___	Concentrates on Work
14.	Accurate Self	___	___	___	___	___	Unaware of Self Image
15.	Friendly	___	___	___	___	___	Cold/Distant
16.	Flexible	___	___	___	___	___	Inflexible
17.	Independent	___	___	___	___	___	Dependent
18.	Follows Through	___	___	___	___	___	Lacks Follow-up
		5	4	3	2	1	

Figure 9. 360 degree leadership feedback form.

		Round 1		Round 2		Round 3		
		Self	Group	Self	Group	Self	Group	
1.	Strategic							Reactor
2.	Preservers							Gives-up
3.	Quick							Slow
4.	Acts							Cautious
5.	Delegates							Decides
6.	Growth							Status Quo
7.	Handles							Avoids

Figure 10. Form for recording continuum scores.

(continued on next page)

	Round 1		Round 2		Round 3		
	Self	Group	Self	Group	Self	Group	
8. Team							Individual
9. Seeks							Avoids
10. Resolves							Avoids conflict
11. Sensitive							Insensitive
12. Forthright							Hedges
13. Balances							Concentrates
14. Accurate							Unaware
15. Friendly							Distant
16. Flexible							Inflexible
17. Independent							Dependent
18. Follow-up							Lacks

Figure 10. (Continued).

Select developmental factors you might want to work on, focusing on two or three at most (e.g., see Figure 11).

Round 1:

Round 2:

Round 3:

Figure 11. Developmental factors form.

As you consider the developmental continuum you are working on, consider the role of feedback from other group members, course materials, skill building exercises, and people you know who may function as a role model or mentor. (We all learn from imitating those we admire or look up to; pride sometimes prevents us from seeing a peer as a possible source of enhancing our own growth.)

Strategy 18: Supervisor Training

Soft skill and technical trainings for leadership employees are crucial to the success of an organization. Regular refreshers not only empower supervisors by giving them tools to be more effective, but this empowerment trickles down throughout the organization. The art of listening can be learned, however it is acknowledged that some individuals are better than others in exercising this skill. Those individuals who have the responsibility for promotion of employees into the supervisory ranks should consider this soft skill as very important and a criterion to be used during the applicant review and interview process.

Focus on supervisor training for making the transition from front line to supervisory responsibilities more effective. Many times a supervisor is promoted based on technical capabilities and provided training in handling disciplinary issues, payroll/timesheets/clocks, etc., but attention is not given to the necessity to provide soft skill training and guidance in good leadership qualities, communications with peers and subordinates. Where supervisors many times fail is in the skills to be able to supervisor previous peers who have become subordinates. Other tips:

- Assign a mentor who the new supervisor will be comfortable learning from and working with.
- Joint supervisor training to encourage collaboration as supervisors from operations and maintenance learn together.

Tool: The Arbinger program

Use the Arbinger program (how to talk to each other) to train employees. This tool explores the impact of self-deception in organizations, the presence of which greatly reduces effectiveness. The Arbinger program helps organizations achieve deep, lasting results and improved attitudes and motivation in employees.

www.arbinger.com

Suggested Reading: *Developing and Implementing an Effective Supervisor Training Program: A Guide for Airport* Managers (*20*) by Pete Higgens, A.A.E.

Airport managers find themselves faced with a number of challenges as they strive to meet the demands of a dynamic aviation industry. Among these challenges is keeping service levels high and costs low. This goal cannot be accomplished by any one individual. In order to lead an effective organization, the airport manager must place trust in, and rely upon, others in the organization. And this trust must be placed in those who hold supervisory positions. Before trust can exist, however, there must

be an understanding that the individuals in whom the trust is to be placed are fully capable of the responsibilities that will be entrusted to them. It is not uncommon for individuals to be promoted to a supervisory position because they had proven to be superior frontline employees with very strong technical skills.

Suggested Reading: *A Corporate University Concept for Airports: Strategic Tool for Organizational Development* (*18*)
by Randy Newton, A.A.E.

Synopsis: The author proposes that organizations, especially those with a CU, consider use of the BSC to measure organizational performance as a whole, opposed to relying solely on the models that tend to be used to evaluate training and educational programs as individual events. The BSC is centered on organizational vision and strategy, which should be the same goal as the CU. Critical metrics could be designed to measure the following four key focus areas to evaluate organizational performance and provide direction for developing CU programs. The following perspectives are a slight variation of those described by Kaplan and Norton and are presented by the author to account for the differences between private and public entities:

- Serve the customer and community.
- Manage resources and invest in the future.
- Excel at innovative, responsive, and consistent services.
- Recruit, develop, and retain a skilled and diverse workforce.

Strategy 19: Team Building

Team building is an extremely important element of any successfully collaborative organization. Case studies show that the most collaborative airports regularly hold or sponsor teambuilding events, whether they are social events or more formal events to recognize and celebrate team wins. This strategy provides further evidence of the importance of team building events as well as suggestions for other methods of promoting team building in an organization.

Many studies show employee recognition is just as important as salary if not more important. Failure to acknowledge employee work and accomplishments can lead to low morale, which is a collaboration inhibitor. Leaders should measure success as a whole airport team, rather than by department alone. Focus on one team, many players. This practice results in employees who feel as though they are part of a team and are therefore more likely to engage in collaborative behaviors.

Sponsor teambuilding activities such as, barbeques, lunches, informal training sessions, etc. The goal of such activities is to build trust and camaraderie between team members. These activities provide opportunities for conversations and understanding regarding other employees' responsibilities and concerns. Joint use break rooms can be used to promote collaborative behaviors by providing a setting for casual time together.

Develop a cross-training program to insert staff from the maintenance division into the operations division and vice versa. For the most effective and far-reaching change, the cross-training should be done at the supervisor level or above. If the cross-training is successful, the supervisor or manager will take the new knowledge back to their respective division and teach others in the division what they learned. Cross-training helps build more collaborative relationships and understanding of the necessary division of labor between departments. This can also help supervisors identify areas where additional training is needed as well as other opportunities for improvement. Conduct joint training sessions with operations and maintenance staff. An example would be training for snow removal each fall.

Develop a ride-along program between the operations and maintenance division line staff. For example, an Operations/airfield manager may ride with an electrician or snowplow operator or vice versa. The ride-along program should be structured with a checklist or some tool that ensures a consistent experience between individual ride alongs and provides the same opportunity each time one occurs. Additionally, debriefing of some sort should occur. It can be as simple as an email that provides a couple of lessons learned or a web survey using a tool.

An employee recognition program can be used to give instant recognition to any individual or team in the organization. Encourage managers to reward staff from other departments.

In a critical situation when communication breaks down between departments it is beneficial to consider the use of an outside consultant to facilitate team building sessions.

Suggested Reading: *Identifying Human Resource Issues that Affect the Productivity in Small Airport Organizations* (*21*)
by Todd McNamee, A.A.E.

This paper talks about how maintaining a high level of productivity is difficult, and any distraction can cripple an organization from operating productively. Several factors contribute to productivity, including, but not limited to, clear and concise communications, motivation, team spirit, training, and a sense of value to the organization. Failure to operate productively can ultimately result in a breakdown of safety, which in turn could result in loss of life or damage to property.

Tool: Team Tower Power – Team building Exercise (*22*)

This exercise is designed to help students understand team roles, team development, and other issues in the development and maintenance of effective teams.

Materials

The facilitator will provide enough Lego pieces or similar materials for each team to complete the assigned task. All teams should have identical (or very similar) amount and type of pieces. The instructor will need a measuring tape and stopwatch. Participants may use writing materials during the design stage (Stage 2 below). The facilitator will distribute Figure 12 and Figure 13 to all teams (provided on the following pages).

	Team Goal	Actual Result	Profit/(Loss)
Material Requirements (Number of pieces used)			
Engineering Proficiency (Height in centimeters)			
Labor Efficiency (Time in seconds)			

(NOTE: The exercise uses engineering standards, so applies centimeters rather than inches. If a metric measuring tape is not available, use the following formula: 1 inch = 2.54 centimeters.)

Figure 12. Team objectives sheet (participant handout).

(Participant Handout)

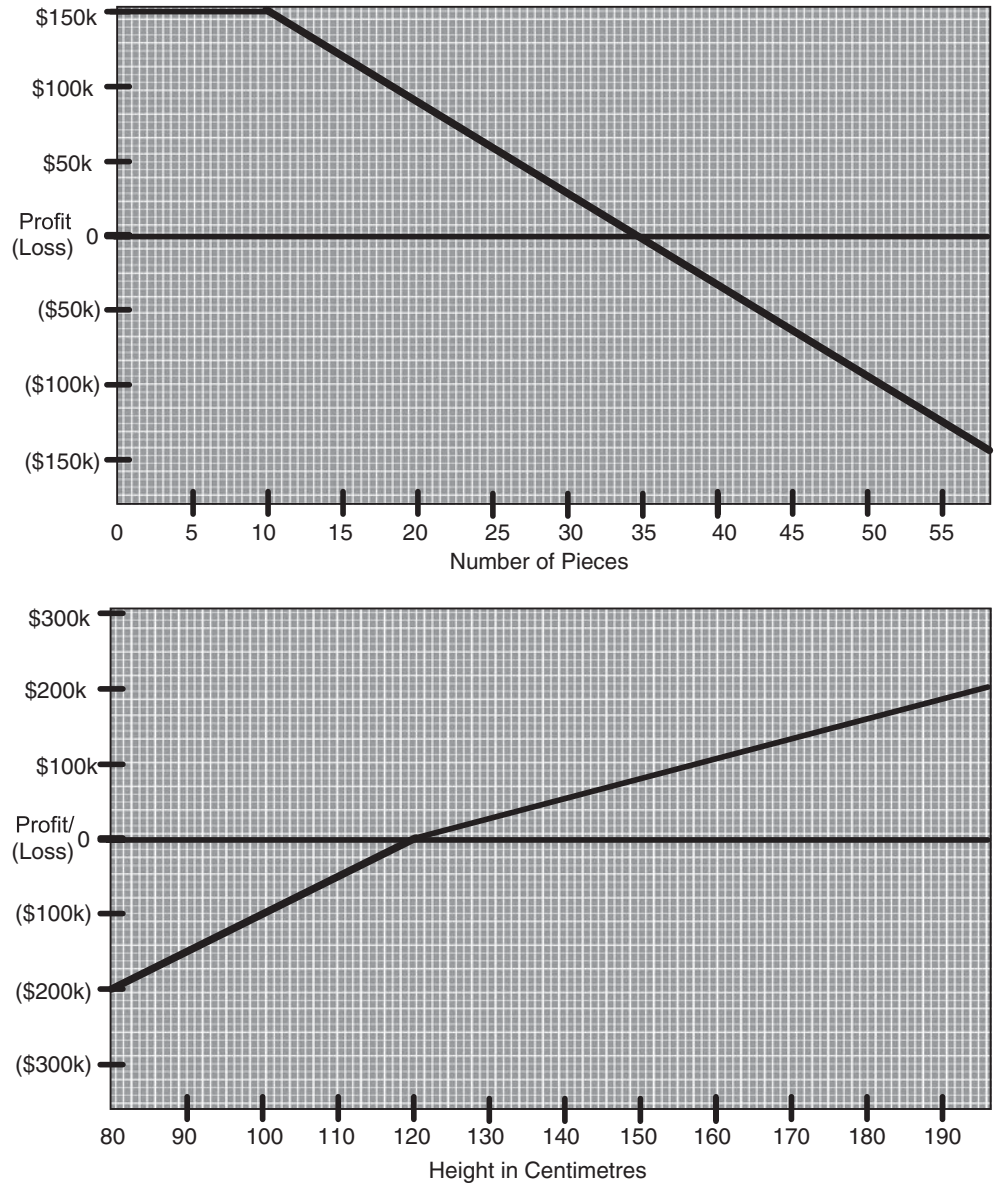

Figure 13. Tower specifications effectiveness sheet.

(continued)

(Participant Handout)

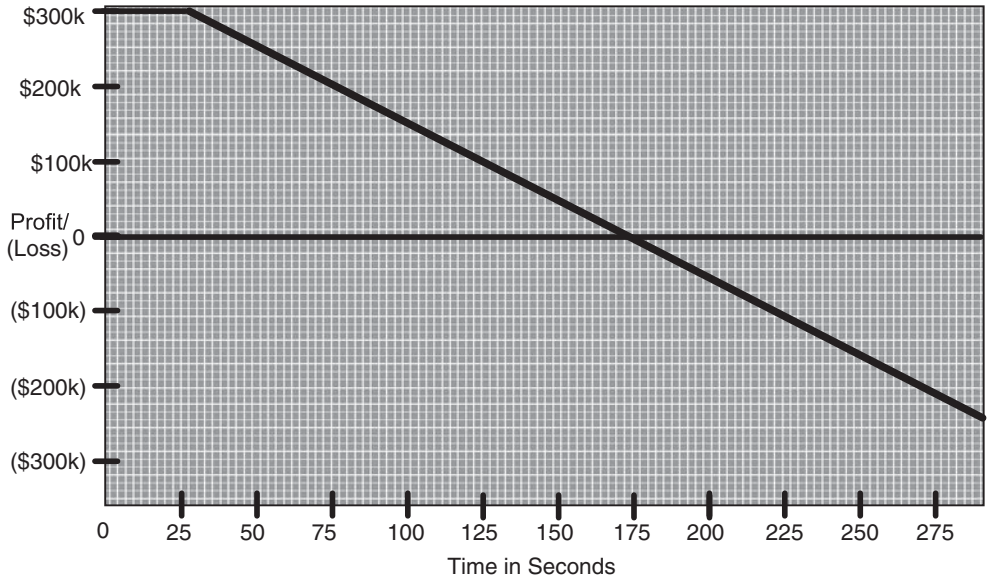

Figure 13. (Continued).

Instructions

Step 1: The facilitator will divide the group into teams. Depending on group size and space available, teams may have between 4 to 7 members, but all should be approximately equal size.

Step 2: Each team is given 20 minutes to design a tower that uses only the materials provided, is freestanding, and provides an optimal return on investment. Team members may wish to draw their tower on paper or flip chart to assist the tower's design. Teams are free to practice building their tower during this stage. Preferably, teams are assigned to their own rooms so the design can be created privately. During this stage, each team will complete the Team Objectives Sheet (Figure 12) distributed by the facilitator. This sheet requires the Tower Specifications Effectiveness Sheet (Figure 13), also distributed by the facilitator.

Step 3: Each team will show the facilitator that it has completed its Team Objectives Sheet. Then, with all teams in the same room, the instructor will announce the start of the construction phase. The time elapsed for construction will be closely monitored and the facilitator will occasionally call out time elapsed (particularly if there is no clock in the room).

Step 4: Each team will advise the facilitator as soon as it has completed its tower. The team will write down the time elapsed that the facilitator has determined. It may be asked to assist the facilitator by counting the number of blocks used and height of the tower. This information is also written on the Team Objectives Sheet (Figure 12). Then, the team calculates its profit.

Step 5: After presenting the results, the group will discuss the team dynamics elements that contribute to team effectiveness. Team members will discuss their strategy, division of labor (team roles), expertise within the team, and other elements of team dynamics.

Comments for Facilitators

This is a fun, competitive activity that suits a variety of organizational behavior topics (e.g., goal setting, organizational structure). It is presented here in the team building strategy because some interesting team work is involved. One observation is how the work is divided up. One person tends to keep track of time; someone else tends to take over much of the design. In some teams, there is a clear leader to guide the group. In others, the team breaks into subgroups with a lack of coordination. It is also interesting to compare teams where participants know each other well with teams consisting of strangers. The latter tend to require more time to organize themselves during the planning stage.

When conducting this exercise, please remember that the specifications for height and number of pieces assume the use of Lego blocks. You should change these specifications if larger materials (e.g., straws) are used. Before beginning Stage 3, watch out for teams that have materials pre-assembled. Be sure that all blocks are separated before the teams construct their towers. I usually have participants spread the blocks out on the floor, and I scramble them around just before construction begins. These towers must be free-standing, so they cannot touch walls or be held up by team members.

If time permits, you may want to give teams a second run of the construction stage. Generally, teams are faster during the second run. This might be discussed in terms of team development (e.g., clearer assumptions and division of roles).

Strategy 20: Technology

As noted earlier in this guidebook, technology can be both a tool to foster collaboration or an inhibitor to collaboration. The key to using technology in a positive way is through training and an emphasis on interpersonal communication.

Though the benefits of introducing technology such as CMMS are plenty, sophisticated work order systems have a tendency to remove control from maintenance supervisors and employees, and in doing so lessen direct communication with the requesting department, division or outside tenant. Under these circumstances, collaboration suffers. Some employees who are not as quick to pick up on the new system may exhibit hesitations or frustration. To avoid these issues:

- Simplify processes if possible for each level of employee.
- Involve the lead workers in setting priorities, perhaps through weekly meetings, and help them utilize the CMMS to aid in their work management, not just create red tape.
- Include planning and scheduling functions, warehousing oversight, parts ordering, interface with financial software for assessment of costs, payroll interface, and sophisticated reporting functions to access all the benefits of the software for all parties.

CMMS are often the backbone of a maintenance and skilled trades department for assignment and tracking of preventative, predictive, and corrective maintenance activities. The industry standard suggests that concentrated efforts in the preventative and predictive maintenance areas will pay dividends in lessening the amount of corrective maintenance which is usually more disruptive and expensive. Fully automated CMMS systems can include planning and scheduling functions, warehousing oversight, parts ordering, interface with financial software for assessment of costs, payroll interface, and sophisticated reporting functions. Powerful CMMS systems can sometimes seem to develop into their own bureaucracies and separate a degree of control that maintenance workers and supervisors are used to having, and may also

act as an artificial barrier between the customer (requestor) and the workers. Some issues to consider include:

- When a program like this is introduced, it is important to have senior management support for its use and application. Customers need to go from the "hey you" approach to maintenance requests towards a more formal process. Maintenance workers may resent the loss of the personal favor relationships that they build throughout an organization.
- It is always most important that the proper work gets done in a timely manner. Consider that as an over-riding goal of an organizations CMMS.
- Communication is an important tool that can be developed though an effective CMMS approach. Maintenance staff at one airport felt like they had lost control over their requests as a formal work order goes into the system and they never know the status of their request. Frustrated, they may revert back to the relational based "hey you" requests to their friends in maintenance and the system gets circumvented. This issue can be wisely addressed by creating a notification system that goes back to the customer. Automated email notifications when work is logged in, assigned, underway and successfully completed will create buy-in and acceptance from the customer. What seems cumbersome and bureaucratic at first soon becomes seen as personal and appreciated.
- Buy-in needs to be sought at the maintenance level for the changes that come with CMMS implementations or upgrades. Project management work can be predictable and frankly a bit boring. Many maintenance workers appreciate their role of "riding in on a white horse" to fix a problem. Involving them in setting the guidelines and rules for application of CMMS systems and organizational rules around their use is necessary. They will see and understand the efficiencies of planning work to stay ahead of the repair curve, and they will be your strongest advocates for the system if brought in on the front end.

Suggested Reading: *How the Watertown Regional Airport Designed and Built a Computer-Based System to Meet 14 CFR, Part 139 Airport Safety Self-Inspection Requirements: A Case Study* (*6*) by Eric Dahl, A.A.E.

This paper discusses the Display Life Cycle (DLS) and the way it affects an airport's operation. The DLS has six phases: discovery, notification, verification, response, resolution, and restoration. Each of the six phases is classified into five subcategories: operations, maintenance, collaboration, active participation, and passive participation.

The Discrepancy Life Cycle (DLC) is a concept the Watertown Regional Airport uses in training personnel to meet 14 CFR Part 139.303 requirements. The DLC allows the airport to demonstrate how each action taken by the airport's safety self-inspectors (airport operations) relates to other airport departments and other agencies.

The computer-based system is programmed to remove problems in department communication and to ensure that all data is descriptive and has proper data integrity.

Suggested Reading: *Using Technology to Improve Workforce Collaboration* (*11*) by James Manyika, Kara Sprague and Lareina Lee

This article is intriguing in the fact that it categorizes workers and expectations. The research suggests that improvements depend upon getting a better fix on who actually is doing the collaborating within companies, as well as understanding the details of how that interactive work is done. Just as important is deciding how to support interactions with technology—in particular, Web 2.0 tools such as social networks, wikis, and video. There is potential for sizeable gains from even modest improvements. The survey research shows that at least 20% and as much as 50% of collaborative activity results in wasted effort. And the sources of this waste—including poorly planned meetings, unproductive travel time, and the rising tide of redundant e-mail communications, just to name a few—are many and growing in knowledge intense industries.

Strategy 21: Today's Work Environment

In today's workplace employees are asked to work longer hours, expected to accept job descriptions that are more fluid, and have less role clarity. There is a saying that a happy sailor is a productive sailor. Leadership must understand the consequences of implementing longer work hours, curtailment of pay, ever increasing workloads, etc., on employee morale. To counter these policies, which for the sake of discussion are necessary, senior leadership must place emphasis on recognition of work well done by individuals and divisions, reward when possible, and provide communication regarding why such policies have become necessary. Today's work environment represents the antithesis of a climate commensurate with collaboration and therefore every step possible should be taken to mitigate these damaging conditions.

Employees are essentially being asked to be more adaptable. Studies have found that management can create an environment where employees become more adaptable (contrary to the idea that an individual is either adaptable or not). Factors that can create an adaptive environment are:

- Allowing employees to participate in process development (this helps them "own" their job changes).
- Clearly communicating job descriptions and changes.
- Creating clear roles will help individuals thrive in their organizations.

Tool: Stress Management Exercise

Everyone has stress in their work environment. Here's an exercise that can be used to help people understand the sources of stress and different ways to cope with it. By helping employees understand and cope with stress, the work environment will be less charged with emotion and more professional and collaborative.

Stress Management Exercise (*22*)

Exercise Goals:

1. To understand how stress affects performance:
   - Define stress and identify key stressors.
   - Recognize the consequences of stress.
   - Learn how the body/mind reacts to stressors.
2. To learn strategies of managing stress:
   - Strategies for eliminating stress.
   - Strategies for building resiliency against stress.
   - Strategies for temporary coping.
3. To develop a personal stress management plan

Directions: Work through this exercise from beginning to end, reading each excerpt and making personal notes in the spaces provided.

Stress and Performance

Q: What is stress? **A:** A condition or feeling experienced when a person *perceives* that demands exceed the personal and social resources the individual is able to mobilize (*23*).

What is your definition of stress?

Q: What is a stressor? **A:** Anything which is intense enough and/or brought on to bear for long enough to induce a reaction of stress (*24*),

Stress can be the result of "good things" (eustress) as well as "bad things" (distress)

Common Stressors: procrastination, interruptions, indecision, perfectionism, type-a behavior pattern, negativity, loneliness, financial insecurity, test anxiety, life/lifestyle changes.

What are your stressors?

Q: What are the consequences of stress? **A:** There are three main categories of the personal consequences of stress: psychological, physiological, and behavioral.

Psychological: Anxiety, depression, negativity, low self-esteem, difficulty concentrating, boredom, or apathy.

Physiological: Muscle tension, high blood pressure, lower immunity, fatigue, ulcers, headaches, back pain.

Behavioral: Smoking, alcohol abuse, eating (weight gain or loss), sleep difficulties, hostility/violence, emotional outbursts.

How does stress affect you?

Strategies for Managing Stress

Q: How can I eliminate stressors? **A:** Many stressors can be eliminated through effective and efficient time management, collaborative relationships with others, and finding satisfaction through meaningful work (*25*).

What are your time mismanagement issues? Confusion, indecision, diffusion, procrastination, avoidance, interruptions, perfectionism.

What is a collaborative relationship? A relationship built on trust, honesty, respect, kindness, emotional awareness.

What are the characteristics of meaningful work? Meaningful work provides variety, autonomy and regular feedback. Meaningful work is significant and important to the individual and organization.

What can you do to eliminate stress in your life?

Q: How do I build resiliency to stress? **A:** A physically, psychologically, and socially healthy person is more resilient to stress than an unhealthy person.

How can I be physically resilient? Good nutrition and regular exercise provide you with greater endurance and strength. Minimize your caffeine and sugar intake.

How can I be psychologically resilient? Practice optimism and constructive thinking. Develop a hardy personality through *commitment* (a sense of purpose in life), *control* (ability to influence events in your life), and *challenge* (perceiving life experiences as opportunities).

How can I be socially resilient? Develop supportive social networks. Seek trained professional support when needed.

What can you do to be resilient to stress?

Q: How can I temporarily cope with stress? **A:** Be aware of how you are responding to stressful situations. Remember to breath and center yourself through mindfulness. Practice creative visualization and personal affirmations. Cognitively reframe situations as manageable.

Breathing, muscle relaxation, and mindfulness. Practice meditative relaxation in your daily life (try 10 minutes today).

Creative Visualization and Affirmations. Use *intention* (the desire, belief and acceptance to a goal) to visualize your success. Phrase affirmations in the *present tense* and in the most *positive* way you can.

Reframing. Change your outlook to see obstacles as opportunities.

What can you do to cope with stress as it happens?

Create an affirmation to repeat several times a day (examples: I believe in my ability to succeed. I am worthy of the best in life. I love and approve of myself).

Strategy 22: Training

Cross-training, mentoring, matrix-like organizational arrangements, and visitations, while sometimes expensive in expenditure of time and money, can provide employees with a better understanding of the other division's limitations, frustrations, and competencies. This is the first step in improving levels of trust and encouraging continuing collaboration.

It is common for maintenance employees to have a misconception of the purpose of operations related to identifying problems associated with maintenance and repair. They argue or quietly believe that they are as or more capable of identifying maintenance issues than those within operations and therefore should be the ones to fulfill that inspection role. Training in the concept of division of labor, specialization, the law of comparative advantage, and the logic of

operations being the eyes and ears of the airport can go a long way in eliminating this problem. It can be demonstrated that if maintenance is not burdened with learning about the intricacies of moving safely on the air operations area, documenting as required by the FAA, leaning the jargon of tower communications, and working with contractors, they can expend their energies in the area in which they are most capable, that being maintenance and repair.

Establish a formal communications plan that encompasses all levels of communication both internal and external. Include how, when, written format templates, etc.

Tool: Communications management plan template
(See Appendix B)

Suggested Reading: *Identifying Human Resource Issues That Affect the Productivity in Small Airport* Organizations (*21*)
by Todd McNamee, A.A.E.

This paper talks about how maintaining a high level of productivity is difficult, and any distraction can cripple an organization from operating productively. Several factors contribute to productivity, including, but not limited to, clear and concise communications, motivation, team spirit, training, and a sense of value to the organization. Failure to operate productively can ultimately result in a breakdown of safety, which in turn could result in loss of life or damage to property.

Strategy 23: Training—Soft Skills

Soft skill training can make all the difference in improving positive relations between employees. The following strategy focuses on the soft skills that have been defined as most essential for operations and maintenance employees.

Communications training in such areas as radio usage, texting, and email can go a long way in assuring that those without the soft skills necessary to work collaboratively gain a better understanding of the importance of properly conveying their message.

There is a somewhat humorous, but illustrative, saying that suggests that if you want to climb a tree hire a squirrel; if you want to soar in space go for an eagle, but don't select a squirrel to do an eagle's work. If collaboration is important to the airport, it is essential that human resources and the supervisors with responsibility for hiring include in the testing apparatus mechanisms that ensure the inclusion of soft skills so essential for collaboration. This can be done through reworking job descriptions, training supervisors to identify these characteristics in potential employees, and use of sophisticated testing.

When training or working with an employee on soft skills, include a couple of funny stories about misunderstandings if you can to anchor your point and use humor to reinforce the message.

Focus on supervisor training for making the transition from front line to supervisory responsibilities more effective. Many times a supervisor is promoted based on technical capabilities and provided training in handling disciplinary issues, payroll/timesheets/clocks, etc., but attention is

not given to the necessity to provide soft skill training and guidance in good leadership qualities and communications with peers and subordinates. Where supervisors many times fail is in the skills to be able to supervise previous peers who have become subordinates. Other tips:

- Assign a mentor who employee will be comfortable learning from and working with.
- Have joint supervisor training to encourage collaboration as supervisors from operations and maintenance learn together.

If employees do not understand the big picture, the goals, and objectives of the airport, they will never completely understand how their job fits in the big picture and will not be able to contribute to their fullest, which means that collaboration will suffer. Tips for ensuring the big picture are conveyed at all levels of the organization:

- Develop a communications plan to ensure that information is communicated in multiple directions.
- Involve employees at the lowest level possible in planning and budget matters.
- Offer trainings privately for maintenance as well as operations employees.
- Hold brown bag lunches where training is conducted. One airport (noted in the research) uses this opportunity quite effectively to prepare both operations and maintenance employees for industry organization accreditation examination.
- Cross-train supervisors and managers.
- Conduct joint training supervisory classes for operations and maintenance staff.
- Conduct formal classes that teach subjects such as airport security, airport planning, FAA Part 139, etc.
- Have management/leadership spend time in both work areas, which will help with collaboration.

Tool: Communications management plan template
(See Appendix B)

If a CMMS system with maintenance planning is used, operations staff should participate in the planning sessions. This will foster collaboration and help the operations staff better understand the methodology and priority setting issues at hand that relate to the assignment of maintenance related work. This is also an opportunity for operations to have input into the process at an early stage where changes can be more easily made than once work is assigned and maintenance employees are dispatched to perform the work.

Suggested Reading: *Developing and Implementing an Effective Supervisor Training Program: A Guide for Airport Managers* (*20*) by Pete Higgens, A.A.E.

Airport managers find themselves faced with a number of challenges as they strive to meet the demands of a dynamic aviation industry. Among these challenges is keeping service levels high and costs low. This goal cannot be accomplished by any one individual. In order to lead an effective organization, the

airport manager must place trust in, and rely upon, others in the organization. And this trust must be placed in those who hold supervisory positions. Before trust can exist, however, there must be an understanding that the individuals in whom the trust is to be placed are fully capable of the responsibilities that will be entrusted to them. It is not uncommon for individuals to be promoted to a supervisory position because they had proven to be superior frontline employees with very strong technical skills.

Suggested Reading: *A Corporate University Concept for Airports: Strategic Tool for Organizational Development* (*18*)
by Randy Newton, A.A.E.

The author proposes that organizations, especially those with a CU, consider use of the BSC to measure organizational performance as a whole, opposed to relying solely on the models that tend to be used to evaluate training and educational programs as individual events. The BSC is centered on organizational vision and strategy, which should be the same goal as the CU. Critical metrics could be designed to measure the following four key focus areas to evaluate organizational performance and provide direction for developing CU programs. The following perspectives are a slight variation of those described by Kaplan and Norton and are presented by the author to account for the differences between private and public entities:

- Serve the customer and community.
- Manage resources and invest in the future.
- Excel at innovative, responsive, and consistent services.
- Recruit, develop, and retain a skilled and diverse workforce.

Strategy 24: Vision

To better clarify the airport's vision, senior leadership can further develop their vision and/or mission for operations and maintenance. It's important for groups to find common goals with their work and this comes through leadership communicating a clear vision. More often than not, this vision gets lost in the day to day work, with leadership turnover and with multiple changes occurring in groups.

Here's an example of how to develop an organization's vision and mission (*26*).

How to Create a Vision (or Compelling Goal) Statement (*26*)

How a Vision Is Different from a Mission Statement

A mission statement tells what business you are in and what products and services that are offered. It is a clear statement of purpose that may last for decades. A vision transforms the organization, providing a picture of what could be. It is a catalyst that can impel an organization to move toward that dream. As dreams come true or realities change, visions change. It is a goal of the highest order.

A vision statement *may* also indicate how the organization will act.

> When Johnson & Johnson learned that some containers of Tylenol had been contaminated, the portion of the company's credo, "Our first responsibility is to the doctors, nurses, hospitals, mothers, and all others who use our products" demanded that they act promptly to protect people. They removed all Tylenol from the market until they were certain the product was safe. In contrast, when Intel had problems with the Pentium chip, they waffled, trying to put fingers in a dike while water gushed through.

Why a Vision Is Important

A vision is a catalyst. In *Built to Last,* a comparison of visionary companies that have remained wildly successful over many decades, the authors found that most had BHAGs—Big Hairy Audacious Goals. These hairy and audacious goals focused the attention of people because they were so challenging.

In 1952, 80% of Boeing's business came from one customer—the U.S. Air Force. U.S. and European airlines showed little interest in jets for commercial use and they saw Boeing as a defense contractor. "They build great bombers. Period. " Boeing still remembered downsizing from 51,000 to 7,500 at the end of World War II. And, it would take three times the average annual after-tax profit for the past five years just to develop a prototype. But, this is the BHAG they chose: to move headlong into commercial aviation. This BHAG transformed commercial aviation and Boeing far outpaced a major rival, Douglas Aircraft, in getting jets to market.

- *A vision aligns people in activities that cut across the organization.*

A vision facilitates goal setting and planning. It helps people set priorities. The vision says, "This is what we stand for." A vision defines what you will do as well as what you will not do.

At Hewlett-Packard a product manager said, "We've got to introduce an IBM-compatible personal computer now." A lab manager asked, "But where's the technological contribution?" The senior manager replied, "But what if that's not what the customers want? And what if the market window will close unless we act now?" The junior lab manager said, "Then we shouldn't be in that business. That's not who we are. We simply shouldn't be in markets that don't value technical contribution. That's just not what the Hewlett-Packard Company is all about."

- *A vision unleashes energy.*

Big hairy audacious goals (BHAGs) excite people. In 1961, the most optimistic assessment of getting someone on the moon was at best 50-50. But Kennedy did not say, "Let's beef up the space program." He said, "that this nation should commit itself to achieving the goal, before this decade is out, of landing a man on the moon and returning him safely to Earth." Congress immediately allocated $549 million and billions more over the next five years. The BHAG was a clear, extremely challenging focal point for NASA. Richard Feynman, who served on the panel investigating the Challenger disaster, believed that one reason for the miscommunication and poor quality that led to the explosion was that NASA no longer had a vision that united all parts of the agency.

- *A vision is the embodiment of the organization's core beliefs.*
- *A vision provides focus for assessing individual, department, and organizational progress.*

What a Vision Includes

Each vision is unique. If you create a good vision statement, it will apply only to your organization. It cannot be transferred to another industry.

- *It reflects the core values of the organization.*

A vision shows how diverse parts of the organization are aligned in pursuit of common goals. It often includes BHAGs. A vision embraces paradox. As you begin thinking about creating a vision, you will find many issues seem to be "either/or" in nature. Either we go for low cost or we go for high quality. Either we invest for the future or we focus on short-term goals. Good vision statements accept both sides of the paradox: We strive to achieve low costs and guarantee high quality. According to *Built to Last,* the visionary companies are adept at embracing both sides. They don't just look for balance—a little savings and a little quality. They look for ways to have it all: low costs and high quality. Managing these seemingly paradoxical issues is what gives life to visions.

> "The test of a first-rate intelligence is the ability to hold two opposed ideas in the mind at the same time, and still retain the ability to function." - F. Scott Fitzgerald

Visions can be short "we will have a man on the moon" or as long as a page or two. But, in either case, they must give a clear and compelling picture. There are no rules for creating visions.

The Pitfalls

Visions are very popular and there is a danger in that. Lots of time is wasted preparing visions just because it seems like a good thing to do. It is extremely important to understand what can go wrong. The vision is a "one size fits all" statement filled with nice-sounding platitudes.

Contrast the visionary General Electric's statement "To become #1 or #2 in every market we serve and revolutionize this company to have the speed and agility of a small enterprise" with the vision of the far-less-successful company, Westinghouse: "Total Quality. Market Leadership. Technology Driven. Global. Focused Growth. Diversified." Who can argue with the terms of the Westinghouse vision, but what do they mean? And, more important, how could they possibly influence how a manager makes decisions? Note the clarity of GE's word picture.

It is undertaken as an exercise with no intent to use it to guide all planning and decision making (*27*).

Tool: How to Hold a Vision Meeting (*26*)

Determine who needs to be in the room for this meeting. You are looking for people who:

- Have the best interests of the organization at heart.
- Will challenge your thinking.
- Bring a different perspective.

The Meeting

1. Introduction
   a. Introduce the players.
   b. Discuss the purpose of the meeting.

2. Set the stage
   a. Hold a conversation that focuses on the question: Who is the customer for the vision? In other words, who is going to use the vision? How will it be used?
   b. Whatever you do, don't create a vision just because everyone else is. There must be a compelling reason for this activity or it will simply be a waste of time.
3. Establish mission and purpose (optional)
   a. If your organization does not have a clear mission statement, then you must begin with this activity.
   b. A mission statement is enduring. Think very long term, 20 to 100 years.
   c. The mission statement should address:
      i. Who should we serve?
      ii. What should they receive?
      iii. What is the ultimate result we seek?
      iv. A mission statement should be relatively short (under 100 words, if possible).
      v. It must address the questions written above.
4. Create a first draft vision statement
   a. A vision statement is often a one- or two-page word picture of what you want to create. It is a story written in the present tense as if that envisioned reality were already occurring. There is no set formula for a vision statement. You use your heart and gut as a guide. Does it inspire you? Will it focus your attention?
   b. Here is a way to create a vision statement:
      i. Make sure everyone has writing materials. Ask people to sit quietly and relax. Don't rush this visualization process. People need time to settle in and explore images.
      ii. Say: "For the next couple of minutes just sit quietly. Don't write anything, just relax. Imagine the future—three to five years from now. Imagine your organization has become everything you've hoped for." (Note: You may want to be a little more specific here. For example, if you have just merged with another organization, you might ask people to imagine the new organization.)
      iii. Continue: "Allow an image to come to mind. What does this ideal picture look like? Explore this image: who is in it? What's going on in the scene? What makes it so ideal? What are people saying? What are they doing? Now, let that image go and allow another image to come into view. Explore this image: who's in it? What's going on? Where are you in this scene? What's it feel like to work here? Now, allow this image to fade . . . "
      iv. "For the next three minutes, jot down what you envisioned during this exercise. Please don't talk during this exercise."
      v. Allow time for writing.
      vi. "Please sit quietly again and close your eyes. . . . Imagine that time in the future again. . . . A reporter from *The Wall Street Journal* is going to do a story on your organization. The reporter's focus is on why you are the leader in the industry. What would you show the reporter as examples of things that make you particularly proud? . . . Be specific in your thinking and explore this image in some detail. . . . Perhaps the reporter is asking you questions. How would you respond? . . . Allow this image to fade. Please open your eyes."
      vii. "Take a couple of minutes to jot down the images that came to mind during this last visualization exercise."
      viii. Note: Pick a publication that has meaning for your organization. It doesn't have to be *The Wall Street Journal.*

ix. Pairs talk about what they envisioned. "A" talks for 10 to 15 minutes, "B" finds out everything they can about what A envisioned. Switch roles. It is important to keep the attention on the speaker. When A is talking, B should be in listening mode—asking questions, clarifying, etc. B should not be giving his/her thoughts during this round. When you switch, A should follow the same guidelines.
x. Give each pair 10 index cards or large Post-it notes. Ask them to pick 10 items to put forward in the whole group. They should print their responses in large block letters; otherwise it may be difficult for others to read.
xi. In full group, ask for one card from one pair. Post it. Ask for one card from another group. Post it. Continue this process until all the cards are posted. Begin grouping the cards as you post them. Note: While distributing the large index cards, provide participants with pieces of masking tape to assist in sticking the cards to the wall for review.

5. Determine your values
   a. Discuss: In order to be successful, what values do we need to follow?
      i. What values are implied in our mission and vision statements?
      ii. Which of these values are absolutely critical? Limit this list to a few items (five to seven).
      iii. What would it look like if we were living by those values?
      iv. What would it take for us to live by those values?
   b. If your value statements can be transferred to another organization, then the work is not done. This is not a one-size-fits-all exercise. Also, be careful to not just list a bunch of tired platitudes. Think about the values it will take to make this vision a reality.
6. Dilemmas
   a. Identify the unsolvable issues. For example, you will never solve the issue of keeping quality high and costs low. This is a dilemma that will need to be managed, not a problem that can be solved and forgotten.
   b. One way to identify the dilemmas is to ask: What feels like it can't be resolved today?
7. The final statement
   a. Ask someone who is a good writer to collect all the comments and write a first draft statement. Do not attempt to write the vision statement in the full group. You'll die young. Writing, editing, and word-smithing in a group is tedious and a waste of time.

Strategy 25: Handling Resentment

If management senses resentment within the ranks (for example, one division being perceived as being more important than another, or that one division "runs" the airport when senior management is not present) it is essential that the director or other senior manager articulate clearly that both maintenance and operations are of equal importance and exist within a symbiotic organization.

Resentment is one of the greatest barriers to collaboration and must be eliminated. Recurring training directed at both operations and maintenance is essential to lessen the risk of operations being the target of such resentment. Again, it is the primary responsibility of senior management to insure this condition does not exist and that a coherent training package be established outlining the respective rolls, importance, and responsibilities of each division. Please note the Southwest Airlines case study whereby both training and aligned incentives have resulted in cooperation and respect between aircraft maintenance and flight operations.

Strategy 26: Addressing Challenges from Governance Issues

On occasion both employees and managers of an airport are frustrated by the failure of outside departments responsible for providing such services as purchasing, IT, human resources, legal, and (on occasion) engineering. This can be directly attributed to governance issues with no easy solutions.

While senior management must work within the system to optimize these services, at some point they must articulate the "wisdom" of the overall organization and why it is necessary. They (for example) can point out that without the city, county, or state and its accompanying population, there would be no need for an airport. They could discuss the efficiencies of economy of scale and that there could be a time where the airport might become dependent on the larger entity for its own survival. How the director goes about doing this must be done on case by case basis, but it must be done, otherwise resentment and conflict could rule the day.

CHAPTER 6

Other Considerations

Engineering Coordination with Operations and Maintenance: A Suggested Approach

There are occasions when an organization's lack of collaboration can be attributed (in part) to a failure of the engineering department to coordinate the review of proposed plans, specifications and follow-on maintenance requirements for new projects and also for various airport improvements with operations and maintenance. For example, the plans for runway reconstruction do not depict paving between the lighting areas and the taxiways/runways to accommodate Design Group V and VI aircrafts, problems with soil erosion, and damaged lighting from engine exhaust. Future conflicts between operations and maintenance will be likely due to the inability of each to properly correct the problem with resources available. Had engineering included both operations and maintenance early in the review process, designs may have been modified or both divisions would understand reasoning for such design omissions and avoid frustration and finger-pointing.

While common sense would suggest that engineering would always encourage comment from these two divisions, there are reasons why such review requests sometimes are not possible. For example, in a major capital program where the availability of capitalized interest during construction is finite, delays from a prolonged review process could result in millions of dollars in increased project costs. This was the case in the construction of Denver International Airport; each day a critical path project was delayed, approximately $800,000.000 would be consumed in cost overruns. Other reasons for exclusion might include:

- Concern that operations and maintenance were set on sole source providers even though sole source directed specifications were precluded by law.
- Operations and maintenance were not equipped to properly analyze technical documents.
- Recurring conflict between the three divisions rendered them unable to work together.

Research confirmed that the majority of airports interviewed recognized the importance of seeking and acting upon input from operations and maintenance for a number of reasons:

- By being involved during the project development review process, operations and maintenance would understand and grow to accept the project.
- Operation and maintenance input has proven to be valuable due to their experience in operating and maintaining the facilities.
- Operations and maintenance are in contact with other airports that might have new ideas and experience as to how to execute the project.
- If both operations and maintenance have the opportunity to review the project through its development and implementation, they will be less inclined to be critical when the inevitable design deficiencies surface after project completion.

- Operations and maintenance have more contacts with the tenants than engineering and therefore have a better understanding of what tenants require to accomplish their company's objectives.

Plans and Specifications Review Program

Interestingly enough, the development of a program for plans and specifications review will provide a good opportunity for team building, and future collaboration and will tend to insure that the finished product is of the highest level commensurate with fund availability.

To this end, an airport might consider the implementation of some or all of the following suggestions:

- Engineering should take the lead in assembling a team made up of representatives from human resources, engineering, operations, and maintenance for the purpose of developing a plan and set of procedures for document review. It is important that the structure of this group be carefully thought out to ensure compatibility and expertise.
- Since the actual reading and comprehension of a set of plans and specifications can be quite complex, it is suggested that an individual from the engineering department provide class instruction on symbols, format, and guidelines for plan analysis. It also should be noted that community colleges and trade schools often offer abbreviated courses on these subjects, and the airport should consider absorbing employee's tuition to attend these classes. It can only be assumed that the payback in reasoned comments would be well worth the investment.
- There are a mired of complex legal issues regarding what an airport agency can specify in a bid document and therefore it would be beneficial if someone from the legal division provide instruction to those most involved in plans review. Subjects might include: sole source procurement, Disadvantaged Business Enterprise/Women's Business Enterprise (DBE/WBE) participation requirements, and DOT, FAA, state, and local regulations regarding acquisitions using government funding.
- The finance division should be encouraged to brief those involved in plans review to explain: how the five year capital program is formulated, what provisions in bond covenants effect the capital program, the concepts associated with capitalized interest, how the rates and charges methodology addresses the financing of the capital program, and generally how capital as well as maintenance related construction projects are financed through the use of net proceeds, retained earnings, and airline fees. It has been found that when both operations and maintenance personnel have a good appreciation for how financing is achieved, their appetite for expansion of projects is reduced.
- It is suggested that only applicable projects be provided for review to operations and maintenance. Engineering leadership should periodically schedule monthly meetings with senior operations and maintenance leadership to coordinate progress of ongoing major issues and to review lists of upcoming engineering projects to identify the projects that need to be reviewed by the two divisions.
- The engineering division should designate one individual to oversee the process of plans review. When practical, they should set a time for engineering to brief and answer questions from operations and maintenance representatives from document review. It is important that the engineering representative ensures operations and maintenance employees understand the purpose of their review; for example, they might provide input regarding the operational and maintenance aspects of the project rather than to debate the wisdom of the project moving forward.
- Time limits for the review of plans and specifications must be established by engineering to prevent delays in further design, bidding, and construction. These established deadlines for review should be reasonable and determined based on the complexity and volume of the documents to be reviewed.
- New projects should allocate funding for training of maintenance employees for new systems.

If a process such as the one listed is implemented, the benefits would include an improved product, greater respect for engineering from operations and maintenance, and a repeatable collaborative process for future projects.

Collaboration at International Airports

Some international airports face similar collaboration issues and challenges as airports in the United States, while others are much more successful at fostering collaboration. The key factor is whether or not the airports are privately owned and/or operated. In the United States, airports outsource certain functions to third parties or the airlines themselves take responsibility for the function, but the ownership and management in almost all cases remains with a governmental authority or body (and its rules and limitations). Many international airports under governmental ownership or management face similar issues and challenges and in some cases many more given that they have civil servant cultures, low salaries, and lack of incentives and can be highly political.

Airports that are privately owned and/or operated are managed as businesses and generally without the limitations of a governmental or quasi-governmental organization. In increasing number of cases, the airport may remain under full government ownership and management, but external professional management teams are brought in to manage as a business, with a strategy and business plan and corresponding compensation and incentives. Examples of fully private, privately managed, or professionally managed airports include London Heathrow, Frankfurt Airport, Cancún International Airport, Lima's Jorge Chávez International Airport and Dubai International Airport. These airports will typically analyze and review the entire business and operation and look to improve it with common management techniques. Some have been more successful than others, but in general, these airports tend to perform better than their peers across a variety of indicators.

The more successful airports will focus on all or most of the following:

- Strategy: Understanding the positioning of the airport vis-à-vis its completion, its customers (e.g., airlines and passengers), and stakeholders (e.g., employees and community).
- Business plan: Development of a plan with objectives, targets [including key performance indicators (KPIs) and financial], resources, investment, and other requirements to deliver on the goals and objectives set for the airport/organization.
- Structure of the organization: is the organizational structure fit for its purpose? Does it create the communication and collaboration required, and is it aligned with the priorities of the business?
- Management team: Do the key managers have the skills and training to deliver the business plan and meet the required objectives and targets?
- Compensation/recognition: Many of these organizations compete for talent in other commercial organizations so compensation, rewards schemes, and recognition is an essential component in not only attracting the appropriate employees, but also aligning interests and compensating them when targets are met (or letting them go when they are not).
- Benchmarking and performance measurement: Most of these airports will routinely benchmark KPIs and track their own performance to monitor their improvements and how they compare with their peers. In cases where the owner/manager is a public company, the financial markets and analysts will do so as part of the normal tracking of the company.
- Client focus: These airports see their clients/customers as a broad-based, important group including not only airlines, passengers, and concessionaires, but extend that thinking to their inspection services, law enforcement, meeters and greeter, etc. In fact, they approach all their interactions with a customer/client first mentality.

The result is that these privately owned or managed airports are consistently looking at ways to improve their performance. This generally leads to more communication and collaboration as the organization, people, and incentives are generally aligned to a set of defined objectives and targets.

It also tends to lead to a more dynamic relationship with the airlines, commercial concessionaires, and service providers as they are not bound by governmental barriers or constraints and can respond quickly and deal on a pure commercial basis. For example, an airport can decide to outsource its entire maintenance function if it determines it is a better approach for the business or it can decide to restructure the operations organization to combine financial incentives and targets.

In a number of specific examples of airports that were originally government owned or managed (Cancún International Airport, Lima's Jorge Chávez International Airport, and Costa Rica's Juan Santamaría International Airport), the combination of politics, lack of clear objectives and targets, limited tracking of performance, and lack of proper compensation and rewards all led to inefficient organizations where communication and collaboration existed, but with without the focus, proper support/resources, and incentives to align and encourage efficiency and improvement. The introduction of private investors and management led to major improvements, in most cases with the same employees albeit with new management and a commercial approach.

Challenges and Risks

There are both challenges and risks associated with using a collaborative approach. While in most cases the benefits outweigh those risks, it is helpful to be aware of situations where collaboration may be particularly challenging, or may present more risk than is desirable. The primary challenges and risks associated with collaborative efforts can be classified as (*28*):

- **Collaboration doesn't work for every situation and always trying to collaborate to solve problems poses a risk.** If collaboration does not work, the job still needs to get done. With that in mind, work to be a worthy partner. Communicate as if you are in a collaborative relationship and in fact you can always collaborate individually with others across the table even in departments that cannot work well together. Your effort may start to build trust, and collaboration is a natural outcome of interdependent departments where trust exists.
- **Collaboration can be time consuming which can create a resource cost consideration.** Resource allocation can be challenging in today's very lean airport environments. Look for "quick hit" ways to collaborate. Text messages, shared technology equipment, shared radio channels, and a focus on communication in spite of distance, and logistical and time constraint challenges can be effective activities that will enhance collaborative outcomes.
- **Use of tech tools (such as CMMS) can reduce the amount of verbal communication and can undermine collaboration.** Tech tools can be configured to encourage cooperation. In the CMMS arena, systems often seem to separate the requesters of work (operations, for example) from those that will do the work (maintenance, for example). This can be frustrating as an employee may feel their request was sent into a dark hole. Program email notifications from the CMMS system to the requesters when:
  - The work request has been received.
  - The work order has received a priority classification.
  - The work order has been assigned.
  - When the work is complete.
  - Use all of the communication tools of a CMMS to encourage the links between departments.
- **Leaders who lack the soft skills may be challenged to be truly collaborative.** If your leaders are unable to collaborate, drive collaborative efforts at your own level. You will find worthy

partners on the other side, and in time you may be moved to a higher leadership position as others notice your efforts. Those that collaborate always have better outcomes than those that cannot or will not.

- **There are core building blocks such as organizational trust that if not present will limit any collaborative efforts.** See the notes on "The Trust Edge" in the literature resources and begin working through the steps noted that can build or rebuild trust where problems exist. Trust is a major issue that needs to be present in order to have effective collaborative working relationships.
- **Unwillingness to seek input and learn from others.** The "go it alone" mode of operation. For several reasons, airport employees may close themselves off to help from those in other departments. Maintenance can suffer from a deficiency of understanding and perceived lack of respect. Sometimes there is an embedded culture of reactive versus proactive. Sometimes, the norm or airport culture is that people are expected to fix their own problems. In other cases, formal or informal reward systems may give more credit for heroic individual efforts than for collaborative efforts. Some employees may simply believe that others have nothing to teach them. When groups go it alone or stay in department silos, they exclude outsiders, restrict the influx of new viewpoints, and reinforce their own commonly held beliefs. As a result, they become prone to the not-invented-here syndrome, in which outside ideas, knowledge, and expertise are rejected by their own group.
- **Inability to seek and find expertise.** Even when employees are willing to seek help in other departments, they may not be able to find it or to search efficiently so that the benefits outweigh the cost of searching. In large airport hubs and disperse departments, this needle-in-a-haystack problem can become a significant challenge to the collaboration. Somewhere in the airport or county/city organization, someone often knows the answer to a problem, but it is very challenging (if not impossible) to connect the person who has the expertise with the person who needs it. Databases and electronic SharePoint sites can help. Technology has its limits, as expert directories go out of date and do not fully capture what each person knows. More importantly they do not allow for creative combinations to ideas or individuals. Therefore, airport directors need to cultivate connectors, that is, people who know where experts and ideas reside and who can connect people who do not know each other. Connectors tend to be long-term service airport employees who have worked in many different departments and hence have the extensive personal network.
- **Unwillingness to help.** In some cases, and especially with overworked schedules and constant emails, the problem lies with the potential provider of help, not the seeker. It boils down to the load factors from cut backs in passenger revenue and ongoing impacts from the dynamic U.S. economy. Some employees are reluctant to share what they know—or refuse to assist outright—leading to a hoarding of expertise problem. Competition for resources and funds can undermine the motivation to cooperate. Also, in parallel to the airport cost pressures, the emphasis on lean management over the past decade has also fueled this problem. As employees are pressured to perform, they feel that they don't have the time to help others or they don't care. All that matters is looking after your own job. While this focus on individual performance is clearly important, airport CEO's also need to create a counterbalancing force by developing special collaborative initiatives and incentives aimed at fostering cooperation and a shared purpose among employees.
- **Inability to work together to transfer information and knowledge.** Some people are willing to work together but can't easily transfer what they know to others because of the 'stranger' problem. This requires that employees have a relationship in order to understand each other. This risk is also impacted by the degree of outsourcing of services, especially in the maintenance department. This problem is currently arising in airports which are completing large construction projects. Building management system (BMI) have incorporated high-tech maintenance and operations features and it takes specific knowledge of maintenance

or operations to really optimize this tool. Many times the engineering department decided to procure this operations and maintenance tool, but did not include operations and maintenance in the planning and design of this tool. This problem can be alleviated if the two parties to a technical transfer have developed a strong professional relationship. In that case, they are likely to have developed a shared communication frame in which each party understands how the other uses the local department phases and explains difficult concepts. In the absence of these relationships, strangers are likely to find it difficult to work together effectively. One of the most effective mechanisms is to rotate people through jobs in operations, maintenance, engineering, and customer service. We have seen where employees who move to other places, even temporarily to work on assignments, often develop strong bonds with colleagues in this department. When people are back working in their original site, those bonds are especially important to the success of cross department projects.

References

1. Collins, James C. *Good to Great: Why Some Companies Make the Leap—and Others Don't.* New York, NY: HarperBusiness, 2001.
2. DiCecco, Vince. *Hey . . . What's the Matter with Kids Today? Or Managing Today's Cross Generational Workforce. http://www.sgia.org/feature_articles/kids_today_dicecco.htm.*
3. Coleman, David and Stewart Levine. *Collaboration 2.0.* HappyAbout.info, January, 2008, pp. 1–66.
4. Luthans, Fred. Positive Organizational Behavior: Developing and Managing Psychological Strengths, *Academy of Management Executive,* Volume 16 (1), 2002, pp. 57–74.
5. Survival Team Exercise. The Saguaro Seminar: Civic Seminar. www.hks.harvard.edu/saguaro.
6. Dahl, Eric. *How the Watertown Regional Airport Designed and Built a Computer-based System to Meet 14 CFR, Part 139, Airport Safety Self-inspection Requirement: A Case Study.* American Association of Airport Executives, Accreditation Paper, November 16, 2009.
7. Horsager, David. *The Trust Edge.* Leaf River Publishing, Minneapolis, MN, 2009, pp. 2–262.
8. McShane, Steven and Ann Von Glinow. *Organizational Behavior.* McGraw-Hill, New York, NY, 2009, pp. 220–221.
9. Giesen, Greg. *Organizational Conflict: What You Need to Know.* Woodbridge Leadership Articles Leadership. www.bestmanagementarticles.com/a7434-addressing-organizational-conflcit.aspx.
10. Speight, S. L., Myers, L. J., Cox, C. I., and Highlen, P. S. A redefinition of multicultural counseling. *Journal of Counseling and Development,* 70, 1991, pp. 29–36.
11. Manyika, James, Kara Sprague, and Lareina Lee. *Using Technology to Improve Workforce Collaboration.* McKinsey Publishing, October 27, 2009.
12. Freiberg, Kevin and Jackie Freiberg. *NUTS! Southwest Airlines' Crazy Recipe for Business and Personal Success.* First Edition, Bard Press, Inc. Austin, TX, 1996.
13. Barzilai, Kathryn. *Organizational Theory.* Case Western Reserve University, January 13, 2003.
14. Gawande, Atul. *The Checklist Manifesto, How to Get Things Right.* New York: Metropolitan Books, 2009.
15. Bohm, David. *On dialogue (transcription).* Ojai, CA: David Bohm Seminars, 1990.
16. Lencioni, Patrick. *Silos, Politics and Turf Wars.* Jossey-Bass, San Francisco, CA, 1993, pp. 52–205.
17. Greenberger, Marci A. *Mentoring: A Leaders Tool for Employee Development.* American Association of Airport Executives, Accreditation Paper, June 2004.
18. Newton, Randy. *A Corporate University Concept for Airports: Strategic Tool for Organizational Development.* American Association of Airport Executives, Accreditation Paper, September 2009.
19. Mertens, Thomas L. *The Management and Organization of the Duties and Responsibilities of a Department of Planning and Engineering.* American Association of Airport Executives, Accreditation Paper, 1976.
20. Higgens, A. *Developing and Implementing an Effective Supervisor Training Program: A Guide for Airport Managers.* American Association of Airport Executives, Accreditation Paper, April 2006.
21. McNamee, Todd. *Identifying Human Resource Issues that Affect the Productivity in Small Airport Organizations.* American Association of Airport Executives, Accreditation Paper, December 2004.
22. Heap, Nick. Practice Developmental Ideas. http://www.nickheap.co.uk/articles.asp?ART_ID=318
23. Johnson, Meagan and Larry. Generations, Inc. *From Boomers to Linksters.* AAMACOM, American Management Association, 2010.
24. Lazarus, Richard S., and Susan Folkman. *Stress, Appraisal, and Coping.* New York: Springer Pub., 1984.
25. Selye, Hans. *Stress Without Distress.* Philadelphia: Lippincott, 1974.
26. Whetten, David A., and Kim S. Cameron. *Developing Management Skills.* New York, NY: HarperCollins Publishers, 1991.
27. *The Building Capacity for Change Workbook:* www.beyondresistance.com. January 12, 2012.
28. Turban, Efraim, Dorothy Leidner, Ephraim McLean, and James Wetherbe. *Information Technology for Management: Transforming Organizations in the Digital Economy.* Hoboken: John Wiley & Sons, 2008.
29. VanVoorhis, Carmen R. Wilson. umich.edu/adventuretherapy/files/triangles__circles__squares.doc

Bibliography

Adkins, Reginald. *Elemental Truths.* http://elementaltruths.blogspot.com/2006/11/conflict-management-quiz.html

Bechtoldt, Myriam N., Carsten K. W. De Dreu, Bernard A. Nijstad, and Dieter Zapf. Self-Concept Clarity and the Management of Social Conflict. *Journal of Personality,* 78:2, April 2010.

Brief, Arthur P., Elizabeth E. Umphress, Joerg Dietz, John W. Burrows, Rebecca M. Butz, and Lotte Scholten. Community Matters: Realistic Group Conflict Theory and the Impact of Diversity. *Academy of Management Journal,* Vol. 48, No. 5, 2005, pp. 830–844.

Campbell, Sarah, Dennis Leach, and Kate Valentine. *NCHRP Report 536: Guidance to Foster Collaborative, Multimodal Decision Making.* Transportation Research Board of the National Academies,Washington, DC, 2004.

Chief Executive Guide: The War for Talent. *Chief Executive* (U.S.), Issue 146, S10(8), 1 July 1999.

Collins, James C. and Jerry L. Porras. *Built to Last: Successful Habits of Visionary Companies,* Harper Collins, New York, NY, 1994.

Cooper, Ann McGee and Associates. The Power of LUV: An Inside Peek at the Innovative Culture Committee of Southwest Airlines. *Reflections,* Volume 9, No. 1, 2007, pp. 49–54.

Czaplewski, Andrew J., Jeffery M. Ferguson, and John F. Milliman. Southwest Airlines: How Internal Marketing Pilots Success. *Marketing Management,* September/October 2001, pp. 14–17.

D'Aurizio, Patricia. Southwest Airlines: Lessons in Loyalty. *Nursing Economic$,* Vol. 26, No. 6. November/December 2008.

Daizhong Su, Yu Xiong, Yongjun Zheng and Shuyan Ji. A Framework for Collaborative Working Environments. *International Journal of Production Research,* Vol. 46, No. 9, 1 May 2008, pp. 2363–2379.

Dryer, William. *Team Building: Proven Strategies for Improving Team Performance.* Jossey-Bass 4th edition, February, 2007.

Fann, Jim. Effective Airport Maintenance Management. American Association of Airport Executives, Accreditation Paper, June 2006.

Givan, Rebecca. The Maimonides Medical Center Model: Conflict Reduction through Mutual Respect and Conflict Resolution through Mediation. *Dispute Resolution Journal,* November 2010/January 2011, pp. 11, pp. 54–56.

Gladwell, Malcolm. *Tipping Point.* Back Bay Books, New York, NY, 2002, pp. 54–56, 150–192.

Greenleaf, Robert K. *Servant Leadership.* Paulist Press, Mahwah, NJ, 2002, pp. 1–147.

Griffith, Rick. The Art and Science of Building Business Relationships: A Guide for Airport Professionals. American Association of Airport Executives, Accreditation Paper, September 2002.

Gula, Mike. How Blue Grass Airport Developed an Operations Department and Produced Effective Results for the Organization: A Case Study. American Association of Airport Executives, Accreditation Paper, June 30, 2010.

Hammond, Sue Annis, and Andrea, B. Mayfield. *The Thin Book of Naming Elephants, How to Surface Undiscussables for Greater Organizational Success.* Thin Book Publishing Co, July, 2004.

Hansen, Morten T., and Nitin Nohria. How to Build Collaborative Advantage. *MIT Sloan Management Review,* Volume 46, No. 1, 2004.

Heathfield, Susan M. Workplace Conflict Resolution: People Management Tips: Managing Your Human Resources. About.com. Retrieved from http://humanresources.about.com/od/managementtips/a/conflict_solue.htm.

Honour, Eric C., and Tyson R. Browning. Dynamic Optimization of Systems of Systems Using Value Measurement. *Journal of Integrated Systems, Design, and Process Science,* Vol. 11, No. 2, June 2007, pp. 33–53.

Howell, Richard. Determining Adequate Staffing for Airport Operations Departments. American Association of Airport Executives, Accreditation Paper, October 14, 1997.

IBM. The New Collaboration: Enabling Innovation, Changing the Workplace. http://www-935.ibm.com/services/us/cio/pdf/new-collaboration-white-paper.pdf.

Interview with Howard Putnam: Leadership in Turbulent Times. *Healthcare Financial Management,* December 2008, pp. 42–46.

Ishii, Kumi. Conflict Management in Online Relationships. *Cyberpsychology, Behavior, and Social Networking,* Volume 13, Number 4, 2010.

Kamel, Michael. Collaboration for Innovation in Closed System Industries: The Case of the Aviation Industry. *Engineering Management Journal,* Vol. 18, No. 4, December 2006.

Landry, Steven J., Kerry Levin, Dennis Rowe, and Monicarol Nickelson. Enabling Collaborative Work Across Different Communities of Practice Through Boundary Objects: Field Studies in Air Traffic Management. *Intl. Journal of Human–Computer Interaction,* 26(1), 2010, pp. 75–93.

Lipsky, David B. and Ariel C. Avgar. The Conflict Over Conflict Management. *Dispute Resolution Journal,* May/October 2010, pp. 11, 38–44.

Locander,William B. and David L. Luechauer. Do What You Love, Love What You Do: Some Leaders Have Found the Way to Have It All. *Marketing Management,* Palgrave Macmillian, Hampshire, England, Spring 2010, pp. 14–15.

Lovelace, K., and Parent, J. D. Understanding Stress and Developing Resiliency to Stress Through Time Management and Life Balance. In *Managing in the 21st Century: Transforming Toward Mutual Growth,* 2011.

Lundell, Jay. A Guide to Planning and Designing a Combined Airport Operations Facility. American Association of Airport Executives, Accreditation Paper, June 14, 2004.

Majoros, Anthony E. Video-Mediated Collaborative Engineering Support. *The International Journal of Aviation Psychology,* 18(1), 2008, pp. 117–134.

Maurer, Rick. *Beyond the Wall of Resistance*. Bard Press, Austin, TX, June 2010.

Mitre Corporation. *Integrated Project Team (IPT) Start-Up Guide.* Mitre Corporation, Bedford, MA, October 2008.

Morrell, Margot and Stephanie Capparell. *Shackelton's Way: Leadership Lessons from the Great Antarctic Explorer,* Penguin Group, New York, NY, 2001, 75–178.

Napolitano, Carole. Some Thoughts About the Vision Thing. *Feedback,* Fall, 1991.

Nucciarelli, Alberto and Massimo Gastaldi. Information Technology and Collaboration Tools Within the E-Supply Chain Management of the Aviation Industry. *Technology Analysis and Strategic Management,* Vol. 20, No. 2, March 2008, pp. 169–184.

Pearson, Christine and Christine Porath. *The Cost of Bad Behavior: How Incivility Is Damaging Your Business and What to Do about It.* New York: Portfolio, 2009.

Reh, F. John. Organization Charts as a Management Tool. management.about.com/cs/generalmanagement/a/OrgCharts_2.htm, 1–3.

Ren, Yuqing, Sara Kiesler, and Susan R. Fussell. Multiple Group Coordination in Complex and Dynamic Task Environments: Interruptions, Coping Mechanisms, and Technology Recommendations. *Journal of Management Information Systems,* Vol. 25, No. 1, Summer 2008, pp. 105–130.

Roberts, Gregory. Retaining Valued Employees: Challenges, Costs and Techniques. American Association of Airport Executives, Accreditation Paper, April 2002.

Salami, Samuel O. Conflict Resolution Strategies and Organizational Citizenship Behavior: The Moderating Role of Trait Emotional Intelligence. *Social Behavior and Personality,* 2010, 38(1), pp. 75–86.

Shadare, Oluseyi A. Management Style and Conflict Resolution Effectiveness. *African Journal of Education and Developmental Studies,* Vol. 6, September 2009, pp. 1–15.

Shani, A. B. and Lau, J. B. *Behavior in Organizations, an Experiential Approach,* 9th Edition. NY: McGraw-Hill, 2008.

Simmons, Kenneth. A Multidisciplinary Approach to Achieving High Quality in Airport Organizations: A Proposal. Accreditation Paper, April 2006.

Six, Janet. *Designing an Office Space that Encourages Great Design.* www.uxmatters.com, February 1, 2011.

Smith, Ken G. Book Review of The Southwest Airlines Way: Using the Power of Relationships to Achieve High Performance, *Administrative Science Quarterly,* March 2004, pp. 160–162.

Sue, Marsha Petrie. *Toxic People.* John Wiley & Sons Inc. Hoboken, NJ, 2007.

Surowiecki, James. *The Wisdom of Crowds.* Doubleday, New York, NY, 2004, pp. 5–223.

Trudel, J. and Reio, T. G. Managing Workplace Incivility. *Human Resource Quarterly,* 22: pp. 395–423, 2011.

Welstead, William. Improving Airport Operations Situational Awareness through Computer-Based Vehicle Technology. American Association of Airport Executives, Accreditation Paper, September 22, 2008.

Wijnen, Roland A. A., Warren E. Walker, and Jan H. Kwakkel. Decision Support for Airport Strategic Planning. *Transportation Planning and Technology,* Vol. 31, No. 1, February 2008, pp. 11–34.

APPENDIX A

Definitions and Glossary of Acronyms

Definitions

Action Learning A structured method that enables small groups to work regularly and collectively on complicated problems, take action, and learn as individuals and as a team while doing so.

Airport Collaborative Decision Making The concept which aims at improving operational efficiency at airports by reducing delays, improving the predictability of events during the progress of flight, and optimizing the utilization of resources.

Asynchronous collaboration Often used online with an interface with other employees also working and learning via a computer network. Examples would be shared workplaces and annotations.

Best Practice A best practice is a method, process, or activity that is regarded as more effective at delivering a particular outcome than any other technique, method, or process when applied to a particular condition or circumstance.

Business Model Describes the rationale of how an organization creates, delivers and captures value.

Celebration The recognition of achievements publicly and a technique to draw an organization with common interests closer together.

Collaborate Co-labor, to work together. It is a process of shared creation of an outcome. Collaboration is when two or more individuals or organizations with complementary skills interact to develop a shared understanding that none had previously possessed or could have come to on their own. Collaboration creates a shared meaning about a process, system or event.

Collaboration Working together to achieve a goal. It is a recursive process where two or more people or organizations work together to realize shared goals (this is more than the intersection of common goals seen in cooperative ventures, but a deep, collective, determination to reach an identical objective) — for example, an intriguing endeavor that is creative in nature—by sharing knowledge, learning, and building consensus. Most collaboration requires leadership, although the form of leadership can be social within a decentralized and egalitarian group. In particular, teams that work collaboratively can obtain greater resources, recognition, and reward when facing competition for finite resources.

Communities of Practice Groups where the individuals have very similar skills and information needs

Cultural Specificity Specific beliefs, behaviors, norms, customs of a particular culture.

Defining Objectives Components or building blocks that serve to clarify exactly what is meant by the thematic goal.

Emergenetics A psychometric profiling instrument built on research recognizing personality traits as shaped by both genetics and life experience. Thinking attributes (analytical, structural, social and conceptual) and behavioral attributes (expressiveness, assertiveness and flexibility) are represented by colors.

FAA Part 139 Federal Aviation Regulations pertaining to the certification of airports with regularly scheduled air service.

Generation Titles Traditional (born up to 1946), Baby boomers (born 1946–1964), Generation Xers (born 1965–1980) Generation Yers (born 1981–1995), and Linksters (born after 1995).

Governance Relates to consistent management, cohesive policies, guidance, processes and decision rights for a given area of responsibility.

Hard skills Skills that are specific teachable abilities that may be required in a given context, such as a job or university application.

Holistic Point of View A combined focus on technologies, processes, and people.

Horizontal organization Fewer levels of supervision with lowest level populated with subordinates and no more than two levels above the CEO.

Human Universality Those things that everyone has in common.

Hyper-specialization Breaking work previously done by one person into more specialized pieces done by several people.

Individual Uniqueness Characteristics specific to the individual based on experiences, abilities, family, etc.

Innovation The development of new values through solutions that meet new needs, inarticulate needs, or old customer and market needs in value adding new ways. Innovation is a process, and it is a result, and it is an attribute.

Integrated Project Teams (IPT) Bringing together the right stakeholders at the right time around the right task where a collegial consensus building team environment is essential to the task.

Interpersonal Communication Can involve one-on-one conversation or individuals interacting with many people within a society. Interpersonal communication helps us understand how and why people behave and communicate in different ways to construct and negotiate a social reality.

Irregular Operations Those actions taken to adjust and recover from the impacts of disrupted airline schedules such as aircraft accidents, security incidents, crew absences, mechanical failures, and bad weather.

ISO Standards International organization for standardization which had developed an approach to quality. ISO 9000 and ISO 14000 address quality management principals.

Leadership A process whereby an individual influences a group of individuals to achieve a common goal. It is a process, involves influence, occurs in a group context, and involves goal attainment.

Memorandum of Understanding A document that expresses mutual accord on an issue between two or more parties.

Operational Efficiency Represents the life cycle, cost-effective mix of preventive, predictive, and reliability centered maintenance technologies, coupled with equipment calibration, tracking, and computerized maintenance capabilities all targeting reliability, safety, and passenger/stakeholder comfort.

Participative management Participative (or participatory) management, otherwise known as employee involvement or participative decision making, encourages the involvement of stakeholders at all levels of an organization in the analysis of problems, development of strategies, and implementation of solutions.

Partnership A contractual relationship to enable both parties to face the same way; working together to identify mutual objectives; jointly seeking to resolve problems, non-confrontational; providing continuous improvements of joint benefits.

Reliability Centered Maintenance (RCM) A process to ensure that assets continue to do what their users require in their present operating context.

Rich Site Summary (RSS) A family of web feed formats used to publish frequently updated works—such as blog entries, news headlines, audio, and video—in a standardized format.

Servant Leadership Developing and encouraging others to lead.

Shared Situational Awareness A dynamic mental model of the operating environment and the individuals place in it. Perception—acquiring the available facts; comprehension—understanding the facts in relation to our own knowledge of such situation; projection—envisioning how the situation is likely to develop in the future; provided it is not acted upon by any outside force; and prediction—evaluating how outside forces may act upon the situation to affect our projections.

Silos In an organization, silos are barriers between departments within an organization causing people who are supposed to be on the same team to work against one another.

SoS (Systems of Systems) A system in which many independent systems interact with each other to perform higher-level functions.

Standard Operating Objectives These are the ongoing objectives that don't go away from period to period.

Standard Operating Procedure Detailed, written instructions to achieve uniformity of the performance of a specific function.

Synchronous Collaboration Examples would be online meetings, instant messaging, video conferencing, and so on.

Thematic Goal A single qualitative focus that is shared by the entire leadership team and ultimately by the entire organization.

Toxic People People "put on this earth to push your buttons, tick you off, and suck the life out of you."

Turfism Is the non-cooperation or conflict between organizations with seemingly common goals or interest.

Voice over Internet Protocol (VoIP) Commonly refers to the communication protocols, technologies, methodologies, and transmission techniques involved in the delivery of voice communications and multimedia sessions over Internet Protocol (IP) networks, such as the Internet.

Web 2.0 The term Web 2.0 was coined in 1999 to describe web sites that use technology beyond the static pages of earlier web sites. Examples of Web 2.0 include social networking sites, blogs, wikis, video sharing sites, hosted services, web applications, mashups, and folksonomies.

Wiki A website which allows its users to add, modify, or delete its content via a web browser usually using a simplified markup language or a rich-text editor.

Glossary of Acronyms

AAAE	American Association of Airport Executives
ADR	Alternate Dispute Resolution
AOA	Air Operations Area
ARFF	Aircraft Rescue and Fire Fighting
ASOS	AAAE Airport Safety and Operations Specialist
BSC	Balanced Score Card
CCTV	Closed-circuit Television
CFR	Code of Federal Regulations
CMH	Port Columbus International Airport
CMMS	Computerized Maintenance Management System
CRAA	Columbus Regional Airport Authority
CU	Corporate University
CUPPS	Common Use Passenger Processing Systems
DBE	Disadvantaged Business Enterprise
DEN	Denver International Airport
DLC	Discrepancy Life Cycle
DLS	Display Life Cycle
DOT	Department of Transportation
EEO	Equal Opportunity Employment
EMS	Emergency Medical Services
EQ	Emotional Intelligence
FAA	Federal Aviation Administration
FTE	Full Time Employee
GPT	Gulfport-Biloxi International Airport
IPT	Integrated Project Teams
IQ	Intelligence Quotient
IROPS	Irregular Operations and Contingency Planning
ISO	International Standards for Organization
KPI	Key Performance Indicator
MBE	Minority Business Enterprise
PDX	Portland International Airport
PM	Project Manager
POB	Positive Organizational Behavior
RCM	Reliability Centered Maintenance
RSS	Rich Site Summary
SEADOG	Southeast Airports Disaster Operations Group
SOP	Standard Operating Procedure
SOS	Systems of Systems
SWB	Subjective Wellbeing
TSA	Transportation Security Administration
VoIP	Voice over Internet Protocol
WBE	Women's Business Enterprise

APPENDIX B

Communication Management Plan Template

Note to the Author

[This document is a template of a Communications Management Plan document for a project. The template includes instructions to the author, boilerplate text, and fields that should be replaced with the values specific to the project.

- Gray italicized text enclosed in square brackets ([text]) provides instructions to the document author, or describes the intent, assumptions and context for content included in this document.
- Gray italicized text enclosed in angle brackets (<text>) indicates a field that should be replaced with information specific to a particular project.
- Text and tables in black are provided as boilerplate examples of wording and formats that may be used or modified as appropriate to a specific project. These are offered only as suggestions to assist in developing project documents; they are not mandatory formats.

When using this template for your project document, it is recommended that you follow these steps:

1. Replace all text enclosed in angle brackets (i.e., <Project Name>) with the correct field values. These angle brackets appear in both the body of the document and in headers and footers. To customize fields in Microsoft Word (which display a gray background when selected):
   a. Select File>Properties>Summary and fill in the Title field with the Document Name and the Subject field with the Project Name.
   b. Select File>Properties>Custom and fill in the Last Modified, Status, and Version fields with the appropriate information for this document.
   c. After you click OK to close the dialog box, update the fields throughout the document with these values by selecting Edit>Select All (or Ctrl-A) and pressing F9. Or you can update an individual field by clicking on it and pressing F9. This must be done separately for Headers and Footers.
2. Modify boilerplate text as appropriate to the specific project.
3. To update the Table of Contents, right-click and select "Update field" and choose the option- "Update entire table"
4. Before submission of the first draft of this document, delete this "Notes to the Author" page and all instructions to the author, which appear throughout the document as blue italicized text enclosed in square brackets.]

Introduction

Purpose of Communications Management Plan

[Provide the purpose of the communication management plan.]

The overall objective of a Communications Management Plan is to promote the success of a specific project or organizational communications by meeting the information needs of project stakeholders or organizational employees. The *<Project Name>* Communications Management Plan (CMP) defines the project's structure and methods of information collection, screening, formatting, and distribution and outline understanding among project teams regarding the actions and processes necessary to facilitate the critical links among people, ideas, and information that are necessary for project success.

The intended audience of the *<Project Name>* CMP is the project manager, project team, project sponsor and any senior leaders whose support is needed to carry out communication plans.

Stakeholder Identification and Analysis

[Insert the stakeholder analysis or provide a reference to where it is stored.]

Name	Title	Contact	Communication	Vehicle	Comments
<Joe Smith>	*<Manager>*	*<000-000-0000 joe@joe.com>*	*<Status Reports and Internal Project Status Meeting>*	*<Email Phone>*	*<comments>*

Communications Vehicles

Communications Matrix

[Insert the communication matrix or provide a reference to where it is stored.]

Vehicle	Target	Description Purpose	Frequency	Owner	Distribution Vehicle	Internal/ External	Comments
<Status Report>	*<All Stakeholders>*	*<One page communication of project progress and deliverable status>*	*<Weekly>*	*<Joe Smith>*	*<Email>*	*<Internal>*	*<comments>*

Monthly Department Head Meetings

[Insert the meeting schedule or provide a reference to where it is stored.]

Meeting	Description Purpose	Frequency	Owner	Internal/ External	Comments/ Participants
<Status Meeting>	*Sharing of information among divisions*	*<Weekly>*	*<Joe Smith office>*	*<Internal>*	*<comments>*

Monthly Staff Meetings with Direct Reports

[Insert the meeting schedule or provide a reference to where it is stored.]

Meeting	Description Purpose	Frequency	Owner	Internal/ External	Comments/ Distribution List
<Status Report>	*Focus on broader strategic topics*	*<Weekly>*	*<Joe Smith>*	*<Internal>*	*<comments>*

CEO/Airport Director Direct Reports One-on-One Monthly

Vehicle	Description Purpose	Frequency	Owner	Internal/ External	Comments/ Distribution List
<Status Report>	*Red/green/yellow. Talk yellow and reds*	*<Weekly>*	*<Joe Smith>*	*<Internal>*	*<comments>*

CEO/Airport Director has semi-annual "Chat's with the Director"

Vehicle	Description Purpose	Frequency	Owner	Internal/ External	Comments/ Distribution List
<Status Report>	• *Big picture* • *Focus* • *Business challenges* • *Splits year and second meeting includes:* • *Year in review* • *Projects/info for coming year*	*<Weekly>*	*<Joe Smith>*	*<Internal>*	*<comments>*

Employee Survey

Vehicle	Description Purpose	Frequency	Owner	Internal/ External	Comments/ Distribution List
<Status Report>	*General and targeted topics*	*<Weekly>*	*<Joe Smith>*	*<Internal>*	*<comments>*

Electronic Newsletter

Vehicle	Description Purpose	Frequency	Owner	Internal/ External	Comments/ Distribution List
<Status Report>	*<Communication of project progress and deliverable status>*	*Every other Monday*	*<Joe Smith>*	*<Internal>*	*<comments>*

Employee Newsletter

Vehicle	Description Purpose	Frequency	Owner	Internal/ External	Comments/ Distribution List
<Status Report>	*<Communication of project progress and deliverable status>*	*Monthly*	*<Joe Smith>*	*<Internal>*	*<comments>*

One-page Briefing Sheet

Vehicle	Description Purpose	Frequency	Owner	Internal/ External	Comments/ Distribution List
<Status Report>	*Information to be communicated to staff in a consistent manner*	*As needed*	*CEO/Director*	*<Internal>*	*Direct reports*

Document Templates

Vehicle	Description Purpose	Frequency	Owner	Internal/ External	Comments/ Distribution List
Letters, memo's, emails	*To provide consistent documents across the organization*	*On-going*	*<Joe Smith>*	*Internal and external*	*<comments>*

Other Communication Vehicles

[Insert the project reporting schedule or provide a reference to where it is stored.]

Vehicle	Description Purpose	Frequency	Owner	Internal/ External	Comments/ Distribution List
<Status Report>	*<Communication of project progress and deliverable status>*	*<Weekly>*	*<Joe Smith>*	*<Internal>*	*<comments>*

Communications Management Plan Approval

The undersigned acknowledge they have reviewed the *<Project Name>* Communications Management Plan and agree with the approach it presents. Changes to this Communications Management Plan will be coordinated with and approved by the undersigned or their designated representatives.

[List the individuals whose signatures are desired. Examples of such individuals are Business Steward, Project Manager or Project Sponsor. Add additional lines for signature as necessary.

Although signatures are desired, they are not always required to move forward with the practices outlined within this document.]

Signature: _____ Date: _____

Print Name: _____

Title: _____

Role: _____

Signature: _____ Date: _____

Print Name: _____

Title: _____

Role: _____

Signature: _____ Date: _____

Print Name: _____

Title: _____

Role: _____

Attachment A: References

[Insert the name, version number, description, and physical location of any documents referenced in this document. Add rows to the table as necessary.]

The following table summarizes the documents referenced in this document.

Document Name and Version	Description	Location
<Document Name and Version Number>	*[Provide description of the document]*	*<URL or Network path where document is located>*

Attachment B: Key Terms

[Insert terms and definitions used in this document. Add rows to the table as necessary. Follow the link below to for definitions of project management terms and acronyms used in this and other documents.]

http://www2.cdc.gov/cdcup/library/other/help.htm

The following table provides definitions for terms relevant to this document.

Term	**Definition**
[Insert Term]	[Provide definition of the term used in this document.]
[Insert Term]	[Provide definition of the term used in this document.]
[Insert Term]	[Provide definition of the term used in this document.]

APPENDIX C

Case Studies

Case Study—Columbus Regional Airport Authority

Airport Profile

The Rickenbacker Port Authority was formed in 1979 to redevelop land the military released from the closure of the Rickenbacker Air Force Base and in 1990 took over the operations of the airport. The following year the operation of Port Columbus International Airport (CMH) and Bolton Field Airport was transferred from the City of Columbus to the Columbus Airport Authority to provide greater latitude and more focused attention to the business of aviation.

In 2003 the Columbus Airport Authority and the Rickenbacker Port Authority were merged to create the Columbus Regional Airport Authority (CRAA) to provide for the strategic operation and development of Port Columbus, Rickenbacker, and Bolton Field airports.

Under the current organizational structure the operations and maintenance departments report to the Senior VP and COO of Operations and Public Safety. The airport has restructured over time to meet the ever-changing requirements and challenges of aviation and airports.

Port Columbus provides scheduled commercial passenger service. Over the past five years CMH has ranked between 54th and 55th in the United States.

As one of the world's only cargo-dedicated airports, Rickenbacker International Airport offers an uncongested option to move air cargo to, from and within the United States. The airport is a critical logistics component of Rickenbacker Inland Port and offers many benefits including FedEx Air, FedEx Ground and UPS regional hubs located on-site; scheduled charter flights by Kalitta, Atlas, Evergreen and others; U.S. Customs and Border Protection on-site; general aviation amenities; and on-site 96-room hotel.

There is seasonal nonstop commercial service from Columbus to Myrtle Beach. Allegiant Air will begin offering nonstop service from Columbus to Orlando-Sanford International Airport on October 25, 2012.

Bolton Field is located 15 minutes southwest of downtown Columbus and is dedicated to general aviation activities.

Current State

The Airport Authority benefits from a dynamic, diverse and talented workforce committed to excellence. They deeply value employees and continually identify benefits and strategies that are effective for retention.

The Columbus Regional Airport Authority is committed to preparing staff by ensuring they receive the leadership, business, and technical training that is fundamental to their role and that will assist their growth and contributions. Dedicated to an engaged, informed and diverse workforce keeps them on the leading edge of the aviation industry and makes a great place to work and grow professionally. As an employer they regard integrity, respect, innovation, appreciation, and excellence as values that are integral to their success. They foster an environment that recognizes and rewards fulfillment of these core values by their employees. The default result is effective collaboration between departments.

True to the saying "the whole is greater than the sum of its parts," the organization's performance and success relies on leveraging independent strengths and working collaboratively. Commitment and dedication to accountability, measurement, and organization first allows them to capitalize on potential.

Focus and alignment with strategic objectives improve efficiency. To help ensure that they are on the right path, they measure and track the metrics that are meaningful to the organization and the industry. When the organization is successful, they are all successful.

Techniques

The CRAA has an eight-step strategic business plan. This case study will explore the first two steps.

Build a Productive and Engaged Workforce

The CRAA places a heavy emphasis on shaping healthy employee relations by fostering open and frequent communication. By seeking timely and thoughtful input from the workforce they are able to support employee initiatives and focus on organizational growth. The CRAA has structured a competitive compensation structure to attract the most talented employees and continues to recruit a forward thinking and diverse workforce. Training programs and initiatives that are aligned with the eight strategic objectives insure that employee skills development is a top priority. The organization places top importance on aligning resources that encourage and support individual professional development in order to strengthen their workforce as a whole.

Aside from hiring and training practices, the CRAA is committed to empowering their employees on a daily basis. This includes a strong advocacy for healthy work life balance and encouraging fun in the workplace. At the same time, employees have been instilled with personal ownership and accountability in their roles. CRAA staff is fulfilled by a challenging but meaningful work environment that motivates them to excel at their jobs. Flexibility, problem-solving, communication, and accountability are highly valued attributes. Finally, management strives to be clear about communicating expectations and monitoring individual performance. Incentives are created for good performance along with celebration of personal and team wins.

Accomplish Organization Effectiveness

The CRAA embraces proven management practices by establishing repeatable and scalable standard operating procedures. They continually develop, refine, and promote process improvement tools and techniques to insure efficiency and effectiveness. A strong focus on action items that include key performance indicators allow management to communicate performance metrics and utilize them as a basis for decision making, course modification and continuous improvement. These organizational performance management practices help the CRAA inspire teamwork and foster collaboration.

Initiative	Techniques

Broad Leadership Development	• Succession planning
	• Supervisor Academy
	  ○ Cross-department skill development
	  ○ Leadership styles
	  ○ Collaborative project assignments
	• Emerging Leader Program

Communication and Personal Accountability	• Department staff meetings • Monthly direct-report staff meetings • Survey tools for employee feedback • Semiweekly electronic newsletter • Monthly employee newsletter ○ Includes one page CEO brief to Directors and VPs briefings
Communication/Feedback Organizationally	• Semiannual "Chat's with the CEO" for year in review and aligning focus • Employee survey
Communication and Accountability for Senior Staff	• Monthly director meetings with VP to share information among divisions • Monthly one-on-one meetings with CEO and direct reports
Performance Management	• Scorecard • Dashboard containing top six priorities • Accountability for directors

Examples

Parking Lot Rehabilitation

Operations and airfield maintenance divisions (AFM) were tasked with repairing, re-sealing and re-striping of the Red Lot, a remote public parking lot at Port Columbus International Airport. The Red Lot has 2,711 spaces and is their most popular remote lot as access to this lot is by a direct ramp from the Interstate. This lot has an average utilization of 76%.

The parking and ground transportation division (under operations) began planning meetings with the airfield division approximately four months prior to the start date. Parking and ground transportation explained the process and need of phasing the work to reduce customer inconvenience and impact on parking revenue. The phases included closing of each section two weeks prior to the start to allow vehicles to leave rather than re-locate them. These actual closings, using barrels and barricades were performed by members of each division. Work within each phase included catch basin repair (when needed) crack sealing, pavement sealing, and re-striping each space. This work also involved the reconfiguration of accessible spaces to meet 2010 ADA Standards.

In addition to the planning meetings, the operations and airfield project team conducted daily meetings to discuss challenges and progress of each phase. When challenges occurred, discussions between the two divisions took place immediately to make adjustments as needed.

The ultimate goal of the project was to perform the work causing minimal impact to the customers and parking revenue. Due to this effective collaboration, the project was completed ahead of schedule.

FAA Part 139 Internal Compliance Inspections

Operations and Airfield Maintenance staff conduct internal FAA Part 139 Compliance Inspections at two of CRAA's three airports (CMH and LCK). While this endeavor exceeds regulatory compliance requirements, CRAA recognizes value for several important reasons.

The primary objective is to help ensure that both CMH and LCK maintain regulatory compliance with FAA Part 139, Certification of Airports. Other objectives include:(1) the opportunity

to further teach/train airfield maintenance (AFM) personnel in more detail about FAA Part 139 regulations and compliance, and (2) Get different "sets of eyes" and perspectives on the airfields of CMH and LCK.

The audit teams are comprised of operations and AFM personnel. Program design has operations and AFM personnel inspecting each airport other than the one that they normally/primarily are assigned to (i.e., a team of CMH airport operations and AFM employees inspect LCK and vice versa). This gives more of an outsider's perspective on FAA Part 139 compliance at CMH and LCK and further assists with having different "sets of eyes" inspecting items.

The audits are conducted three times per year – spring, summer, and fall time periods.

Bolton Field Maintenance

Operations and AFM personnel are blended to perform maintenance at CRAA's third airport, Bolton Field. The most recent work involved the completion of the third phase of a three-phase project to mill and repave longitudinal paving joints on the airport's only runway. This required extensive coordination with the airport's fixed based operator (FBO) as well as almost 90 based aircraft owners. The close coordination and communication resulted in minimal delays and/or disruptions to the airport's users while operations and maintenance group from two other airports work collaboratively performing necessary maintenance on this single runway airport.

Airfield Safety and Efficiency Meetings

Operations and AFM collaborate in regard to maintaining operational flow and safety. the operations division conducts weekly airfield safety and efficiency (AS&E) meetings that include AFM, planning and engineering and the FAA. These meetings are specifically designed to discuss upcoming closure requests so that an adequate opportunity exists for airport operations to perform necessary operational risk management (ORM) assessments for any proposed work in the air operations area. This also permits proper and thorough communication with affected airfield stakeholders.

Case Study—Reno-Tahoe Airport

Airport Profile

The Reno-Tahoe Airport Authority (RTAA) is the owner and operator of the Reno-Tahoe International and Reno-Stead Airports. The Authority is governed by a nine member board of trustees appointed by the City of Reno, City of Sparks, Washoe County, and the Reno-Sparks Convention and Visitors Authority.

Currently the 60th busiest commercial airport in the nation, Reno-Tahoe International Airport serves approximately 4 million passengers per year. Conveniently located only 5 minutes from downtown Reno and 40 minutes from some of the finest ski resorts and outdoor recreation in the world, Reno-Tahoe International is the Gateway to Lake Tahoe and the entire region. It is the second busiest commercial airport in the state of Nevada after McCarran International Airport in Las Vegas. The airport is a joint use facility, sharing the airfield with the Nevada Air National Guard's 152nd Airlift Wing.

Generating a total annual economic impact of $2 billion, the Reno-Tahoe International Airport is an important asset to the region. The airport has been upgrading facilities for the past several years including a new air traffic control tower, inline baggage handling system, security checkpoint, and concessions when completed in 2013, these improvements will enhance the experience of the airports' four million annual passengers.

Current State

The RTAA has truly bought into the concept of hiring the right people as a way to ensure collaboration. Clearly every organization tries to do this, but RTAA has taken it to a whole new level. They have been using these tools since 2005 and unlike many "flash in the pan" programs this one seems to be enduring. Strong leadership who believes in this approach must be credited for its success but no less important is the complete buy in of the management and staff. In the emergenetics profile the various thinking preferences are color coded, analytical-blue, conceptual-yellow, structural-green and Social-red. This process is so ingrained in the RTAA culture that nearly everyone interviewed would refer to the attributes by their colors rather than names. Comments like "we need to have someone involved in this meeting with more blue-green" are common phraseology. It has been clearly established that these tools are not a determining factor in the hiring process but it is an indication of thinking preferences that allows the interviewer to develop questions that allows an assessment of the candidate's capacity for working outside of their preferences. They use this information to determine how best to work with individuals since an understanding of specific thinking preferences can provide insight into someone's comfort zone and inherent strengths. Over time the airport has seen an elimination of silos and an increased camaraderie among employees. They have found success in numerous critical programs from terminal reconstruction to the Reno Air races. Every organization tries to build teams with individuals who bring different strengths to the table. RTAA builds successful teams through a deep understanding of what those strengths really are. Certainly other tools such as the operations/maintenance cross training program, the executive forum and the airport 101 training, contribute to this success but the evidence suggests that they are setting the hiring bar high and beginning the road to collaboration at a very advanced level. They have adopted the philosophy of "hire for attitude, teach skills." They believe that traditional methods of hiring result in people being "hired for what they know and let go for who they are". RTAA's processes are aimed at knowing who they are before they are hired.

Techniques

The airport has taken a unique approach to hiring practices to ensure staff in all departments collaborates well. Additionally their approach is aimed at hiring individuals with a diversity of thinking patterns as well as cultural, gender, and ethnicity. Several tools are employed in the hiring process to ensure that individuals will be right for the culture at the RTAA. The primary tool is emergenetics which evaluates how you think and applies percentages to four key areas: analytical, conceptual, structural, and social. This tool also predicts how you behave based upon your thinking preferences and presents this as a measure of your level of expressiveness, assertiveness and flexibility compared to the general population.

In addition to emergenetics, the airport uses a predictive index that has been in use in various applications since first introduced by the military in the 1930s. This tool lists dozens of attributes and asks you to simply check off those that describe how you think you are expected to act. The next section provides the same attributes but asks you to check off the ones that you believe really describes you.

The airport also employs a behavioral consultant to assist in selecting the right person for key positions. The consultant will ask the hiring manager what are the attributes desired for a particular position. The hiring manager will choose attributes from a list such as leader, assertive, self-motivated, etc., and the consultant will help to develop questions that are aimed at identifying desired qualities. The consultant will further instruct the hiring manager what to listen for in the candidates responses. A candidate may be asked to describe an example of handling a difficult personnel situation and the responses to that are evaluated. They also work toward defining what

motivates and drives a candidate. They believe that it is important that personal motivations are aligned with the airports motivations. A candidate that wants a position to be able to add value to the organization while increasing their own job satisfaction may score higher than a candidate looking for higher pay, more authority, etc.

Another low tech process utilized in the hiring process is to include external peers and customers in the interview process. For example maintenance staff is always included in the interview for key Operations staff and external airport executives are often included for top level positions.

Employee Feedback

Numerous current and past RTAA employees were interviewed for this case study including front line supervisors, past senior managers, HR professionals, and current senior staff. The interviewees were diverse in an effort to provide a holistic review of the hiring process and its results. Two past employees were interviewed in an effort to seek full disclosure of viewpoints concerning the hiring process.

Listed below are key comments from these interviews and examples of how the process has helped to ensure collaboration between departments:

- "I have never observed any issues between operations and maintenance. There are certainly times where the two departments do not agree on a course of action but I've always seen the personnel involved work towards an agreement or a compromise."
- "Things are very smooth at Reno and certainly much of this is attributable to the process which selects the right person for the job."
- "In my interview for this job, there were PR folks from the city as well as technical folks from another airport."
- "Emergenetics is not a process that we went through, learned, and then shelved. We consciously use it on a regular basis. In fact it was discussed in a meeting I attended two weeks ago."
- "A recent example of a project that required much collaboration was the resurfacing of the parking lot. In this project, operations, maintenance and engineering needed to work closely. Weekly meetings with each other and the contractor were required. Unfortunately in the planning process, there was a breakdown in communication between engineering and maintenance and the restriping plan was not complete. The team was able to resolve this by working together and maintenance picked up the work that was not included in the contract."
- "Snow removal is another area where operations and maintenance collaborate very well. operations personnel take the lead but rely heavily upon the knowledge and skills of the maintenance team to follow through on priorities."
- "The operations personnel are not afraid to get their hands dirty and the maintenance personnel appreciate these gestures. Rather than calling maintenance to pick up debris on a runway, the operations supervisor will do it himself if it can be quickly accomplished without special equipment."
- "The operations staff knows that their success relies heavily upon the actions of maintenance and they work hard to show their appreciation of the work that maintenance does."
- "The processes that are in place ensure that the right person is hired and provides insight into their character. Personality of a candidate is as important as skill, knowledge and ability."
- "We celebrate our successes together. A successful FAA Part 139 inspection is an example of operations and maintenance working together and we celebrate together, with both departments being recognized for their contributions."
- "The maintenance department understands their role and how this fits into the overall success of the airport. Maintenance 'gets it' and is responds appropriately to critical issues."

- "Installing the in-line EDS system at the airport was a complex project. Collaboration between operations, maintenance, engineering, and police was critical to project success. We shared the vision with the project team and discussed the elements of emergenetics. We discussed the vision for each project and considered what else could be done by relying on conceptual thinkers. We discuss tactical options by relying on those that think structurally and analytically. We also discussed the impact of our actions which relied on our social thinkers. We shaped the project team to include the strong thinking skills of all elements."
- "Scores acquired in the various psychological profiles are not determining factors in hiring, but they are considered. For example if you are hiring someone to do marketing, you need to have someone who is very conceptual and social. Depending on position requirements you may also opt for someone who is analytical and structural, someone who can put the ideas down on paper and develop a program to implement the visionary ideas."
- "The hiring process is not standardized but is customized for every position."
- "These tools are aimed at assessing the "soft skills" of a candidate. Technical skills are assessed in more traditional methods."
- "These are amazing tools that we use constantly, for example when we need to do a presentation for the board we know that some of the board members want the technical details and some want the 30,000 ft. review. We will take a presentation developed by the technical maintenance/engineering folks and dress it up for more glitz. Or take a glitzy PR presentation and have our technical folks add more substance. We have also utilized the knowledge of thinking preferences to put together a team presentation using complementing strengths."

Case Study—Denver International Airport

Airport Profile

The City and County of Denver is the owner of Denver International Airport (DEN), with the airport director's position reporting to the mayor's cabinet. The airport is financially independent from the city; it is financed by revenues generated from the airport's operation.

The airport opened for air traffic on February 28, 1995, replacing existing Stapleton International Airport. It was the first major airport constructed in the United States since Dallas/Fort Worth (DFW) opened in 1972. There were number of attempts to build new airports by cities such as Miami, St. Louis, and New York, all of which failed.

The airport is the 5th busiest airport nationally and the largest airport in Colorado. It is also the largest airport property dedicated to airport use in the nation, with an area consisting of 53 square miles. In 2012 the airport passenger volume reached 53.1 million.

The airport is a major hub for United, Frontier, and Southwest Airlines.

Currently the airport is proceeding with a major design/build project, including Terminal expansion to provide for more retailing space, the addition of a hotel and rail station to connect the airport to downtown Denver.

Crisis Scenario: Renovations during Recession

The design of the new DEN began in 1987, at a time when the country was sliding into recession. The planners had assumed that three viable and profitable airlines, United, Continental, and Frontier would be in full operation, but due to this deteriorating economy such viability was anything but certain.

Since the airlines that ultimately would be expected to pay for a large portion of the facility were at that time not supportive of the project, the decision was made to proceed with design

without their support. When the remaining airlines finally but reluctantly agreed to sign leases, they asked for major changes which had to be accommodated. For example: the International Concourse was moved farther north and away from the terminal, the apron area was extended to the north, and the pedestrian bridge was added over an active taxiway. All of these requests collectively added significant additional costs and design time to the project which was already under financial pressure. Due to this, the planning, design, and construction of DEN proceeded under a strict and compressed time schedule. Senior leadership was more and more concerned about the deteriorating support from the community, pressure from federal, state, and local elected officials, and renewed scrutiny from the rating agencies.

In the early stages of project development, the DEN engineering team coordinated applicable aspects of the project with the operations and maintenance groups. However, the given increased costs associated with design changes and time delays that were resulting in critical path schedule slippages, plans review participation by operations and maintenance became more and more difficult to complete in a timely manner. There was also evidence of a degree of conflict among the operations, maintenance, and the planning groups regarding design and maintenance issues with debates over everything from runway layout to roofing standards occurring almost daily. During this period, senior leadership at the airport as well as the mayor's office continued to face an onslaught of serious problems.

First, due to a deteriorating economy, the potential loss of support from Washington, the unanimous opposition to the project by the airlines, and a recognition that the local community was divided on the question of whether the airport should even be built, it was recognized that continued delay in design and construction would probably doom the airport from completion. Additionally, the airport's finance department indicated that the airport's capitalized interest account, which was the interest cost financed with bonds added to the project's total cost to finance the project during construction, was proving to be insufficient to complete the project. It was then made clear that this capitalized interest would run well over $21 dollars a month towards the later stages of construction and that any further delay could prove to be catastrophic. Recognizing these facts, senior leadership took a number of steps to minimize delays in the future including one that excluded operations and maintenance from participating in the plans review process during the remainder of the project.

Current State

Even after the opening of DEN the coordination between the engineering department and maintenance deteriorated. Engineering personnel found themselves defending the overall design of DEN, and continuously providing justifications for systems incorporated during the design and construction process. Only after the passage of time and the initiating of extensive training for maintenance personnel would these conflicts slowly recede.

In fact it took a number of years and some changes in the management structure to develop better relations and coordination between the operations, maintenance and the engineering departments for all new projects. At a point in time after the opening of the airport engineering was organizationally placed under the maintenance division which improved cooperation among the organizations.

Techniques

While collaboration is normally a good thing, DEN believes that there are times and conditions when higher priorities will dictate that such management techniques are not warranted or even practical. Many would agree that in the case of a major capital program where time is of the essence, avoidance of time delaying processes under certain circumstances is justified.

Currently the coordination of capital and maintenance projects among the three groups is working quite well. There are monthly prescheduled meetings where outstanding issues are discussed and resolved. Major complex projects are presented by engineering to operations and maintenance for their review and input at the beginning and through various stages of the project design development and through construction. Valuable suggestions are given and frequently incorporated into the design.

Case Study—Gulfport-Biloxi International Airport

Airport Profile

Gulfport-Biloxi International Airport (GPT) is a joint civil–military use airport located three miles north of the business district of Gulfport, Mississippi. Its governance structure is an independent airport authority.

Crisis Scenario: Hurricane Katrina

On August 29, 2005, Hurricane Katrina made nearly a direct hit on Gulfport, Mississippi. At that time, the airport was building a major terminal expansion and the entire facility suffered grievous damage from the storm. General aviation, cargo and auto rental buildings were nearly completely destroyed and the terminal suffered significant damage. GPT was a member of the Southeast Airports Disaster Operations Group (SEADOG) and due to the coordination efforts of this group nine airports sent personnel and equipment to assist in relief and restoration of commercial traffic and operations. An ACRP 10-11 research member was part of a response team from the Minneapolis-St. Paul International Airport (MSP) that went to GPT in the days after Katrina to assist in restoration of airport operations.

Regional Relationships and Departmental Collaboration

In the aftermath of a disaster such as Katrina, one must realize that in many cases the employees of the airport may have suffered significant property loss and must commit time and resources to their own family's recovery. As such, they may be unable to report to work in a manner that can effectively address airports critical needs. The premise of the Disaster Operations Group (DOG) is that others will come in to assist by providing personnel and resources to provide immediate cleanup, security and technical system repair. A strong collaborative model was observed at this time among all employees and those assisting from other facilities.

The Effect of Crisis' on Long-Term Collaboration

Bruce Frallic, A.A.E., the executive director for the airport at that time offered all employees the option of a 5-hour work day so that all could attend to their own pressing personal needs. An employee could choose to work from 7am – noon or noon to 5pm. Volunteer staff from the nine airports that provided relief services supplemented the airport staff and worked through both shifts. Volunteers were actually housed at the airport as hotel services to the region were barely functional. In the very early days after the storm members of the community could show up at the airport for "meals ready to eat" and other emergency coordination. Frallic took a "no questions asked" approach to when an employee could and did return to work knowing that he had the resources to bring the airport back to a restoration of commercial traffic. Observed morale at that time was very high as all worked with a singular purpose of restoring GPT to an acceptable operational level to receive commercial air traffic and passengers.

In a situation like this, there is a leveling of all workers regardless of their spot in an org chart. Frallic's personal leadership example (worked nonstop personally providing direction and making the strategic communication links to FEMA and others to ensure appropriate resources) as well

as his respectful concern for his employees sent a strong message. Often operations and maintenance organizations can get territorial and siloed in their approach to their jobs, but there was no room for anything but cooperation during the demanding recovery period that follows a regional disaster. Was this because of local leadership and airport organization or did the context of being in a broader group of airports affect this model? How did the aftereffects of Katrina influence collaboration in the years that followed?

Current State

It is believed that the operations and maintenance departments at GPT are very collaborative in nature not only from facing a crisis together, but more so in the years following by focusing on relationship issues between the departments that increase understanding and impact positive morale.

The ACRP research team conducted a phone interview with the director of operations and maintenance and the director of planning and business development on October 18, 2012 for this study. Key questions were developed to be tested against the theories adopted above. The director of operations was employed during the Katrina event and we had worked together with MSP staff during the MSP deployment period in September of 2005.

Examples given by the interviewed directors suggested that the GPT model of collaboration was strengthened by the Katrina experiences, but exist more as a result of intentional work by airport staff in developing and maintaining a positive work culture. Their descriptions of how collaboration works at GPT very much followed along the lines that previous ACRP 10-11 team research had confirmed.

It was unclear as to whether the SEADOG model of cooperation had a major impact on the long-term collaborative relations described in the interview. One might assume that experiences like this as well as any similar efforts by GPT staff in the assistance of other SEADOG airports would also engender a stronger feeling of teamwork and accomplishment, but that conclusion is assumptive in nature.

Techniques

GPT placed a strong focus on cross-training all employees. For example, all new operations staff working directly with electricians and HVAC have "maintenance days" in which they are trained on the roles and responsibilities of the maintenance department. Maintenance employees are given thorough training in the FAA Part 139 process. This cross-training initiative adds to the impact of GPT's focus on building team spirit, understanding and employee bonding in order to build respect among all employees. Because management strongly believes that strong relationships create better workers, all airport staff members, from custodians to board members, are invited to airport-wide events to promote co-mingling and celebrate individual and organizational successes.

All employees share in success through recognition programs, as is the case for FAA Part 139 inspections. Airport-wide barbeques and other celebrations are encouraged. GPT has also placed heavy focus on hiring practices by including employees from effected work groups in the hiring process.

Cast Study—Portland International Airport

Airport Profile

The Port of Portland owns and operates three airports, Portland International Airport, Troutdale, and Hillsboro General Aviation Airports, as well as four marine terminals and six business parks. The nine members of the Port of Portland Commission are appointed by the governor

of Oregon and each serve 4 year terms. This group sets Port policy at monthly meetings and appoints the Port's executive director. In turn, the executive director hires Port directors, who along with approximately 700 staff members, oversee day-to-day management of the organization as well as the planning, development and implementation of projects for their respective divisions. Portland is currently the 30th busiest airport nationally, serving approximately 14 million people annually.

Breaking Down Silos through Reorganization Efforts

In the mid-1990s, both operations and maintenance functioned as one department at Portland International Airport. Under this structure, operations and maintenance had close working relationships and a common culture. However, in 2003, the airport reorganized, moving maintenance into the planning department. Over time, competing agendas emerged between operations and maintenance as a result of the departments working in separate silos under the direction of two department heads with differing goals and objectives. Then, in 2011, another reorganization brought operations and maintenance together, this time with both department heads reporting to the same director, the chief operating officer. Departmental silos have been eliminated due to this reporting structure which promotes common goals, and by encouraging department heads and staff members to regularly meet to coordinate objectives.

Customer Service Focus

The grouping of operations and maintenance in one department has enabled a customer service business model to emerge. This model puts the customer first in all Department decision making. This has resulted in the re-calibration of staff hours, labor, and dollars to align with the passenger perspective in relation to all terminal asset and maintenance decisions. It has also contributed to the department's effort to integrate social media and wireless communication service to keep passengers better informed, especially during disruptions to airline schedules.

Holistic Systems Approach

Reorganization has also contributed to three main initiatives related to capital improvement projects in the Port. First, combining operations and maintenance has led to the development of a systems owner approach that focuses on the entire life cycle of an asset that includes how it will be maintained after it has been procured. Second, it has led the Port to name specific project sponsors for each capital improvement project identified. By doing this, it helps with setting priorities and getting both operations and maintenance employees plugged-in on each project early, creating ownership over these projects. Third, the Port has also been able to establish a work order management system that not only prioritizes tasks, but also is integrated with the FAA Part 139 inspection schedules. This has made major improvements in the efficiency of operations.

Case Study—Southwest Airlines

Airline Profile

Southwest Airlines Co. (NYSE: LUV), operating as Southwest Airlines, is the largest low-cost carrier in the United States and is headquartered in Dallas, Texas. The airline was established in 1967, adopting its current name in 1971. It is the largest airline in the United States based upon domestic passengers carried as of June 5, 2011.

Current State

Often, an airport operator will notice something different and impressive about the personality and enthusiasm of the local station manager from Southwest Airlines. At first one can explain this anomaly given the company's outstanding performance in all aspects of its airline operation. Yes, it continues to be a company that logs profits year in year out even recognizing that close to 90% of its employees are unionized. It has an exemplary steady growth history from the time it ran shuttles between Dallas, Houston, and San Antonio to today where it and Air Tran (recent acquisition) serve over 103 destinations nationwide. Its balance sheet is the envy of the industry with as much as 50% of its capital expenditures financed with retained earnings, its work force productivity is consistently rated the highest in the industry, and its customer service scores are one of the best in the airline industry. But even setting aside these facts, there seems to be something more. Basically Southwest Airlines station managers seem to be genuinely nice people and always engaged in the airport community, both professionally and socially.

Scenarios

Hiring Committee Practices

A group of Southwest employees in a small division within marketing were tasked with the responsibility of interviewing a number of individuals to fill a recent opening within their section. Company policy stated that at a minimum a representative from human resources, one from the supervisory ranks, and a peer within the section would participate in the process. The supervisor had the latitude and in fact made the decision to include all eleven employees within his section to be part of the final interview process. Furthermore, ground rules were established where their choice would have to be unanimous before final selection could occur.

Since the HR department had prescreened over 50 potential candidates, the final five presented to this committee were all highly qualified technically and generally had the soft skills that the company expects all of its employees to have.

After the interviews were complete and the selection process began, a discussion ensued regarding the fact that one of the candidates who had indicated he was happily married did not wear a wedding ring. One of the panel members took exception to this and exercised his right to exclude the candidate from further consideration due to what he considered an inconsistency. While the panel member acknowledges that the person under consideration had many excellent traits, he pointed out that all five individuals were well qualified and that in his mind at least this might be an indication of a lack of loyalty and trustworthiness, essential characteristics required of all Southwest employees. The panel went on to select another individual with a unanimous vote.

Two-day Employee Briefings

Each year Southwest Airlines brings to their corporate headquarters in Fort Worth approximately 20 of its up-and-coming assistant station managers and station managers for a two-day orientation. During that period, several of the company leaders including Gary Kelly, CEO, Herb Kelleher, Board Chairman; Coleen Barrett, formally responsible for among many duties the development and implementation of personnel policies, and others to discuss all aspects of the company including its culture, future plans, the state of the industry, and governmental affairs.

Kelleher spends a considerable amount of time explaining to the station managers the strategic importance of their presence in the local community and describes an occasion in Chicago where the station manager was able very early in the process to alert the corporate office that the mayor was considering privatizing Midway Airport, an action which could have

had unfavorable consequences for not only Southwest, but all airlines serving that station. Because of this early intelligence, the company was able to develop alternate approaches which ultimately protected the airlines from ruinous cost increases, but also facilitated the city's needs for revenue enhancement.

It was impressed on these managers that not only was it the right thing to do in being a good contributor to the airport's interests, but developing close and supporting relationships with the operators of the airport also benefited the interests of the airline.

Recognizing Superior Customer Service

Southwest Airlines required that one of the three executive vice-presidents would be on call 24/7, year round. One of the executive vice-presidents, Mr. Wimberley, was the duty-officer one Sunday evening when he received a call from Cindy Kimbrel, a supervisor on duty in El Paso, Texas who explained what she had done. A late night Southwest flight to Houston was canceled due to mechanical difficulties and one of the passengers traveling with her cancer ridden mother explained that she had to get to the Texas Medical Center by eight the next morning for a battery of tests and subsequent treatment. Cindy explained to Jim that she contacted a local FBO, rented a twin engine jet with crew for $6,000, and arranged for the couple to reach Houston on time. Wimberley's response was one of full support indicating that she had made the correct decision and was to be complemented.

Sometime later, the company hosted an event for Kimbrel, recognizing her for taking the initiative in meeting the needs of Southwest's customers. In particular she was honored for thinking "out of the box" at a time when quick action was appropriate and required. Wimberley did indicate in his remarks that he was particularly pleased that she had not elected to rent a Boeing 747 for the transport of this family!

An Instance of Cross-Departmental Collaboration

A Southwest aircraft maintenance mechanic was discussing with a senior management official the difference between his former employer, Eastern Airlines, and Southwest. He described an incident while at Eastern where a crew member discovering a go-no-go discrepancy suggested to maintenance that it was just as well it not be quickly fixed since it would allow the crew to move into an overtime category meaning a higher rate of pay for all involved, including the mechanic on duty. There was also a degree of animosity between pilots who were perceived to always be complaining and mechanics that were responsible for cleaning up "their mess."

At Southwest it was a completely different story. First there is a feeling that there are no "tribes" in the company, only equals. The pilots respect the mechanics and their technical abilities, and the feeling is mutual. Almost on a daily basis somewhere in the system a mechanical problem occurs which could cause delay or cancellation. The difference is both the crew and maintenance are motivated to correct the problem as quickly as possible since on time departures and arrivals are mutually beneficial both financially and from a job satisfaction standpoint to both parties.

Analysis

Even the casual reader will note a pattern emerging that begins to explain the observations about Southwest Airlines station managers as well as why the company has been so successful through the years. Described in the four vignettes are several essential concepts and approaches that together make up the vision and culture of all Southwest employees. These include: employee empowerment, techniques used that ensures new as well as existing employees have assimilated the culture of the company; training for excellence; up and down communications; recognition and celebration; aligned incentives; and mutual respect.

In the case of the first example both empowerment and perpetuation of the company's values and culture are demonstrated. Southwest has the distinct advantage of having a team of senior officials, with Herb Kelleher at the top, who brought a vision and defined culture (determination, a flair for the outrageous, the courage to be different, the ability to love, the creativity to be resourceful, an spirit de corps that bounds people, profitability is good and essential for all, service is a way of life, and a desire to have fun) that has been the centerpiece of their development and business practices since the airline's inception in 1975. Note that an organization, be it airline or airport, can't be completely comfortable with the empowerment granted in Example 1 unless all those that serve on that group have the vision, soft skills, and culture of that organization strongly ingrained. In the case of Southwest, it is generally the feeling that if you were to ask any employee throughout their system what the company's core values are, the answer would be the same.

Related to the process of bringing up and coming station managers for a two-day orientation at corporate headquarters, this is an excellent example of how an organization can facilitate communications both up and down the organizational structure. Such meetings also provide an opportunity for recognition and celebration of those individuals who are seen as outstanding employees within the company. By meeting the senior officers in the company in a relatively informal environment, employees can reacquaint themselves with the values, visions, goals, and aspirations of the company, share with senior management what they see as ways to improve the company's performance, and at the same time they can feel good about themselves since their efforts have been recognized, honored, and appreciated.

In the case of the employee who took it upon herself to serve the needs of the passenger, without the meticulous hiring and screening process used by Southwest to select the most trustworthy people, such empowerment demonstrated in this example could prove to be disastrous. Even so there are examples with the company's history where employees have made a wrong decision, but it is understood that almost without exception senior management will support such initiatives. In this case the employee was complemented by Wimberley, and the company honored her initiative in a public way.

Finally, the mechanic described how the company had developed a set of aligned incentives that motivated both the crew members and the maintenance personnel to work together towards a common goal (collaboration) to ensure the aircraft departed on time. It also should be pointed out that there was mutual respect between the pilots and the mechanics with each understanding and appreciating the unique skills held by both the other group. This appreciation was in large part due to the type of individuals the company had assembled over the course of time and the continued reinforcement of the values held by the company.

Techniques

Occurrence: Committee formed to select new employee

Technique: Hiring throughout the company's history focused on ensuring soft skills were present in all employee ranks thus ensuring perpetuation of these same traits. With these qualities present in all employees on the panel, empowerment was possible.

Occurrence: Bringing in select employees to headquarters for two-day briefings.

Technique: By identifying some of the company's best employees and honoring them, self-esteem and trust ensued. During the two-day event, these employees were recognized and a form of celebration regarding their achievements was held. By discussing the company's vision and beliefs (training) senior management and employees became unified in a common purpose.

Occurrence: Explaining to this group the company's plans, its vision, and their role in achieving these ends.

Technique: By exposing these employees to the leaders of the company and hearing its status and where the company was heading, communication was exhibited both up and down the ladder. When these employees returned to their stations, they were able to pass on to their employee's information gathered in Dallas, thus perpetuating the process.

Occurrence: A station manager took it upon herself to move a passenger in need to a new location using an unusual approach.

Technique: The employee had a good understanding of the importance of helping her customer (common vision) and had confidence that her decision to lease an aircraft (empowerment) would be supported by the company. Her solution represented out of the box problem solving.

Occurrence: Southwest pilot and mechanic worked to ensure the aircraft would take off on time

Technique: Through structuring the collective bargaining agreements in a way where the two parties were similarly motivated (aligned incentives) both the employees, their customers, and the company benefited.

Occurrence: Mechanic commented on how different the attitude of certain classes of employee was at his last employer.

Technique: Pilots and mechanics had mutual respect for each other's skills and importance because each had learned to understand (training) the role of the other, and because they possessed the soft skills that enabled each to empathize with the other.

APPENDIX D

Creating a Survey Tool

Survey Administration

A survey provides the most comprehensive and measurable approach to assessing the current state of collaboration. Administration of a survey, either online or through paper distribution, offers the ability to involve large groups of team members at all levels of an organization in a relatively time-efficient manner. Of course, using an online third party survey tool, of which many are available, provides additional benefit in filtering and analyzing survey results.

The survey questions provided are meant to gain insights into many factors that can help identify root causes of barriers to collaboration. Following the sample survey questions below, you will find details on how to interpret the data you generate. Perhaps equally important to the raw survey scores will be the open-ended responses that are provided by the participants.

Sample Survey Communications and Questions

Dear Team Member:

As part of an effort to evaluate and positively impact collaboration between operations and maintenance within our organization, we are conducting an assessment of our current state of collaboration. We request that you be as accurate and detailed as possible when answering these questions. Your participation is highly encouraged (or, alternatively, required). The more who participate, the more meaningful the results will be. The information you provide us will remain CONFIDENTIAL and will only be shared in general terms as we move forward with our effort to assess and improve collaboration. The value of the assessment depends upon your being as candid as you can in answering the questionnaire.

A summary of our findings will be provided to the team in order to help set the stage for collaboration-building strategies and activities.

We appreciate your participation!

General Questions

NOTE: All statements should be coded as follows:

Strongly Disagree
Disagree
Neither Agree or Disagree
Agree
Strongly Agree

Please base your responses on your current work situation. There are no "right" answers, only your perceptions and opinions. Please indicate the response that best describes how you feel about each of the following statements:

- It is important for operations and maintenance to coordinate their work.
- Our operations and maintenance departments work well together.
- Operations and maintenance departments have no conflict.
- Operations and maintenance departments only collaborate when there is an emergency.
- There is good communication (both clear and concise) between operations and maintenance.
- Work order request categories have been defined and prioritized and are understood and accepted by both operations and maintenance departments.
- Operations and maintenance department heads should both report to the same person.
- Email, cell phones, text messaging, etc. have a positive impact on collaboration between operations and maintenance.
- I am given the latitude to prioritize my work efforts.
- Others set my work assignments.
- When there is a backlog of work, the operations department sets priorities.
- Work priorities are established jointly by operations and maintenance.
- Our automated work order/request system helps operations and maintenance work together. (Offer an N/A choice for this question)
- I consider my group successful in meeting our goals.
- Please describe your experience (if any) with ineffective strategies that you have attempted to implement to improve collaboration. _____
- Please indicate the degree to which you feel each of the following factors encourages collaboration between maintenance and operations in your organization: (All statements should be coded as follows)
  a. None of the time
  b. Some of the time
  c. I'm not certain
  d. Most of the time
  e. All of the time

Leadership
Communication
Similar work priorities
Shared values
Similar work styles
Similar backgrounds
Celebrations
Periodic meetings
Cross training
Shared work experiences
Similar personalities
Similar pay structures
Adequate resources
Similar ages
Same gender
Training in team building
Exercises (e.g., snow removal, aircraft emergencies, etc.)
Other (please list)

Work-Specific Questions

NOTE: The following statements should be coded as follows:

Strongly Disagree
Disagree
Neither Agree or Disagree
Agree
Strongly Agree

1. I understand the process for a work order system, from entering the first request through repair/replacement and close-out.
2. I use checklists for routine work such as inspections, terminal tours, etc.
3. I consider the physical work environment efficient for completing my work and collaborating with others.
4. I clearly understand the "Vision" of my organization.
5. This "Vision" helps my organization work together.
6. The culture of my department enables collaboration.
7. My organization is more reactive than proactive.
8. We use planners to schedule our daily work.
9. I am allowed a certain amount of flexibility in the way I complete my work.
10. My department is "customer" focused (note: customer can indicate either internal customers or external customers).
11. My department follows strict rules and regulations.
12. My department has a mentoring program.
13. I received formal training for my current position.
14. This training is paid for by my organization.
15. I receive recurrent training for my current position.
16. This training is paid for by my organization.
17. Budgetary constraints affect my ability to collaborate with my fellow employees to achieve common goals.
18. My operating budget is sufficient to enable me to do my job.

Work-Specific Tools/Systems

Please indicate to what extent you use the following in your daily work:

NOTE: All statements should be coded as follows:

Not at all
Some of the time
About half the time
Most of the time
All of the time

1. Email
2. Cell phone
3. Text messages
4. Pager
5. Radios
6. Automated work order system (CMMS) (please describe: _____)
7. Information system (such as SharePoint, Backpack, etc.)
8. Social media (such as Facebook, LinkedIn, etc.)
9. Friends in my department
10. Friends outside of my department

Demographics Questions

1. What department best classifies your work? Operations, maintenance, other (please specify)
2. Which best describes your position: senior management, manager, supervisor, and employee
3. Gender: female male
4. Age Range: 18–25, 26–35, 36–45, 46–55, 56–65, 65+
5. Ethnicity: White, Hispanic, African American, Native American, Other
6. Education: high school, some college, associate's degree, bachelor's degree, graduate degree
7. Number of years at current job: less than 1, 1–3, 4–5, 5–10, 10+

Please provide any additional comments you might have that could aid us in developing strategies and tactics to improve collaboration between Operations and Maintenance at our airport.

Thank you for your participation!

APPENDIX E

Toolbox Mapping Worksheet

The following tool was created to aid in identifying warning signs, possible causes and strategies for fostering collaboration. Fill out the table below as you read through the toolbox and identify present warning signs. Based on these warning signs, fill in the possible cause numbers in the possible causes column. Finally, as you read and select applicable possible causes, you can fill in the strategy reference numbers in the final column.

Toolbox Scenario

The following scenario has been created to demonstrate an example of the Collaboration Toolbox in use. For the sake of this demonstration, let's assume that Airport ABC administered an online survey and in the post-survey analysis identified delegation of tasks as a potential area of focus. The maintenance supervisor has noticed that some of the maintenance group are exhibiting "if you want it done right, do it yourself" attitudes, which has resulted in animosity between certain team members, process slowdowns, and excessive workloads for certain members.

Referring to the collaboration toolbox, the maintenance supervisor narrows this issue down to "employees not comfortable delegating tasks" and finds the following entry:

> **Employees are not comfortable delegating tasks. Certain employees exhibit a "if you want it done right do it yourself" attitude.** This unwillingness to delegate tasks results in process slowdowns and uncompleted tasks, and contributes to silos of skills and knowledge in the organization. *Possible Cause Numbers: 17, 18, 19, 20, 22, 26, 34, 35, 36, 38, and 39.*

The supervisor uses the Toolbox Mapping Worksheet in Appendix E to keep track of the Warning Signs, Possible Causes and Strategies as he goes and help narrow down which to focus on.

Identified Warning Signs	Possible Causes	Strategies for Fostering Collaboration
#11 : Not comfortable delegating tasks	17, 18, 19, 20, 22, 26, 34, 35, 36, 38, 39	6 and 17 – Building Trust and Building Respect

The supervisor then reads each of the possible causes that are referenced, and makes a determination as to the most applicable examples. For our example, the supervisor selects Possible Cause Numbers 19, 34 and 36. Each of the three possible causes directs the supervisor to specific strategies for fostering collaboration. In this case, the supervisor chooses to focus on Possible Cause 19:

> **Lack of trust among employees can destroy an organization.** This can occur when management maintains too tight a reign on the activities of employees, fails to respect the capabilities of the individual, or

has not provided adequate training or selection criteria to assemble a staff that can be trusted to complete tasks properly. *Strategy Numbers 6, 17, 10, and 19.*

The maintenance supervisor then reviews Strategy Number 6, Building Trust and Strategy Number 17, Building Respect, and chooses to do a survey of employees using the propensity to trust tool included in the building trust strategy. This tool helps gauge the current status of trust in the maintenance department. The results of this short survey reveal that team building activities would be beneficial for the maintenance employees. The supervisor chooses to leverage the lunar survival teambuilding exercise found in Strategy Number 17, Building Respect:

Tool: Survival Exercise: Lunar Survival Teambuilding Exercise

A teambuilding exercise from the Harvard Kennedy School Saguaro Seminar on Civic Engagement in America (*5*).

The team completes the exercise and then pursues additional follow-on efforts to build teamwork and cross-functional trust. Finally, after a pre-determined period of time, the team re-administers a survey to determine progress, and adjusts priorities accordingly to implement new improvement strategies.

Identified Warning Signs	Possible Causes	Strategies for Fostering Collaboration

Abbreviations and acronyms used without definitions in TRB publications:

A4A	Airlines for America
AAAE	American Association of Airport Executives
AASHO	American Association of State Highway Officials
AASHTO	American Association of State Highway and Transportation Officials
ACI–NA	Airports Council International–North America
ACRP	Airport Cooperative Research Program
ADA	Americans with Disabilities Act
APTA	American Public Transportation Association
ASCE	American Society of Civil Engineers
ASME	American Society of Mechanical Engineers
ASTM	American Society for Testing and Materials
ATA	American Trucking Associations
CTAA	Community Transportation Association of America
CTBSSP	Commercial Truck and Bus Safety Synthesis Program
DHS	Department of Homeland Security
DOE	Department of Energy
EPA	Environmental Protection Agency
FAA	Federal Aviation Administration
FHWA	Federal Highway Administration
FMCSA	Federal Motor Carrier Safety Administration
FRA	Federal Railroad Administration
FTA	Federal Transit Administration
HMCRP	Hazardous Materials Cooperative Research Program
IEEE	Institute of Electrical and Electronics Engineers
ISTEA	Intermodal Surface Transportation Efficiency Act of 1991
ITE	Institute of Transportation Engineers
MAP-21	Moving Ahead for Progress in the 21st Century Act (2012)
NASA	National Aeronautics and Space Administration
NASAO	National Association of State Aviation Officials
NCFRP	National Cooperative Freight Research Program
NCHRP	National Cooperative Highway Research Program
NHTSA	National Highway Traffic Safety Administration
NTSB	National Transportation Safety Board
PHMSA	Pipeline and Hazardous Materials Safety Administration
RITA	Research and Innovative Technology Administration
SAE	Society of Automotive Engineers
SAFETEA-LU	Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (2005)
TCRP	Transit Cooperative Research Program
TEA-21	Transportation Equity Act for the 21st Century (1998)
TRB	Transportation Research Board
TSA	Transportation Security Administration
U.S.DOT	United States Department of Transportation